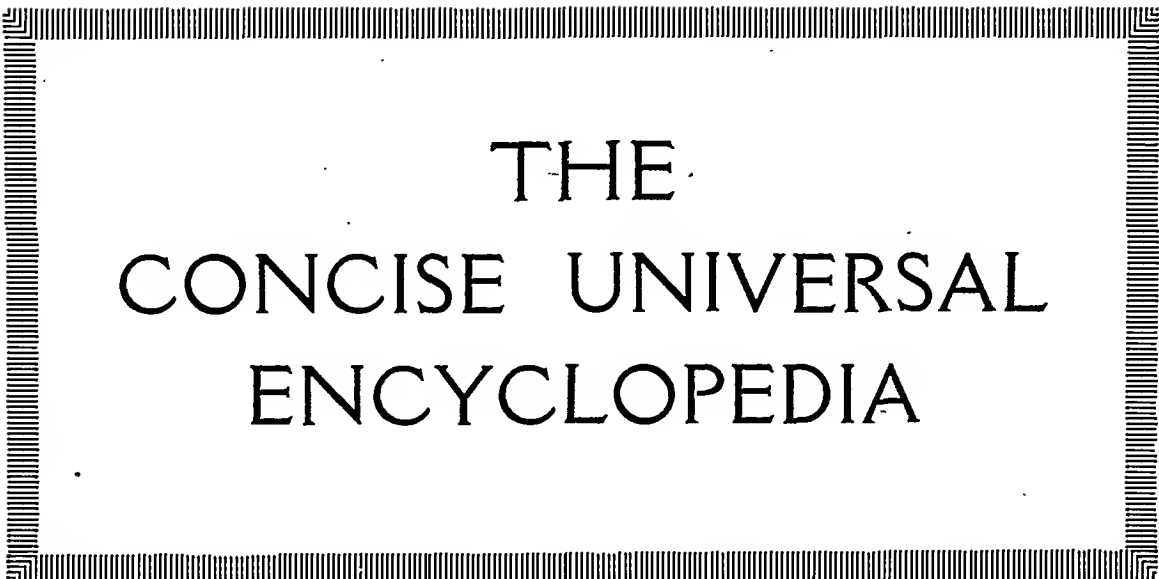


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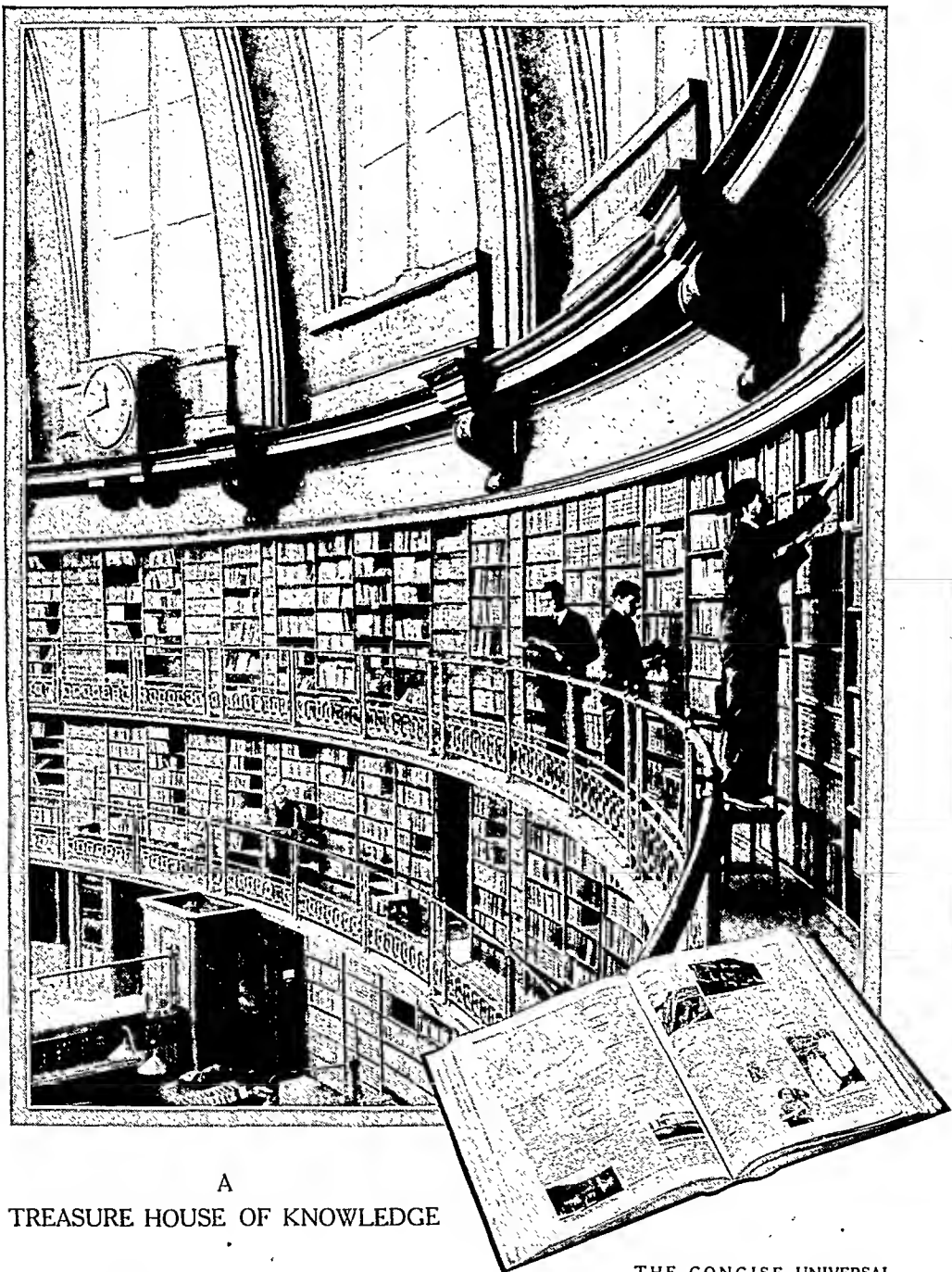
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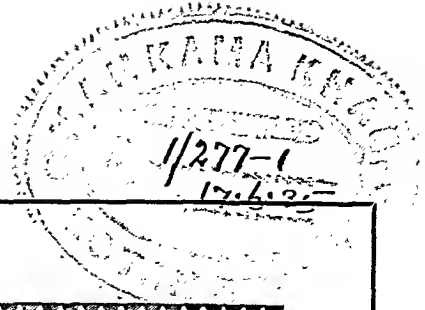
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ABBREVIATIONS USED IN THIS WORK

abbrev., abbreviation.	E., east, eastern.	ib., ibid, ibidem (in the same place).	M.P., Member of Parliament.	R.C., Roman Catholic.
A.D., Anno Domini.	eccles., ecclesiastical.	id., idem (the same, or as mentioned before).	MS., MSS., manuscript—s.	Rly—s., railway—s.
agr'c., agricultural.	ed., edited, edition.	i.e., id est (that is).	mt—s., mountain—s.	Rt. Hon., Right Honourable.
alt., altitude.	e.g., exempli gratia (for example).	i.h.p., indicated horsepower.	mun., municipal.	R.V., Revised Version.
a.m., ante meridiem (before noon).	E.M.F., electric motive force.	illus., illustration—s.	N., North. [officer.	S., South.
anc., ancient, anciently.	Eng., English.	ln—s., inch—es.	N.C.O., non-commissioned no., number.	S., Saint.
A.R.A., Associate of the Royal Academy.	episc., episcopal.	isl., island.	N.R., North Riding (Yorkshire).	sec—s., second—s.
A.S., Anglo-Saxon.	E.R., East Riding (Yorkshire).	Ital., Italian.	N.T., New Testament.	Skt., Sanskrit.
A.V., Authorised Version	etc., et cetera.	J.P., Justice of the Peace.	N.Y., New York.	Span., Spanish.
b., born.	et seq., et sequens (and the following).	jr., junior.	O. Fr., Old French.	sp. gr., specific gravity.
Bart., Bt., Baronet.	F., Fahrenheit.	kg., kilogram.	O.T., Old Testament.	sq., square.
B.C., Before Christ.	fig., figure.	km., kilometre.	oz., ounce, ounces.	S.R., Southern Rly.
bor., borough. [dies.	Fr., French.	lat., latitude.	P., page.	SS., Saints.
B.W.I., British West India.	F.R.S., Fellow of the Royal Society.	Lat., Latin.	parl., parliamentary.	S.S., screw steamer.
C., Centigrade.	ft., feet.	lb., pound.	p.c., per cent.	stn., station.
c., circa (about).	gall., gallery, gallon.	Lieut., Lieutenant.	p.m., post meridiem (afternoon).	temp., temperature.
Capt., Captain.	Gen., General.	lit., literally.	pop., population.	terr., territory.
cf., compare.	govt., government.	L.M.S., London, Midland & Scottish Rly.	Port., Portuguese.	trans., translation, translated.
ch., chapter.	gr., grain.	L.N.E., London & North Eastern Rly.	pr., pounder.	U.S.A., United States of America.
co., county, company.	Gr., Greek.	long., longitude.	Prof., Professor.	v., verse, versus (against), voltage.
C.N.R., Canadian National Rlys.	gs., guineas.	Ltd., Limited.	pron., pronunciation.	viz., videlicet (namely).
C.O., Commanding Officer	Gt., Great.	m., miles.	publ., published.	vol., volume.
col., college.	G.W.R., Great Western Rly.	Met. R., Metropolitan Rly.	q.v., quod vide (which see).	W., West.
C.P.R., Canadian Pacific Rly.	Heb., Hebrew.	min—s., minute—s.	R., river.	W.R., West Riding (Yorkshire).
cwt., hundredweight.	Hon., Honourable.	mod., modern.	R.A., Royal Academy.	yds., yards.
d., died.	h.p., horse power.			
dept., department.	hrs., hours.			
dist., district.				
div., division.				
dols., dollars.				
Dr., Doctor.				

THE CONCISE UNIVERSAL ENCYCLOPEDIA

A. First letter and vowel of the English and many other alphabets. Its commonest sounds in English are those heard in bar, map, bald, name. Under the influence of certain consonants and in certain positions it has the value of short e, i, o, u, as in many, village, was, about. It occurs doubled and combined with other vowels, as aa, ae, ai, ao, au, av, aw.

In music A is the sixth note of the natural scale of C, and also the tuning note of the modern orchestra, this being the pitch of one of the strings of each bowed instrument.

The letter A occurs in certain common abbreviations. See Abbreviations: Alphabet.

AL Symbol for first class. Used originally by Lloyd's Register of Shipping to denote the best type of wooden vessels, it is now applied to anything first-rate.

AAHHOTEP. Name of two Egyptian queens. The coffin of Aahhotep I, mother of Aahmes I (c. 1580 B.C.), found by A. Mariette at Thebes in Egypt, 1859, and now at Cairo, contained her mummy, with a collection of fine jewelry. This included gold and silver boats with crews, a ceremonial bronze axe, gold chain and scarab, bracelets, etc.

AAHMES. Name of two Egyptian kings, called by the Greeks Amasis. Aahmes I (c. 1580 B.C.) expelled the Hyksos from Memphis, and founded the XVIIIth dynasty. Aahmes II (d. 526 B.C.) revolted against Apries, the Pharaoh-hophra of Jer. 44, and seized the throne. His land being invaded by Nebuchadrezzar (or Nebuchadnezzar) II, he contracted alliances with Croesus, king of Lydia, and Polycrates tyrant of Samos. He opened Naucratis to Greek traders.



Aaron's Rod
or Mallein

AALAND OR **ALAND** ISLANDS. Group of some 300 isles and rocks at the entrance to the Gulf of Bothnia now part of the republic of Finland. Only about 80 are inhabited; the largest, Aaland, is 18 m. long, and the area of the group is 551 sq m. Mariehamn is the chief town. The people, mainly of Swedish origin, are skilful sailors and fishermen. Hardy cereals and cattle are raised and meat, fish, hides, cheese, and butter are exported.

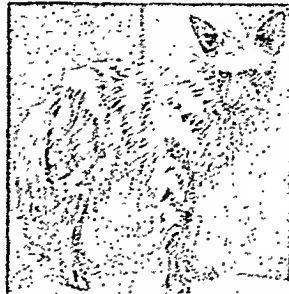
In 1809, Sweden, to whom the islands had long belonged, ceded them to Russia. Fortifications were forbidden by the Aaland Convention of 1856, but disputes arose from time to time over Russia's alleged contravention of this prohibition. In 1918 a referendum resulted in favour of union with Sweden, but in 1921 the League of Nations decided that the islands should belong to Finland. Pop. 27,000.

AALBORG. Seaport and city of Jutland, Denmark on Lym Fjord. It is 156 m. by sea from Copenhagen. A commercial centre, it exports grain and fish. The name means eel castle. Pop. 42,819.

AAR, AARE, OR AROLE. River of Switzerland. About 180 m. in length, it rises in the canton of Berne, near the Grimsel pass, flows through lakes Brienz and Thun, and, passing Interlaken, Thun, Berne, Soleure, and Brugg, joins the Rhine near Waldshut. On the right bank of the river, at the southern foot of the Jura, stands Aarau, capital of the canton of Aargau. Pop. 11,500.

AARDVARK (Dutch aard, earth; vark, pig). Ant bear of Africa, found from Somaliland to the Cape. A nocturnal, hurrowing animal of ungainly appearance, it has a long, pig-like snout, enormous ears, and thick tail. It feeds on ants and termites, and, owing to its shy habits, is seldom seen.

AARDWOLF (*Proteles cristatus*). Animal resembling the hyena, found in South Africa and along the E. coast of Africa. Yellowish-grey in colour, it has black stripes and a long, bushy tail. The hair on neck and back is erectile. Its teeth are small and rudimentary, and it feeds mainly on earthen and termites.



Aardwolf in captivity. Hyena-like native of South and East Africa.

AARHUS OR **AARHUS.** Seaport and second largest city of Denmark. On the E. coast of Jutland, 110 m. by sea from Copenhagen, it has been a bishop's see since 951, has a Gothic cathedral, a museum, and a library. Grain, hides, tallow, bacon, butter, eggs, and cattle are exported. Pop. 76,226.

AARON. Elder brother of Moses and high priest of Israel. By divine command he acted as spokesman for Moses before the elders of Israel and Pharaoh (Ex. 4 and 7). Eloquent, but of weak character, he yielded to the people when Moses was on Sinai by fashioning the golden calf for worship (Ex. 32) and with his sister Miriam rebelled against his brother (Num. 12). Made high priest (Ex. 29 and Lev. 8), his title was vindicated by the miraculous budding of his rod (Num. 17). He and his brother, for disobedience at Kadesh, were denied entry to the Promised Land. Aaron died on Mount Hor in Edom, being succeeded in the priesthood by his third son, Eleazar (Num. 20).

In botany the popular name Aaron's Beard is applied both to *Hypericum calycinum* and *Saxifraga sarmentosa*, while Aaron's Rod is that given to the common mullein, *Verascum thapsus*.

ABACUS (Lat. abacus, Gr. abax, slab, board). Mechanical contrivance for facilitating arithmetical calculations. It consists of an oblong wooden frame with several wires stretched across it lengthwise and ten beads strung upon each wire.

In architecture the term abacus is used for the uppermost member of the capital of a column. In an isolated column it might be round or square, or polygonal, but in columns



Aardvark or African ant bear. It is about six feet long and lives in a deep burrow. See above.

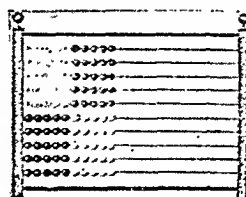
carrying an entablature it was generally rectangular. Medieval builders modified the abacus. See Architecture.

ABADAN. Island on the E. side of the Shatt-el-Arah, near its entrance to the Persian Gulf. On it the Anglo-Persian Oil Co. has large refineries, machine shops, storage tanks and other facilities for dealing with its oil, and these, together with the houses for the workers, make a town of some size. The first refinery was built in 1909. During the Great War the British Government took over the island and built wharves and other facilities for shipping. It was returned to the Anglo-Persian Co. in 1919 and since then has grown considerably.

ABANDONMENT (Fr. *à bandon*, at liberty). In law, the surrender of one's rights or privileges. The surrender must be voluntary and with full knowledge of all the circumstances. Coercion or fraud vitiates the abandonment.

ABATTIS (Fr. *abattre*, to beat down). Military obstacle formed by cutting down trunks of trees, lopping off the small branches, and sharpening the stout ends. These are then placed across a path or approach likely to be taken by the enemy, the butts being anchored to the ground, with the spear-like tips facing him. Fixed in a shallow excavation, the obstacle cannot be seen at a distance and can only by chance be destroyed by artillery.

ABATTOIR (Fr.). Public building in which cattle are slaughtered. A large public abattoir suitable for the needs of a great city will usually consist of the following departments: (1) lairage; (2) slaughtering rooms or halls, sub-divided into a hall for cattle, a portion of the same hall for sheep and calves, a hall for pigs, and a hanging-house or cooling chamber; (3) cold chambers for maturing and storing meat; (4) offal room and tripe house; (5) meat inspector's room; (6) room for condemned meat; (7) destructor room for disposing of condemned meat; (8) engine and boiler house; (9) manure depot. In 1929-30 a new abattoir, at that time probably



Abacus. Form of this contrivance once used in schools.

the largest in the world, was erected at the port of Liverpool. See Food.

ABBA. Aramaic word meaning father, used three times in the N.T. (Mark 14; Rom. 8; Gal. 4) in reference to God. As far as is known, the word was restricted to the Deity. It lingers as a title for bishops in the Coptic Church.

ABBAS (c. 1557-1628). Shah of Persia, known as the Great. The son of Shah Mahommed, he succeeded his father in 1586. He was an enlightened administrator, though cruel and capricious. His court is described by Sir Anthony Sherley in his *Travels into Persia*, 1613.

ABBAS. Name of two rulers of Egypt. Abbas I (1813-54) succeeded his uncle Ibrahim Pasha as regent in 1848, and in 1849, after the death of Mehemet Ali, became viceroy.

Abbas II (b. 1874) was Khedive of Egypt, 1892-1914. The eldest son of Tewfik Pasha.

whom he succeeded in 1892, he received a Western education. He gradually became reconciled to foreign control, and took an interest in the social and economic improvement of Egypt, being a keen agriculturist. In Dec., 1914, Egypt was declared a British protectorate, and Abbas, having been detected in intrigues with the enemies of Great Britain, was deposed, being succeeded by Hussein Kamil. See Abbas II, Earl of Cromer, 1915.

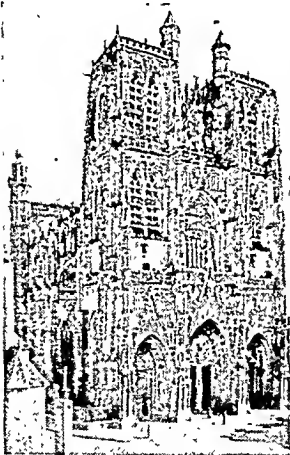


Abbas II, Khedive of Egypt, 1892-1914

ABBASIDES. Arah dynasty, descendants of Mahomet's uncle Abbas. They were the second line of the Bagdad caliphs, the first being their rivals, the Ommiads, who were defeated and massacred by the Abbasides in 750. From that time until 1258 the Abbasides, of whom Haroun-al-Raschid was one, ruled at Bagdad. In 1258 Bagdad was lost, but the Abbasides ruled in Egypt until 1517. See Caliphate.

ABBATE, NICCOLO DELL' (1512-71). Italian painter. Born at Modena, his principal work was the series of frescoes at Fontainebleau, after the designs of Francesco Primaticcio. He died in Paris, and many of his drawings are in the Louvre.

ABBEVILLE. Town of N. France, on the river Somme. It is 28 m. by rly N.W. of Amiens, and is connected with the English Channel by a canal. Its chief industries are the manufacture of cloth, carpets, hemp goods, and sugar, and it has ship-building yards and trades in grain. It was the scene in 1514 of the marriage of Louis XII to Mary, sister of Henry VIII, and in 1527 of the signing of a treaty between England and France. The cathedral of S. Vulfran, dating partly from the 15th century, has a fine façade. Pop. 21,472.



Abbeville. Cathedral of S. Vulfran, partly of the 15th century

ABBEY (late Lat. abbatia). Self-governed monastery of not fewer than 12 monks or nuns, ruled by an abbot or abbess respectively. An abbot must be 25 years of age, and a priest. He is elected by the votes of the professed members of the community, for life. An abbess is elected in the same manner but cannot exercise any priestly function.

In the West abbeys date from S. Benedict (6th century), under whose rule they are generally formed. Of no particular style in architecture in the beginning, a common form came later into use—a quadrangle, with open cloisters on each side, various buildings adjoining the cloisters, and a large church. The adjoining buildings were the oratory, the dormitory, the refectory, kitchen, workshops, infirmary, novice house, chapter house, and cellars for stores. In some, a school for boys was held in the cloisters or, as at Durham, in a separate building.

As hospitality was an essential feature of the rule of S. Benedict, every abbey had one or more guest houses. While the abbot was the absolute authority, in a large community of 100 or more monks his authority had to be delegated in many matters of daily routine, and the following were the chief officials at the important abbeys: the precentor, who was choirmaster, librarian, and in some cases master of the boys' school; the sacrist, to whom was committed the care of the church fabric, plate and vestments; the cellarer, responsible for the supply of food, drink, and fuel; the kitchen, who saw to the serving and distribution of food; the infirmarian, who tended the sick; the almoner, who distributed alms and food to the poor; the chamberlain, who saw to the clothing of the brethren: the novice master; and the guest master.

The abbey was a centre of industry, a place of learning and a self-supporting, self-contained community; and the abbots of all the larger abbeys were large landlords, with seats in Parliament. See Benedictines; Cistercians; etc.

ABBEY, EDWIN AUSTIN (1852-1911). American painter. Born in Philadelphia, April 8, 1852, he first attracted notice by his black-and-white magazine drawings. Settling in London in 1881, he was a regular exhibitor from 1890 at the R.A., being elected A.R.A. in 1896 and R.A. in 1898. His chief oil paintings are Richard Duke of Gloucester and the Lady Anne, 1896, and the official picture of the coronation of Edward VII, 1904. His great decorative works, executed for America, include The Holy Grail series for the Boston municipal library. Abbey died Aug. 1, 1911.



Edwin A. Abbey, American painter
Elliott & Fry

ABBEY THEATRE. Dublin theatre built in 1904 by Miss A. E. F. Horniman for the Irish National Theatre Society. The plays of J. M. Synge were its chief mainstay, notably his Riders to the Sea, In the Shadow of the Glen, and, above all, The Playboy of the Western World. Other playwrights represented in the theatre are W. B. Yeats, Lady Gregory, Edward Martyn, "A.E." (George Russell), George Moore, Padraic Colum, Norreys Connell, St. John Ervine, Douglas Hyde, and G. B. Shaw. After the War it was managed by Lennox Robinson and plays by Eugene O'Neill and others were produced here.

ABBOT, GEORGE (1562-1633). Archbishop of Canterbury. Born at Guildford in Oct., 1562, the son of a cloth worker, he was educated at Guildford Grammar School and at Oxford, where he was thrice vice-chancellor. In 1609 he was appointed bishop of Coventry and Lichfield, in 1610 bishop of London, and in 1611 archbishop of Canterbury. In 1621, while hunting, he accidentally killed a keeper. The subsequent inquiry fell to the ground, but left Abbot under a cloud. He died at Croydon in Aug., 1633.



George Abbot, English Primate

A brother, Robert Abbot (1560-1617) became successively chaplain to James I, regius professor of divinity at Oxford, and bishop of Salisbury.

ABBOT OF UNREASON OR LORD OF MISRULE. Name given to the master of the revels in medieval times. He was chosen by election at times of festivity, particularly Christmas. At Oxford, Cambridge, the Inner Temple, and Gray's Inn he had charge of the Christmas revels, arranged the Latin plays, and acted as master of the ceremonies.

ABBOTSFORD. Residence of Sir Walter Scott. Built 1811-24, it is on the right bank of the Tweed, 3 m. W. of Melrose Abbey. A part of the building has been converted into a museum which contains relics of the novelist. Scott lived here until his death.



Abbotsford. Sir Walter Scott's picturesque home near Melrose

The Abbotsford Club was founded in 1834 to issue historical works connected with Scott's writings.

ABBOTT, SIR JOHN JOSEPH CALDWELL (1821-93). Prime Minister of Canada. The son of a clergyman; he became a successful lawyer, and before the Federation of 1867 was a member of the Canadian Parliament and solicitor-general. After 1867, Abbott became a follower of Sir John A. Macdonald, whose cabinet he joined in 1887. In 1891 he succeeded Macdonald as prime minister, but resigned Dec., 1892, and died Oct. 30, 1893.

ABBREVIATIONS, List of. Here we give the chief abbreviations in use among those who speak the English language.

A.A. Associate in Arts; Automobile Assoc.; Architectural Assoc.; A.A.A. Amateur Athletic Assoc.; A.A.G. Assist. Adjutant General; A.B. Bachelor of Arts; Able-bodied seaman; A.C.A. Assoc. Institute of Chartered Accountants; A.D. Anno Domini; ante diem; A.D.C. Aide-de-camp; A.F.C. Air Force Cross; A.F.M. Air Force Medal; A.I.A. Assoc. Inst. of Actuaries; A.L.O.E. A Lady of England; A.M.I.A.E. Assoc. Member Inst. of Automobile Engineers; A.M.I.C.E. Assoc. Member Inst. of Civil Engineers; A.M.I.E.E. Assoc. Member Inst. of Electrical Engineers; A.M.I.M.E. Assoc. Member Inst. of Mining Engineers; A.M.I.Mech.E. Assoc. Member Inst. of Mechanical Engineers; A.O.C. Army Ordnance Corps; A.R.A. Assoc. Royal Academy; A.R.A.M. Assoc. Royal Academy of Music; A.R.C. Automobile Racing Club; A.R.C.M. Assoc. R. College of Music; A.R.C.O. Assoc. R. Coll. of Organists; A.R.I.B.A. Assoc. of the R. Inst. of British Architects; A.R.R.C. Assoc. R. Red Cross; A.R.S.A. Assoc. R. Scottish Academy; A.S.C. Army Service Corps; A.S.E. Amalgamated Society of Engineers; A.V. Authorised version; A.V.C. Army Veterinary Corps.

B. in this list, unless otherwise stated, stands for bachelor. B.A. B. of Arts; British Academy; B. Agr. B. of Agriculture; B.B.C. British Broadcasting Corporation; B.C. Before Christ; B.Ch. B. of Surgery; B.C.L. B. of Civil Law; B. Comm. B. of Commerce; B.D. B. of Divinity; B.D.S. B. of Dental Surgery; B.E. B. of Engineering; B.L. B. of Laws; B.Litt. B. of Letters; B.M. B. of Medicine; B.M.A. British Medical Assoc.; B.Mus. B. of Music; B.Sc. B. of Science; B.V.M. Blessed Virgin Mary; B.W.T.A. British Women's Temperance Assoc.

C.A. Chartered Accountant; C.B. Companion, Order of the Bath; Confined to Barracks; C.B.E. Companion, Order of the British Empire; C.C. County Councillor; Member of the Court of Common Council; C.E. Civil Engineer; C.F. Chaplain to the Forces; C.H. Companion of Honour; Ch.B. B. of Surgery; C.I.D. Criminal Investigation Depart.; C.I.E. Companion, Order of the Indian Empire; C.I.F. Cost, insurance, freight; C.M. Master of Surgery; C.M.G. Companion, Order of St. Michael and St. George; C.M.S. Church

Missionary Soc.; *C.O.* Commanding officer; *C.O.D.* Cash on delivery; *C.O.S.* Charity Organization Soc.; *C.S.I.* Companion, Order, Star of India; *C.T.C.* Cyclists' Touring Club; *C.V.O.* Commander, R. Victorian Order.

D. in this list, unless otherwise stated, stands for doctor. *D.A.A.G.* Deputy Assist. Adjutant General; *D.A.Q.M.G.* Deputy Assist. Quartermaster General; *D.B.E.* Dame Commander, Order of the British Empire; *D.C.L.* D. of Civil Law; *D.C.M.* Distinguished Conduct Medal; *D.D.* D. of Divinity; *D.F.* Defender of the Faith; Dean of the Faculty; *D.F.C.* Distinguished Flying Cross; *D.F.M.* Distinguished Flying Medal; *D.G.* Dei Gratia; *D.H.* De Havilland (aeroplane); *D.L.* Deputy Lieutenant; *D.Litt.* D. of Literature; D. of Letters; *D.O.R.A.* Defence of the Realm Act; *D.P.H.* Diploma in Public Health; *D.Q.M.G.* Deputy Quartermaster General; *D.S.C.* Distinguished Service Cross; *D.Sc.* D. of Science; *D.S.M.* Distinguished Service Medal; *D.S.O.* Distinguished Service Order; *D.Theol.* D. of Theology; *D.V.* Deo Volente (God Willing); *D.Z.* D. of Zoology.

E. & O.E. Errors and omissions excepted; *E.M.F.* Electromotive force; *E.T.C.* Eastern Telegraph Co.

F. in this list, unless otherwise stated, stands for fellow. *F.A.* Football Assoc.; *F.A.I.* F. of Auctioneers' Inst.; *F.B.A.* F. of British Academy; *F.C.A.* F. of Inst. of Chartered Accountants; *F.E.* Farman Experimental; *F.E.S.* F. of Entomological Soc.; *F.F.A.* F. of Faculty of Actuaries; *F.L.S.* F. of Linnaean Soc.; *F.M.* Field Marshal; *F.P.* Fire plug; *F.R.A.M.* F. of R. Academy of Music; *F.R.C.O.* F. of R. Coll. of Organists; *F.R.C.P.* F. of R. Coll. of Physicians; *F.R.C.P.E.* F. of R. Coll. of Physicians, Edinburgh; *F.R.C.P.I.* F. of R. Coll. of Physicians, Ireland; *F.R.C.S.* F. of R. Coll. of Surgeons; *F.R.C.S.E.* F. of R. Coll. of Surgeons, Edinburgh; *F.R.G.S.* F. of R. Geographical Soc.; *F.R.H.S.* F. of R. Historical Soc.; R. Horticultural Soc.; *F.R.I.B.A.* F. of R. Inst. of British Architects; *F.R.S.* F. of Royal Soc.; *F.R.S.A.* F. of R. Soc. of Arts; *F.S.A.* F. of Soc. of Antiquaries; *F.R.S.S.* F. of R. Statistical Soc.; *F.Z.S.* F. of Zoological Soc.

G.B.E. Grand Cross, Order of British Empire; *G.C.B.* Grand Cross, Order of the Bath; *G.C.I.E.* Grand Commander, Order of the Indian Empire; *G.C.M.G.* Grand Cross, St. Michael and St. George; *G.O.S.I.* Grand Commander, Star of India; *G.C.V.O.* Grand Cross, R. Victorian Order; *G.H.Q.* General Headquarters; *G.O.C.* General Officer Commanding; *G.P.* General Practitioner; *G.P.I.* General Paralysis of the Insane; *G.P.O.* General Post Office; *G.R.* Georgius Rex; *G.W.R.* Great Western Rly.

H.A.C. Honourable Artillery Co.; *H.H.* His (or Her) Highness; His Holiness (the Pope); *H.M.* His (or Her) Majesty; *H.M.I.* His (or Her) Majesty's Inspector; *H.M.S.* His (or Her) Majesty's ship or service; *H.P.* Horse power; *H.R.H.* His (or Her) Royal Highness; *H.S.H.* His Serene Highness.

I.C.S. Indian Civil Service; *I.D.* Intelligence Dept.; *I.D.B.* Illicit Diamond Buying; *I.H.S.* Greek monogram for Jesus; *I.L.P.* Independent Labour Party; *I.M.S.* Indian Medical Service; *I.O.G.T.* Independent Order of Good Templars; *I.O.O.F.* Independent Order of Oddfellows; *I.O.U.* I owe you; *I.S.O.* Imperial Service Order (Companion); *I.W.W.* Industrial Workers of the World.

J.P. Justice of the Peace.

K.B. Knight Bachelor; King's Bench; *K.B.E.* Knight Commander, Order of the British Empire; *K.C.* King's Counsel; *K.C.B.* Knight Commander, Order of the Bath; *K.C.I.E.* Knight Commander, Order of the Indian Empire; *K.C.M.G.* Knight Commander, Order of St. Michael and St.

George; *K.C.S.I.* Knight Commander, Order of the Star of India; *K.C.V.O.* Knight Commander, R. Victorian Order; *K.G.* Knight of the Garter; *K.O.S.B.* King's Own Scottish Borderers; *K.O.Y.L.I.* King's Own Yorkshire Light Infantry; *K.P.* Knight of St. Patrick; *K.R.R.* King's Royal Rifles; *K.S.I.* Knight of the Star of India; *K.T.* Knight of the Thistle.

L.C.C. London County Council; *L.C.J.* Lord Chief Justice; *L.D.S.* Licentiate in Dental Surgery; *L.G.B.* Local Government Board; *Litt.D.* D. of Letters; *L.L.A.* Lady Literate in Arts (St. Andrews); *LL.B.* B. of Laws; *LL.D.* D. of Laws; *LL.M.* Master of Laws; *L.M.S.* London, Midland & Scottish Rly.; *L.N.E.* London & North Eastern Rly.; *L.N.U.* League of Nations Union; *L.R.A.M.* Licentiate, R. Academy of Music; *L.R.C.P.* Licentiate, R. Coll. of Physicians; *L.S.A.* Licentiate, Soc. of Apothecaries; *L.T.A.* Lawn Tennis Assoc.; London Teachers' Assoc.

M.A. Master of Arts; *M.B.* B. of Medicine; *M.B.E.* Member, Order of the British Empire; *M.C.* Master of Ceremonies; Military Cross; *M.C.C.* Marylebone Cricket Club; *M.Ch.* Master of Surgery; *M.D.* D. of Medicine; *M.D.S.* Master of Dental Surgery; *M.G.I.* Member, Inst. of Certificated Grocers; *M.I.C.E.* Member, Inst. of Civil Engineers; *M.I.E.E.* Member, Inst. of Electrical Engineers; *M.I.Mech.E.* Member, Inst. of Mechanical Engineers; *M.I.M.E.* Member, Inst. of Mining Engineers; *M.L.A.* Member Legislative Assembly; *M.M.* Military Medal; *M.O.* Money Order; *M.O.H.* Medical Officer of Health; *M.P.* Member of Parliament; Military Police; *M.P.S.* Member Pharmaceutical Soc.; *M.R.* Master of the Rolls; *M.R.C.P.* Member, R. Coll. of Physicians; *M.R.C.S.* Member, R. Coll. of Surgeons; *M.R.C.V.S.* Member, R. Coll. of Veterinary Surgeons; *M.S.* Manuscript, manuscripts; *Mus.B.* B. of Music; *Mus. D.* D. of Music; *Mus.M.* Master of Music; *M.V.O.* Member, R. Victorian Order.

N.B. Nota Bene; North Britain; New Brunswick; *N.C.O.* Non-commissioned officer; *N.R.A.* National Rifle Assoc.; *N.S.* New Style; Nova Scotia; *N.S.P.C.C.* National Soc. Prevention of Cruelty to Children; *N.T.* New Testament; *N.U.R.* National Union of Railwaymen; *N.U.T.* National Union of Teachers; *N.Z.* New Zealand.

O.B.E. Order of British Empire; *O.S.* Old Style; *O.M.* Order of Merit; *O.S.B.* Order of St. Benedict; *O.T.* Old Testament; *O.T.C.* Officers' Training Corps.

P. & O. Peninsular & Oriental Steam Navigation Co.; *P.C.* Privy Council; Privy Councillor; police constable; postcard; *Ph.D.* D. of Philosophy; *P.M.G.* Postmaster General; Paymaster General; *P.O.* Post Office; postal order; *P.P.C.* Pour prendre congé; *P.R.A.* President, R. Academy; *P.R.I.B.A.* President, R. Inst. of British Architects; *P.S.* Postscript; *P.S.A.* Pleasant Sunday Afternoon; *P.T.O.* Please turn over; *P.W.D.* Public Works Dept.

Q.A.I.M.N.S. Queen Alexandra's Imperial Military Nursing Service; *Q.B.* Queen's Bench; *Q.C.* Queen's Counsel; *Q.E.D.* Quod erat demonstrandum; *Q.E.F.* Quod erat faciendum; *Q.M.* Quartermaster; *Q.M.G.* Quartermaster General; *Q.M.S.* Quartermaster sergeant; *Q.V.* Quod vide (which see).

R. in this list, unless otherwise stated, stands for royal. *R.A.* R. Academician or Academy; *R.* Artillery; *R.A.C.* R. Automobile Club; *R.A.F.* R. Air Force; *R.A.M.* R. Academy of Music; *R.A.M.C.* R. Army Medical Corps; *R.A.S.C.* R. Army Service Corps; *R.C.A.* R. Coll. of Art; *R.C.M.* R. Coll. of Music; *R.C.O.* R. Coll. of Organists; *R.E.* R. Engineers; *R.F.A.* R. Field Artillery; *R.F.U.* Rugby Football Union; *R.G.A.* R. Garrison Artillery; *R.H.A.* R. Horse Artillery;

R.I. R. Inst. of Painters in Water Colours; *R.I.B.A.* R. Inst. of British Architects; *R.I.C.* R. Irish Constabulary; *R.I.P.* Rest in peace; *R.M.* Resident Magistrate; R. Marines; *R.M.A.* R. Marine Artillery; R. Military Academy; *R.M.C.* R. Military Coll., Sandhurst; *R.M.L.I.* R. Marine Light Infantry; *R.N.* R. Navy; *R.N.A.S.* R. Naval Air Service; *R.N.R.* R. Naval Reserve; *R.N.V.R.* R. Naval Volunteer Reserve; *R.R.C.* R. Red Cross; *R.S.A.* R. Scottish Academy; *R.S.O.* Railway Sorting Office; *R.S.P.C.A.* R. Soc. Prevention of Cruelty to Animals; *R.S.V.P.* Respondes s'il vous plait (Reply, if you please); *R.T.S.* Religious Tract Soc.; Royal Tophophite Soc.; *R.Y.S.* Royal Yacht Squadron.

S.A. Salvation Army; South Africa; *S.D.F.* Social Democratic Federation; *S.J.* Soc. of Jesus; *S.O.S.* Save Our Souls; *S.P.C.K.* Soc. for Promoting Christian Knowledge; *S.P.G.* Soc. for the Propagation of the Gospel; *S.P.Q.R.* Senatus populusque Romanus; *S.R.* Southern Rly.

T.R.D. Torpedo Boat Destroyer; *T.C.* Town Councillor; *T.C.D.* Trinity College, Dublin; *T.D.* Territorial Decoration; *T.F.* Territorial Force; *T.N.T.* Trinitrotolucine; *T.U.C.* Trade Union Congress.

U.D.C. Urban District Council; *U.K.* United Kingdom; *U.P.* United Presbyterian; *U.S.A.* United States of America.

V.A. Victoria and Albert; *V.A.D.* Voluntary Aid Detachment; *V.C.* Victoria Cross; *V.D.* Volunteer Officers Decoration; *Viz.* Videlicet (namely); *V.S.C.* Volunteer Staff Corps; *V.T.C.* Volunteer Training Corps.

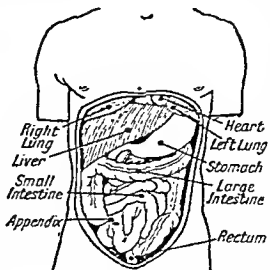
W.A.A.C. Women's Army Auxiliary Corps; *W.L.F.* Women's Liberal Federation; *W.R.A.F.* Women's R. Air Force; *W.S.* Writer to the Signet.

Y.M.C.A. Young Men's Christian Assoc.; *Y.W.C.A.* Young Women's Christian Assoc.

ABDEL-KRIM. Moroccan chief. The son of a tribal leader, he received some education and obtained employment at Melilla. In 1919, after a quarrel with some Spaniards there, he fled to his mountain home and headed a revolt. In 1921 the Spanish post at Anual was seized, and further successes followed, each bringing fresh adherents to the native cause. Raisuli, who had gone over to the side of the Spaniards, was captured, and in the interests of his allies Abdel entered French territory. The union of French and Spanish power that followed was too much for him, but he offered a stout resistance until forced to surrender in May, 1926.

ABDIEL. Name given by Milton to the seraph who, in *Paradise Lost* (v. 805-907), withstood Satan and other rebel spirits. "Among the faithless, faithful only he."

ABDOMEN. Cavity of the body lying between the large horizontal muscle called the diaphragm and the bones and muscles forming the pelvis. It is enclosed by a muscular body wall, lined with a smooth membrane known as the peritoneum. The principal organs contained in the abdomen are the stomach and intestines, liver, spleen, pancreas, kidneys and bladder, and in the female the organs of reproduction. Anatomists divide the surface of the abdomen into nine regions by means of two horizontal and two vertical lines, the three



Abdomen. Diagram showing the organs in this part of the body

central regions being termed, from above downwards, the epigastrie, umbilical and hypogastrie, and those at the sides the right or left hypochondriac, lumbar, and iliac.

In the lower phyla, or orders, of the animal kingdom there is no persistent distinction between the abdomen and the thorax or chest. It may be regarded as beginning with the arthropoda. See Anatomy.

ABDUCTION. (Lat. ab, from; ducere, to lead.) Crime relating to offences against women and children. There can be no abduction of a male person over the age of 14. Whosoever unlawfully, either by force or fraud, takes away, entices or detains any child under the age of 14 with intent to deprive any person who has the lawful custody of such child, or with the intent to steal any article upon or about the child, is guilty of felony, and may be kept in penal servitude for any period not exceeding seven years.

ABDUL HAMID. Name of two sultans of Turkey. Abdul Hamid I (1725-89) was involved in war with Russia and in 1774 signed a treaty by which Turkish suzerainty over the Crimea and elsewhere was lost.

Abdul Hamid II (1842-1918) was the second son of the Sultan Abdul Mejid, and became sultan on Aug. 31, 1876, on the deposition of his brother Murad V. A clever diplomatist, he skillfully played off the Powers of Europe against each other, but his empire was always in disorder, and the Armenian massacres in 1896 won for him the title of The Great Assassin and Abdul the Damned. In April, 1909, the Young Turks under Enver Bey rose in revolt, the National Assembly voted his deposition and he became a stato captive. He died in Constantinople, Feb. 11, 1918.



Abdul Hamid II,
Sultan of Turkey

ABD-UR-RAHMAN (1830-1901). Ameer of Afghanistan. Grandson of the great ameer, Dost Mohammed, he was driven out of Afghanistan when he first claimed the succession. In 1880, at the close of the second Afghan War, he was the candidate acknowledged by the British. Establishing his own authority, he proved himself a strong and shrewd ruler, and his wisdom at the time of the Penjdeh incident in 1885 averted what seemed to be inevitable war between Russia and Great Britain. On his death, Oct. 3, 1901, he was succeeded by his son Habibullah. See Afghanistan.

ABECEDARIANS (Lat. abecedarius, pertaining to the alphabet). Familiar name of an Anabaptist sect founded in Germany by Nicolaus Storch in the 16th century. They held that all human knowledge prevented men from inwardly hearing God's voice, and refused to learn even the alphabet, or A B C—hence the nickname.

Abecedarian is the term given to hymns in imitation of Hebrew acrostic poetry.

A BECKETT, GILBERT ABBOTT (1811-56) English humorous writer and dramatist. He was a contributor to Punch from its commencement until his death, at Boulogne, Aug. 30, 1856. He wrote The Comic History of England. See The A Becketts of Punch, A. W. A Beckett, 1903.

ABEDNEGO. Name given in Babylon to the exiled Jew Azariah (Dan. 1-3), friend of Daniel. He received honour and office from Nebuchadnezzar, until, refusing to worship a golden image, he was thrown into a burning furnace. Having miraculously escaped unharmed, he was restored to office.

ABEL. Second son of Adam and Eve. A shepherd, he was killed by his brother Cain because of their two sacrifices Abel's was more acceptable to God (Gen. 4). He is alluded to in the N.T. (Matt. 23; Heb. 11).

ABEL, SIR FREDERICK AUGUSTUS (1827-1902). British chemist. Born at Woolwich, July 17, 1827, in 1852 he was appointed professor of chemistry at the R.M.A., Woolwich, and four years later was appointed chemist to the War Office, carrying out researches which resulted in a process by which perfectly stable gun cotton can be made. His most important work was the invention, in conjunction with Sir James Dewar, of cordite, patented in 1889. At the time of his death, Sept. 6, 1902, Abel was director of the Imperial Institute.

The Abel test for petroleum, devised by him, is described in Schedule I of the Petroleum Act, 1879. By its use can be ascertained the temperature at which petroleum gives off inflammable vapour, the object being to find out whether a particular sample is safe under ordinary conditions of storage and use.

ABEL, ROBERT (b. 1859). English professional cricketer. Born at Rotherhithe, Nov. 30, 1859, he first played for Surrey in 1881, and during his cricket career made over 70 separate centuries, his highest score being 357 not out against Somersetshire in May, 1899. In each of the seasons 1895-1900 and 1902 he compiled over 2,000 runs, and was one of the chief mainstays of the Surrey XI until his retirement about 1908.

ABELARD, PIERRE (1079-1142). French scholastic philosopher and theologian. Born at Le Pallet, near Nantes, Brittany, he was appointed, in 1115, lecturer at the cathedral school of Notre Dame, Paris.

In the house of Fulbert, a canon of Notre Dame, Abelard was tutor to his host's niece, the accomplished and beautiful Héloïse, with whom he fell passionately in love. The two were privately married, but when Héloïse, not to mar Abelard's career in the Church, denied the marriage and fled to the convent of Argenteuil, her uncle, in revenge, caused Abelard to be horribly mutilated. Abelard retired to the abbey of St. Denis, and induced Héloïse to take the veil. He afterwards built a hermitage and chapel at Nogent-sur-Seine, and later, when appointed abbot of St. Gildas de Rhuys, Brittany, he founded at Nogent the abbey of the Paraclete, appointing Héloïse as first abbess. Then were written the famous letters which have served more than anything else to preserve the memory of their writers.

After his downfall Abelard's many enemies pursued him relentlessly with charges of heresy, culminating in 1141 in his condemnation by the council of Sens. Reconciliation with the Church was effected, but Abelard died the following year, and was buried at the Paraclete, as was Héloïse twenty-two years later. In 1817 the remains of the lovers were interred at Père-Lachaise, Paris. Abelard's teaching was an appeal to reason against tradition. His works were written in Latin, and first printed in Paris, 1616.

Abele (Dutch, ahele). Alternative name for the white poplar (*Populus alba*). See Poplar.

ABENCERRAGES. Moorish family which settled in Spain in the 8th century. They attained to a position of influence, but in the 15th century, according to tradition, the principal members were massacred by Boabdil

in what is known as the Hall of the Abencerrages in the Alhambra. On this Chateaubriand based a play and Chernbiui an opera.

ABEOKUTA. Town of Nigeria, in the Yoruba territory. Capital of Egba district, on the Ogun river, 60 m. by rly. N. of Lagos. The town, or rather group of towns and villages, covers a large area, and is enclosed by a high mud wall. It has courts of justice, government buildings, and waterworks opened in 1914, and is the centre of an active trade in palm oil, rubber, timber, and other local produce and European manufactured goods.

Aberavon. Since 1921 this market town of Glamorganshire has been part of the borough of Port Talbot (q.v.).

Aberbrothock. Old name of the Scottish town of Arbroath (q.v.).

ABERCARN. Urban district and town of Monmouthshire, England. It is 10 m. N.W. of Newport on the G.W.R., with collieries and iron, tinplate, and chemical works. Market day, Sat. Pop. 20,480.

ABERCONWAY, CHARLES BENJAMIN BRIGHT M'LAREN, 1ST BARON (b. 1850). British coalowner and politician. Born in Edinburgh, May 12, 1850, son of Duncan M'Laren, M.P. for Edinburgh, he was a nephew of John Bright. In 1880 he entered Parliament as a Radical; in 1902 he was made a baronet, and in 1911 a baron. His wife was an active advocate of women's suffrage and kindred movements.

ABERCORN. Settlement in Northern Rhodesia. It is about 10 m. S.E. of Lake Tanganyika on the Stevenson Road connecting that lake with Lake Nyasa. Established in 1889, it carries on a considerable trade with the neighbouring tribes. Here on Nov. 14, 1918, the remnants of the German force under von Lettow-Vorbeck surrendered. A mining district and settlement in Southern Rhodesia bears the same name.

ABERCORN, DUKE OF. Title held by the Hamilton family. It originated in 1603, when James, eldest son of Lord Claud Hamilton, was created baron of Abercorn. In 1606 the barony became an earldom, and in 1790 a marquessate. James Hamilton (1811-85) succeeded his grandfather as second marquess in 1818, and was made a duke in 1868. Groom of the stole to the Prince Consort 1846-59, he was lord-lieutenant of Ireland, June 1866-Feb. 1868 and 1874-6. He died Oct. 31, 1885, when his eldest son, James (1838-1913), long the chairman of the British South Africa Co., became duke. His son James, the 3rd duke, became governor of Northern Ireland in 1922.

ABERCROMBY, SIR RALPH (1734-1801). British general. Son of a Scottish landowner, he abandoned law for the army in 1756. After service in Flanders and the West Indies, he was appointed in 1797 to command the troops in Ireland. In 1801 he was given command of

the Mediterranean expedition, landing his troops under heavy fire at Abukir Bay. Wounded in the battle that followed, he died March 28, 1801. Abercromby probably did more than any other soldier of his time to restore the discipline of the British army.



Robert Abel,
English cricketer
Elliott & Fry



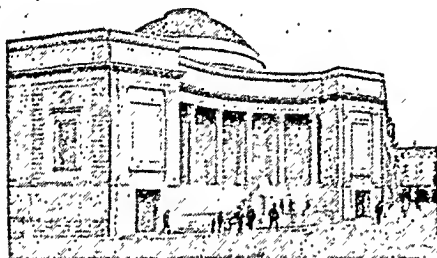
Sir Ralph Abercromby. British general and reformer of the army
Painting by J. Hoppner, R.A.

After his death his wife was made a baroness. The harony became extinct in October, 1924.

ABERDARE. Urban district and market town of Glamorganshire, Wales. It is 4 m. S.W. of Merthyr Tydfil on the G.W. Rly. It has coal mines, brickfields and breweries, and has grown enormously with the development of the local mining industry. Near by are cairns and remains of a British encampment. The division of the parl. borough of Merthyr Tydfil, to which it gives its name, returns one member. Market day, Sat. Pop. 55,010.

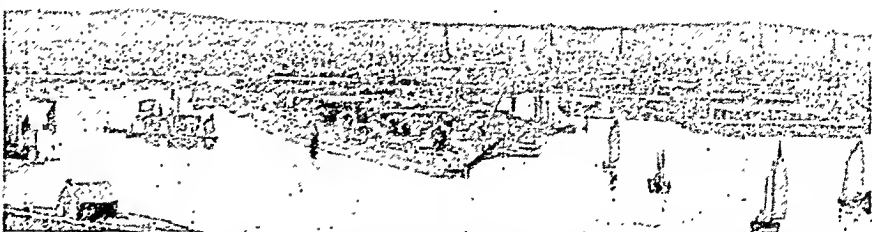
Henry Austin Bruce (1815-95), created Baron Aberdare in 1873, took his title from this district. He became Liberal M.P. for Merthyr in 1852, and was home secretary 1868-73. His grandson, the 3rd baron, was, as Hon. C. N. Bruce, a noted sportsman.

ABERDEEN. The fourth largest city of Scotland. It stands on a bay of the North Sea, between the mouths of the rivers Dee and Don, 130½ m. by rly. N. of Edinburgh. It is the co. town of Aberdeenshire, the chief seaport of N. Scotland, and is served by the L.M.S. and L.N.E. Rlys. Aberdeen consists of two contiguous towns—Old Aberdeen, extending N. towards the Don, and New Aberdeen, lying N. and W. of the Dee—



Aberdeen. War memorial, consisting of a domed court attached to the art gallery and museum

which, however, have corporate existence for administrative purposes. In old Aberdeen are King's College and the remains of S. Machar Cathedral, the nave of which is now the parish church. New Aberdeen has many imposing public edifices, notably Marischal College and other university buildings, the municipal and county buildings, the market hall, the post office, the royal infirmary, Trinity or Trades Hall, Gordon College, the Grammar School, and His Majesty's Theatre.



Aberdeen. 1. Marischal College, founded in 1593 by George Keith, Earl Marischal. 2. King's College, founded by Bishop Elphinstone in 1494. 3. View of the city and harbour from Balnagask

The city has a new art gallery. The university consists of two colleges, King's and Marischal, united in 1860.

The industries of Aberdeen include, besides the fisheries and fish curing establishments, for which it is noted, shipbuilding yards, engineering, chemical, granite polishing, and paper works, and woollen, linen, cotton, comb, and tobacco factories. Its banks are important. There is a commodious harbour, with a pier over 2,000 ft. long, and docks covering nearly 85 acres, with quayage of nearly 2,000 ft. Off the entrance is Girdleness Lighthouse.

There are golf links and several public parks, Duthie Park, of nearly 50 acres, being the largest. There is a broadcasting station, 2 B D. Two members are returned to Parliament. Market day, Fri. Pop. 158,969.

An important place in the 12th century, Aberdeen was granted a charter by William the Lion in 1179. Its people espoused the cause of Robert the Bruce, from whom it received large grants of land, and it was burned by Edward III in 1336. During the Civil War it suffered at the hands of both Royalists and Covenanters.

ABERDEEN, GEORGE HAMILTON GORDON, 4TH EARL OF (1784-1860). British statesman. Born at Edinburgh Jan. 28, 1784, he succeeded his grandfather in 1801 as 4th earl of Aberdeen, a title dating from 1680. In 1813 he went to Vienna as ambassador, afterwards representing his country at the peace of Paris in 1814. A Tory, he became a cabinet minister in 1823, and later held office under Peel.

Aberdeen resigned with Peel in 1846 and after his leader's death was the recognized head of the party which had followed that statesman in his conversion to Free Trade. As such he became prime minister in Dec., 1852, but had to resign in 1855 over the Crimean War. He died Dec. 14, 1860, and was succeeded by his eldest son, George John James Hamilton Gordon (1816-64).



Earl of Aberdeen, Prime Minister

ABERDEEN, JOHN CAMPBELL GORDON, 1ST MARQUESS OF (b. 1847). British politician. Born Aug. 3, 1847, and educated at St. Andrews and Oxford, he succeeded his brother as 7th earl in 1870. One of Gladstone's intimate friends, he was lord-lieutenant of Ireland in 1886, governor-general of Canada, 1893-8, and again lord-lieutenant of Ireland 1905-15, when he was made marquess of Aberdeen and Temair.



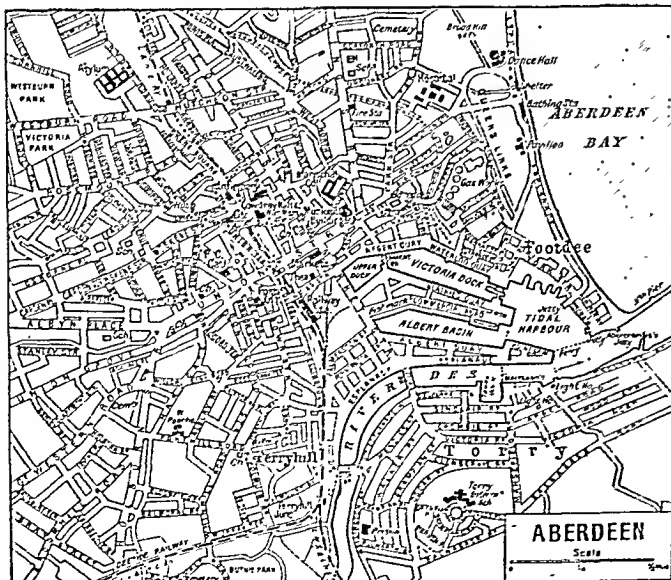
Lord Aberdeen, 1st Marquess

Lady Aberdeen (b. 1857), a daughter of the 1st Lord Tweedmouth, whom he married in 1877, has been prominent in political and philanthropic circles. Their eldest son, Lord Haddo (b. 1879), has also figured in political life. Lord Aberdeen's chief seat is Haddo House, Aberdeenshire. In 1926 he published reminiscences by himself and his wife entitled *We Twa*, and in 1929 *More Cracks with 'We Twa'*.

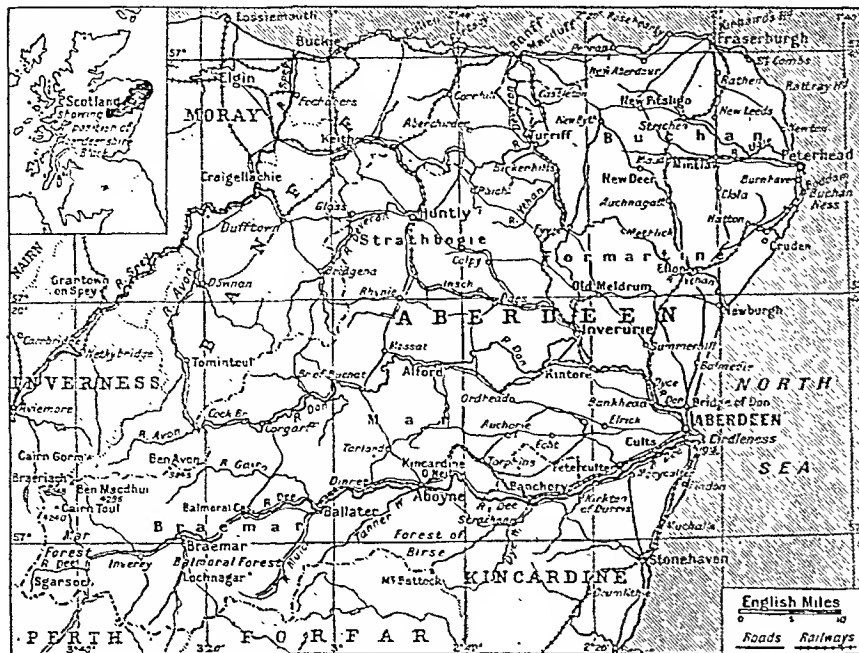


Isobel Maria, Lady Aberdeen

ABERDEENSHIRE. N.E. maritime co. of Scotland. It is popularly apportioned into five districts, Mar, Strathbogie, Garioch, Formartine, and Buchan, has an area of 1,971 sq. m., and is the sixth largest Scottish shire. The coast is bold and rocky, but almost free from indentations. The surface is generally hilly, and becomes extremely mountainous in the S.W., where the Grampians throw out



Aberdeen, county town of Aberdeenshire, Scotland. Ground plan showing the harbour, docks, principal buildings and thoroughfares



Aberdeenshire. The sixth, in regard to size, of the counties of Scotland

the Cairngorm group, the loftiest summit being Ben Macdui, 4,296 ft. Granite and gneiss are the prevailing rocks, the former being largely quarried for building purposes; sandstone is also worked. The largest rivers are the Dee, 87 m.; Don, 82 m.; Deveron, 61 m., and Ythan, 36 m., all plentifully stocked with salmon and trout.

The surface of the hilly districts is mainly moorland, but in the N.E. and between the Dun and Ythan the soil has been made fertile by highly skilful tillage, oats and barley being the chief crops cultivated. Next in importance to agriculture is the fishing industry, while as a stock rearing and feeding county Aberdeenshire excels. Of the other industries, several are associated with the quarrying of granite, while fish-curing and the manufacture of woollens, cottons, sailcloth, and paper are actively carried on. The principal towns are Aberdeen, the co. town; Peterhead, the centre of the fisheries; Fraserburgh, Huntly, and Inverurie. The co. unites with Kincardineshire to return three members to Parliament. Balmoral Castle is in the S.W. part of the county, and at Bucksburn near Aberdeen is the Rowett Institute for research in animal nutrition. Pop. 310,000.

LITERARY ASSOCIATIONS. Lord Byron was taken to Aberdeen in 1790, at the age of two, by his mother, a Gordon of Gight in Aberdeenshire. Mother and son lived in Broad Street, Aberdeen, till Byron's 11th year. Among men of letters associated with the university are James Beattie (1735-1803), philosopher and poet, educated at Marischal

College; and Tobias Smollett, the novelist, M.D. of the same college. Two Aberdeenshire novelists were William Alexander (1826-94) and George MacDonald (1824-1905).

ABERDOUR. Parish and village of Fifeshire, Scotland. On the Firth of Forth, 18 m. by the L.N.E. Rly. N.W. of Edinburgh, it is resorted to for sea bathing, and has a good tidal harbour. Here are the ruins of Aberdour Castle, an old seat of the earls of Morton. Pop. 3,063.

ABERDOVEY. Village and watering place of Merionethshire, Wales. It stands at the mouth of the Dovey, 4 m. S. of Towyn, on the G.W. Rly. Pop. 1,551.

ABERFELDY. Police burgh of Perthshire, Scotland. It stands near the S. bank of the Tay, 32½ m. N.W. of Perth, on the L.M.S. Rly. The Falls of Moness, 1 m. distant, are mentioned in Burns's Birks of Aberfeldy. Pop. 1,560.

ABERFOYLE. Village of Perthshire, Scotland. On the Laggan, a head-stream of the Forth, it is 35 m. N.N.W. of Glasgow by the L.N.E. Rly. Its scenery is described by Scott in Rob Roy. Pop. 1,147.

ABERGAVENNY (Rom. Gobannium) Municipal borough and market town of Monmouthshire, England. It lies on the river Usk, where the Gavenny joins it, and is 13 m. W. of Monmouth, on the G.W. Rly. It has lime, stone, and iron works, a grammar school, and remains of the castle of the Nevilles and a priory. Market day, Tues. Pop. 9,008.

The town gives the title of marquess to the Neville family. In 1392, Edward Neville, son of the earl of Westmorland, and a great-grandson of Edward III, having inherited the estate of Abergavenny, became a baron. In 1784, Baron Bergavenny or Abergavenny was made an earl, and in 1876 the fifth earl (1826-1915) was made a marquess. The principal seat of the family is Eridge Castle, Kent, and the heir to the title is known as the earl of Lewes.

ABERGELDIE CASTLE. Royal residence in Aberdeenshire, Scotland. On the river Dee, 6 m. W.

of Ballater and 2 m. from Balmoral, it derives its name from the Geldie Burn, which enters the Dee near

ABERGLASLYN. Pass of One of the beauty spots of N. Wales, it is 1½ m. from Beddgelert, the river Glaslyn flowing between rocky walls that rise steeply to 700 ft. on either side. The river here forms the boundary between Carnarvonshire and Merionethshire.

ABERNETHY. Police burgh of Perthshire, Scotland. On the estuary of the Tay, 9 m. S.E. of Perth, with a station on the L.M.S. Rly. It has one of the only two ancient round towers in Scotland. Pop. 593

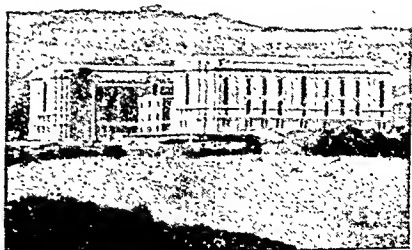
ABERNETHY, JOHN (1764-1831), British surgeon. Born in London. April 3, 1764. After serving as assistant surgeon and lecturer at St. Bartholomew's Hospital, of which he was surgeon in 1815-29, he was made professor of anatomy and surgery at the College of Surgeons in 1814. Abernethy first enunciated the principle that local diseases are symptomatic, and that most of them arise from disordered digestive organs. He died at Enfield, April 28, 1831.

ABERRATION (Lat. ab, from. errare, to wander) Aberration is a term used in optics to denote certain imperfections in the focussing action of spherical mirrors and of lenses. Spherical aberration is due to the excessive reflective or refractive effect occurring at the edges of the curved surface and results in a blurred image. Chromatic aberration arises from the dispersing action of a lens on the components of white light. The foci for the different dispersed rays are not the same, the result being an image with indistinct and coloured edges. (See Light.)

In astronomy aberration is the displacement of a star, arising from the progressive motion of light combined with the orbital movement of the earth. See Astronomy

ABERSYCHAN. Urban district of Monmouthshire, England. It is 10 m. N.N.W. of Newport on the G.W. and L.M.S. Rlys., and has a large industrial population engaged in the neighbouring coal mines and tinplate and iron works. Market day, Sat. Pop. 24,656.

ABERTILLERY. Urban district of town of Monmouthshire, England. It is 16 m. N.W. of Newport, on the G.W.R. It owes its growth to the development of the adjacent coal mines and has iron and tinplate works. It gives its name to a division which returns one member to Parliament. Market day Sat. Pop. 38,805



Aberystwith. National Library of Wales, of which King George I. laid the foundation stone in 1910

ABERYSTWITH. Mun. borough, market town, seaport and watering place of Cardiganshire, Wales. It stands at the junction of the rivers Ystwith and Rheidol, on Cardigan Bay, 249 m. W.N.W. from London, on the G.W. Rly. Among a number of public buildings are the University College, attached to the University of Wales, and the National Library of Wales, founded in 1907. The college, opened in 1891, contains a library and a museum. The



Abergeldie Castle. Scottish royal residence near Balmoral, used by King George V when Prince of Wales

century castle is said to have been built by Gilbert Strongbow, and was used by Charles I as a mint. It was dismantled in 1647, and only a few ruins remain. The town lives mainly on the revenue obtained from its visitors, who are attracted by its fine beach, boating and fishing facilities, and the surroundings. It was one of the Cardigan parliamentary boroughs till 1885. Market day. Mon. Pop. 11,220.

ABEYANCE (Fr. à and bayer, to gape at, hanker after). Legal term used when there is uncertainty as to whom rights and titles belong. Typical cases are claims to peerages, the ownership of manorial rights, and the right of presentation to livings. Rights of action are in abeyance until the action is begun or abandoned. In some cases there is a statutory limitation as to the period within which the action must be brought. The word is most commonly used in connexion with peerages.

ABGAR. Name or official title of 28 rulers, of Edessa, in Mesopotamia, 136 B.C.-A.D. 217. Discredited tradition states that Abgar XIV sent a letter to Jesus Christ asking Him to visit him and heal a disease from which he was suffering. This letter, with the reply of Christ, is quoted by Eusebius of Caesarea, who states that Christ promised to send a disciple to Edessa after His ascension.

ABHORRERS. Name given to persons who, in 1679-80, abhorred the agitation for persuading Charles II to call a Parliament. This, it was thought, would pass the bill excluding James, duke of York, afterwards James II, from the throne. Those who devised the Parliament for that purpose were called petitioners; their leader was the earl of Shaftesbury, and their protégé the duke of Monmouth. The name originated at the time when public opinion was excited against James and the Roman Catholics.

ABIATHAR. Jewish high priest. Son of Ahimelech, who was killed by order of Saul for assisting David, he escaped his father's fate (1 Sam. 22) and became a firm friend to David. In Solomon's time he followed Adonijah in revolting, and was deprived of his office (1 Kings 1 and 2).

ABIGAIL. Wife of Nabal, a rich boor who refused food to David when he was in the wilderness of Paran. She persuaded David not to punish her husband, and so gained his affection that he married her after the death of Nabal (1 Sam. 25). Abigail as a name for a waiting maid is derived from Abigail's description of herself as David's handmaid. Another Abigail was David's sister and mother of Amasa (2 Sam. 17 and 1 Chron. 2).

ABIMELECH. Hebrew name meaning My father is the king, and possibly a royal title. It occurs in the O.T. in connexion with the Philistine king of Gerar in the days of Abraham and Sarab and Rebekah and Isaac (Gen. 20, 21, and 26); and with the son of Gideon, or Jerubbaal, by a woman of Shechemite nationality (Judges 8 and 9), who made himself king by murdering all his brothers except Jotham, who escaped.

ABINGDON. Municipal borough and market town of Berkshire. It is on the Thames, 6 m. S. of Oxford by the G.W.R., and has clothing and carpet factories and a large agricultural trade. Its antiquities include the remains of a 7th century abbey and a 17th century town hall. The old bridge over the Thames was rebuilt in 1929. The grammar school was founded in 1563. Abingdon was a prominent town in the 8th century. A parl. borough down to 1885, it now gives its name to a county division which returns one member to Parliament. Pop. 7,167.

Derived from the town is the title borne since 1682 by the family of Bertie, and before that by the family of Norris. The earl's seat is Wytham Abbey, near Oxford, and his eldest son is known as Lord Norreys.

ABINGER, JAMES SCARLETT, 1ST BARON (1769-1844). British judge. Born in Jamaica, he was educated at Trinity College, Cambridge. Scarlett was M.P., first as a Whig and then as a Tory, 1819-35, and at one time attorney general.



Lord Abinger
Sir M. A. Stoe, P.R.A.

From 1834 until his death, April 7, 1844, he was chief baron of the Exchequer. In 1835 he was made a peer, the title being still held by his descendants. Abinger's second son was Sir J. Y. Scarlett (1799-1871), the cavalry leader at Balaclava. The title was taken from a village near Dorking, Surrey.

ABINGTON, FRANCES (1731-1815). English actress. Daughter of a private in the Guards, her maiden name was Frances Barton.

She made her stage debut at the Haymarket as Miranda in Mrs. Centlivre's comedy, The Busybody, Aug. 21, 1755, and in 1759 married her music master, Mr. Abington. After five years in Dublin, she was invited by David Garrick to Drury Lane, where she remained for 18 years, playing the great ladies of comedy, Shakespearean heroines, romps, and even chambermaids, and creating the part of Lady Teazle in the original production of The School for Scandal in 1777. In 1782 she went to Covent Garden, where she was for eight years. She died March 4, 1815.



Mrs. Abington, English actress
Painting by Sir Joshua Reynolds, P.R.A.

ABISHAI. Son of Zeruiah and nephew of King David. A man of remarkable courage, he went with David into the camp of Saul (1 Sam. 26), whom he wished to kill, and fought against Edom in the Valley of Salt (1 Chron. 18). One of the three who risked their lives by entering the Philistine lines to get water for David from the well at Bethlehem (2 Sam. 23), he also saved the king's life by killing the Philistine giant, Ishbi-benob (2 Sam. 21).

ABITIBI. River and lake in Ontario, Canada. The lake is 60 m. long and contains numerous islands. The river issues from its W. end, and is a tributary of the Moose. Its length is about 200 m. Gold has been discovered in the Abitibi region, but not in any great quantity.

ABKHASIA. Tiny republic in the Caucasus. It is part of the larger Soviet republic of Georgia, its capital being Sukhum. See Georgia.

ABLUTION (Lat. abluere, to wash away). Liturgical term for ceremonial washing in religious services, usually as a symbol of the purification of the soul. The law of Moses gives directions for these washings. The term is applied to the cleansing of the vessels after Holy Communion.

ABNER. Captain of King Saul's army. After the death of Saul, he supported Ishbosheth and then joined David. He was treacherously killed by Joab, and David wrote an elegy on him (1 Sam. 14; 2 Sam. 2 and 3). Abner is a character in Racine's *Athalie*.

ABNEY PARK. District in N. London. It is in the metropolitan borough of Stoke Newington, and has a large cemetery, dedicated May, 1840, and notable for its ancient trees and arboretum. The district is named after Sir Thomas Abney, who occupied a house in which Isaac Watts lived for 36 years.

Abo, BOE or IBO. Town of Nigeria. It stands at the head of the Niger delta, and its chief trade is in palm oil. Pop. 7,500.

ÅBO. Seaport of Finland and the former capital of the country. It is on the river Aurajoki, near its mouth on the Baltic Sea, and is 168 m. by rly. from Helsingfors. It exports timber, hides, fruit, and eggs, and has shipbuilding yards, is the seat of an archbishop, has a fine cathedral, and its old castle contains a museum. The university formerly at Åbo was removed to Helsingfors after a fire in 1827. A new university (Swedish) was opened in 1919, and a Finnish one in 1922. Peace was concluded at Åbo between Russia and Sweden in 1743. Pop. 62,599.

ABOMA. Small fiver of British Gold Coast Colony, about 65 m. W. of Accra. In Feb., 1919, diamonds were discovered in the shallow quartz gravels of this stream.

ABOMEY or **ABOMEXY**. Capital of the former kingdom of Dahomey, West Africa, now one of the chief centres in the French colony of that name. Situated 63 m. N. of Whydah, it trades in palm oil, ivory, and gold. Pop. 11,000.

ABORIGINES (Lat. ab origine, from the beginning). Name applied by classical writers to primitive tribes in Italy. The term is now



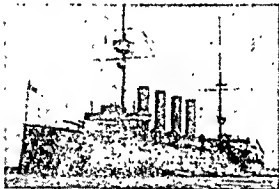
Aborigines. Two kings and a queen, natives of Southern Queensland, Australia, where there is a chief protector of aborigines

generally used for the peoples found in distant lands by their first European discoverers. The preferable form in the singular is aboriginal; this, with its plural, is increasingly used in Australia, the word native being applied to Australian-born whites.

After the Act for the abolition of slavery throughout the British colonies was passed in 1833, reports upon the condition of the aborigines were presented to Parliament in 1834 and 1837. An Aborigines Protection Society was founded in 1837, and a British and Foreign Anti-Slavery Society in 1839. Amalgamated as the Anti-Slavery and Aborigines Protection Society in 1909, it aims at protecting and advancing the interests of enslaved and oppressed native races. The protection of aborigines is also a matter of administrative concern throughout the British Empire. Consult *Peoples of All Nations*; 7 vols., 1922-23.

ABORTION (Lat. *ab.*, from: *oriri*, to arise). Term used in two different senses. To physicians it means expulsion of the contents of the uterus or womb during the first three months of pregnancy. In law, however, abortion means the artificial expulsion of the uterine contents at any period of pregnancy. Abortion, in the medical sense, is very common, having been estimated at as much as one-sixth of all deliveries. The most frequent causes are disease or malformation of the mother or infant, acute illness, accident, poisoning, or some violent emotion. In law the essence of the offence is the intention to procure abortion, and it is an offence to supply any instrument or drug for the purpose, even though the woman does not use it and is not even pregnant. If a woman dies as the result of criminal abortion, the person responsible may be held guilty of murder.

ABOUKIR. Name in the British Navy, first given to the French 74-gun ship *Aquilon*, taken at the Battle of the Nile, in 1798.



H.M.S. Aboukir, sunk by German submarine U9, September 22, 1914

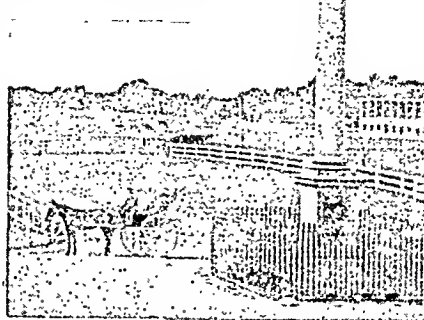
under the command of Capt. J. E. Drummond, and in company with the *Hogue* and *Cressy*, she was torpedoed by the German submarine U9, and sunk, with a loss of 25 officers and 502 men. The *Hogue* and *Cressy* were also sunk, the loss being 62 officers and 1,397 men.

ABOUT. EDMOND FRANÇOIS VALENTIN (1828-85). French writer. Born at Dieuze, Meurthe, Feb. 14, 1828, the novels from his pen are *Tolla*, 1854; *The King of the Mountains*, 1856; *Germaine*, 1857; *Madelon*, 1863; and *The Romance of an Honest Man*, 1880. Elected a member of the Academy in 1884, he died Jan. 17, 1885, before installation. Pron. *Abou*.

ABOYNE, OR CHARLESTON OF ABOYNE. Village, Aboyne and Glentanner, of Aberdeenshire, Scotland. On the Dee, it is 10 m. E. of Ballater, on the L.N.E. Rly. Near is Aboyne Castle, the seat of the marquess of Huntly.

ABRACADABRA. Magical word or formula derived from Gnostic worship. The first known reference to it is in a work by Serenus Sammonicus, a follower of Basilides of Alexandria, in the 2nd century. It was supposed to conceal the name of God. Usually written on parchment in the form of an inverted cone, and folded in the shape of a cross, it was worn round the neck as a talisman against sickness or danger. See *Abraxas*.

ABRAHAM, PLAINS OF. Heights, close to the city of Quebec, Canada, and on the N. bank of the St. Lawrence river, where Wolfe defeated the French under Montcalm, Sept. 13, 1759. They were named after a pilot called Maitre Abraham The Plains, on which stands a monument to Wolfe and Montcalm, were dedi-



Plains of Abraham, near Quebec, Canada, showing the monument erected to Wolfe and Montcalm

cated to the public as a park and playground in 1908. See *Quebec*.

ABRAHAM OR **ABRAM.** Founder of the Jewish or Hebrew nation. The story of his life, as given in Gen. 11-25, has been the subject of much critical inquiry. Son of Terah, descendant of Shem, and a native of Ur of the Chaldees, his period is conjecturally about 2300 B.C. With his father, his wife Sarai and his nephew Lot, Abraham moved from Ur to Haran, near Edessa. Here Terah died, and thence, under divine guidance, Abraham migrated to Canaan. At Shechem, where it was revealed to him that his seed should possess the land, he raised his first altar.

He was driven by famine to Egypt, but returning to Canaan, he gave Lot choice of the Jordan valley for his flocks, and pitched his tent by the oak of Manure, near Hebron. Despairing of an heir, Abraham followed the native custom by taking Sarai's Egyptian handmaid, Hagar, as his second wife, and thus became father of Ishmael. Then came the visit of the three heavenly messengers, with the promise of a son to Sarai, and news of the pending destruction of Sodom and Gomorrah, for the people of which Abraham pleaded with Jehovah. Lot and his family were spared, though Lot's wife, for disobedience, was turned into a pillar of salt.

In due time Sarai bore a son, Isaac; circumcision was instituted, and Abraham's faith was severely tested by the divine command to offer up Isaac as a sacrifice. Sarai was buried in the cave of Machpelah. Abraham then married Keturah, by whom he had six sons; and after arranging the marriage of Isaac and Rebekah, the patriarch passed away.

The figurative expression Abraham's bosom is used both by Christians and Jews to signify the abode of the faithful departed.

ABRAHAM, WILLIAM (1842-1922). British labour leader. After some education at Carnarvon, he entered the coal mines, his father being a miner, and in 1873 was chosen by his fellows as one of their agents. Elected in 1886 M.P. for the Rhondda division of Glamorganshire, he retained his seat until his death. In 1911 he was made a privy councillor. His gifts as a singer won him the title *Mabon* (bard). He died May 14, 1922.



W. Abraham ("Mabon")
Elliott & Fry

ABRAHAM MEN. Slang term used in England in the 16th-18th centuries for a class of able-bodied beggars. One of the wards in Bethlem Hospital, London, was for lunatic beggars, and was named after Abraham. These lunatics wore a special badge and were allowed to go about begging. Tom o' Bedlam or Abraham Man was the name given to a beggar of this type, and the country became infested with their imitators, known as sham Abrahams or Abram coves.

ABRANTES. Town of Portugal, in the district of Santarem. It is on the right bank of the Tagus, 88 m. by rly N.E. of Lisbon, and is picturesquely placed on a hill. Its castle is mentioned by Camoens. It has a trade in oil, fruit, wine, and cereals. Founded by the Iberians about 300 B.C., it was colonised by the Romans. Pop. 8,000.

ABRASIVE. Securing and polishing material used in a variety of manufacturing processes. High-grade abrasives are natural minerals, such as emery or corundum, or artificial products of alumina or silicon-carbide, such as carborundum. Low-grade abrasives are crushed quartz for sandpaper, etc.; quartz sand for plate glass making and for etching glass and stone; feldspar and quartz for polishing powders, etc.; pumice powder, diatomaceous earth or tripoli for scouring materials; flint pebbles for use in grinding pigments, etc.; and, finally, grindstones, whetstones, hones, etc. See *Bathbrick*; *Emery*.

ABRAXAS. A mystic word engraved on gems anciently worn, sometimes in rings, as amulets. Analogous to *abracadabra*, the word *abraxas* dates apparently from the time of the Gnostic Basilides, and the Greek letters composing it, used as numerical characters, represent the number 365, held by the Gnostics to symbolise the spiritual manifestations of the Supreme Deity, the number of worlds forming the universe, or the number of days in the solar year. The word is said to be derived from the Coptic for Holy Name or the Hebrew *Ha-Brachiah*, blessing. The *abraxas* moth is more usually known as the magpie moth (*q.v.*).

ABRUZZI, LUIGI AMADEO, DUKE OF THE (b. 1873). Italian traveller, explorer, and man of science. The third son of Amadeo, duke of Aosta and king of Spain, 1870-3, he was born in Madrid, Jan. 29, 1873. He ascended Mt. St. Elias, Alaska, July 31, 1897, being the first to do so. He organized an Arctic expedition, 1899-1900, and from his ship, the *Stella Polare*, sent out sledging parties, one of which attained lat. 86° 33' N., the then highest recorded. He was commander of the Italian navy in 1915-17.

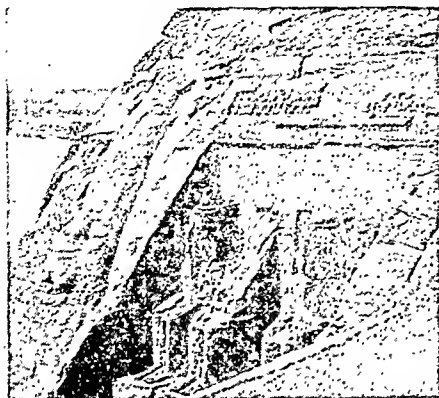
Abruzzi e Molise is the name of a department of Italy comprising the provs. of Aquila, Teramo, Chieti and Campobasso and having an area of 6,387 sq. m. Pop. 1,480,750.

ABSALOM. Third and favourite son of King David. As described in 2 Sam. 13-18, he was renowned for personal beauty and reckless ambition. Absalom's sister Tamar having been wronged by her half-brother Amnon, Absalom compassed Amnon's death. Exiled by David, he rewarded his father's forgiveness by raising a revolt, in which he was joined by Ahithophel, Bathsheba's grandfather. David fled beyond the Jordan, and Absalom entered Jerusalem. His army, however, was routed in the wood of Ephraim. Fleeing on a mule, Absalom was caught by the head in the boughs of a great oak, and there killed by Joab, against David's express orders.

ABSCESS (Lat. *ab.*, from: *cedere*, to go away). Collection of pus or matter bounded by tissue called the abscess wall. An acute or inflammatory abscess is due to septic infection by bacteria, and should usually be treated by hot fomentations in the earlier stages and incision in the later. A chronic or cold abscess is nearly always a manifestation

of tuberculosis. and may be an indication of deep-seated disease. Surgical treatment is sometimes helpful in this condition, but frequently it calls for a healthy, outdoor life.

ABSINTHE (Gr. *apsinthion*, wormwood). Highly alcoholised, deleterious liqueur. It owes its distinctive properties, flavour, and colour to wormwood, star-anise, angelica, hyssop, mint, sweet-flag and other aromatics. The effects of absinthe drinking, due to the



Abu-Simbel. Entrance to the great temple, showing the four colossi hewn from the cliff

wormwood, are speedy intoxication, hallucinations, and delirium, leading to paralysis or idiocy. Absinthe, which contains from 50-80 p.c. of alcohol, is consumed chiefly in France, in the form of fruit liqueurs.

ABSOLUTION (Lat. *ab*, from; *solutus*, free). Theological term for the forgiveness of sins, after public or private confession, pronounced by priest to penitent in the name of God. Absolution was recognized by the Jews (2 Sam 12). The forms used in Christendom vary with the doctrine, but are based on interpretations of Matt. 16 and 18, John 20, Acts 2, 2 Cor. 2 and 5, and James 5.

ABSTINENCE, DAYS OF. Days appointed in the churches to be observed by abstinence from flesh food. In the Anglican church the words fasting and abstinence are used indifferently, and fasting or abstinence is enjoined during the forty days of Lent, all Fridays, and certain other days. In the R. C. church a distinction is observed between fasting and abstinence, and the days of abstinence vary in different countries. See Fasting.

ABU-BEKR (573-634). Name, meaning father of the virgin, borne by the first caliph or successor of Mahomet. It was substituted for his original name of Ahd-el-Kaha after the marriage of his daughter Ayesha to the Prophet. Born at Mecca, he was a wealthy merchant of the Koreish tribe. He was Mahomet's sole companion during the flight from Mecca to Medina, and was designated his successor by the Prophet himself. See Caliphate.

ABUKIR or **ABU-QIR.** Village in Egypt, on Ahukir Bay, 14 m. by rly. N.E. of Alexandria. Near here, Nelson at the Battle of the Nile defeated the French fleet, Aug. 1, 1798, Napoleon overcame the Turkish army, July 25, 1799, and Abercromby defeated the French, March 21, 1801. In the neighbourhood are extensive Egyptian and Roman remains, including the ruins of Canopus. The old Canopic mouth of the Nile emptied itself into the bay. See Nile.

ABU KLEA. Name of some wells in the Sudan, on the route from Korti to Metemneh, where the British repulsed the dervishes in 1885. The expedition led by Lord Wolseley was proceeding along the Nile to the relief of Gordon. To save time by avoiding the loop made by the Nile above Dongola, a camel corps under Sir Herbert Stewart was sent across the



Abu-Simbel. Façade of the smaller of the rock temples built by Rameses II and dedicated to his consort and to the goddess Hathor

desert. On Jan. 17 this was attacked at Abu Klea, and on the 19th at Abu Kru, where Stewart was mortally wounded. The little force was too late to save Gordon.

ABU-SIMBEL, or **IPSAMBU.** Locality in Egypt, on the left bank of the Nile, 40 m. N. of Wady Halfa. It is celebrated for its remarkable rock temples of Rameses II. The great temple of Ra, 180 ft. deep, has a cliff-hewn façade with four enthroned colossi, 65 ft. high, the largest sculptured figures in Egypt. The smaller temple of Hathor has four standing colossi, 33 ft. The larger colossi represent Rameses II; with the smaller are two figures of his queen Nefrêre.

ABU TELLUL. Scene of a British victory over the Turks. On July 14, 1918, the Turks undertook an offensive on both sides of the Jordan, N. and E. of Jericho, against the British under General Allenby. W. of the river, in the vicinity of the Wady Auja, at 3.30 a.m. they suddenly attacked Abu Tellul, and captured it, but within two hours were driven out, with heavy losses, by the Australian Light Horse. The second phase of the Turkish offensive was also repulsed.

ABUTIG, ABUTIJ OR ABUTIZH (anc. Abutis). Coptic town in Upper Egypt. It is situated on the Nile, 15 m. S.E. of Assiut. In the neighbourhood are rock tombs and other remains. Pop. 10,500



Abutilon. Shrub of the Mallow family

ABUTILON. Favourite garden and greenhouse shrubs of the mallow family (*Malvaceae*), chiefly natives of South America and the West Indies. The flowers agree in the main with those of hibiscus. The forms mostly grown are garden hybrids between the natural species, and are



Abyssinia. Bobbed-haired women of the Galla tribe
Kurt Lubinski

preferred because they flower more freely. They are propagated by means of seeds sown in spring in a mixture of loam and peat. They grow freely in the open in summer, especially in southern counties.

ABYDOS. Ancient city of Asia Minor. It stood on the narrowest part of the Hellespont, opposite Sestos, and is associated with Byron's poem *The Bride of Abydos*. It was here, opposite Sestos, that Leander swam the Hellespont to visit Hero; and Xerxes threw bridges of boats across to transport his army to Europe during the expedition against Greece, 480 B.C.

ABYDOS. Ancient city of Upper Egypt, near the left bank of the Nile, 350 m. S. of Cairo. The Egyptians called it reliquary hill, because the head of Osiris was traditionally interred there. The necropolis was the burial-place of the Egyptian kings for many centuries, the tombs including that of Menes, the first historical ruler of Egypt. Seti I built the great temple, the Memnoneion of Strabo, containing a list of kings called the Table of Abydos; and Mineptah built a hall for the Osirian mysteries.

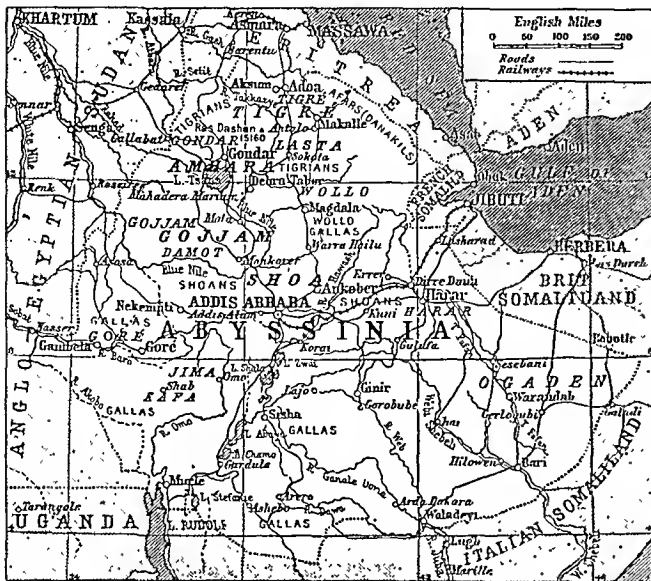
ABYSS. (Gr. *a*, not; *byssos*, depth, bottom of the sea). Name given by the Jews of the Christian era to a large underground pit, the dwelling place of the dead and evil and revolted spirits. Here also punishment was meted out to sinners.

ABYSSINIA. The country of Ahysinia, the official name of which is Ethiopia, is an independent empire in N.E. Africa, having an area of about 350,000 sq. m. The population is estimated at about 8,000,000, divided



Abyssinia. Well born couple outside their home
Kurt Lubinski

into four main groups: the Gallas in the S. and S.W., comprising one-half of the population; the Shoans in the central districts, who furnish the ruling class; the Tigrians of the N.; and the Danakilis, or Afars, in the E., these being a Mahomedan people.



Abyssinia. A country in N.E. Africa, extending for 900 m. from W. to E. and about 750 m. from N. to S., with an estimated population of 8,000,000

The rulers of Abyssinia claim descent from Menelek, son of Solomon and the Queen of Sheba. The country had close relations with the Jews and with the Greeks under the Ptolemies, but with the rise of Mahomedan power after the 6th century Abyssinia was cut off from the rest of the world. When Portuguese travellers penetrated into the country at the end of the 15th century, they found it divided into several independent states. In the following 300 years there was a continuous struggle for supremacy between the three kingdoms of Tigré, Amhara and Shoa, Amhara being generally successful.

In 1805 Abyssinia was visited by a British mission under Lord Valentia and Henry Salt, followed by other travellers. In 1868 trouble arose over the action of Theodore III, ruler of Amhara, in imprisoning British officials for supposed slights. An expedition was sent out under Sir Robert Napier, resulting in the defeat of Theodore, who committed suicide. After his death the chief of Tigré was crowned as Johannes II, but was himself killed in battle in 1889 and Menelek II, son of the former ruler of Shoa, became sole emperor.

Menelek was a man of great ability who maintained the independence of his country and kept it from internal disorders. He died in 1913, and his equally able wife, Taitou, in 1918. Menelek was succeeded by Lij Yasu, son of his second daughter, but in 1916 the new ruler was deposed owing to his Turkish sympathies, and Zanditu, the elder daughter of Menelek, was proclaimed empress, with Ras Tafari as regent and heir. Friction between empress and regent was settled in October, 1928, by Ras Tafari being crowned negus or king of Ethiopia. In 1923 Abyssinia joined the League of Nations.

The boundaries and political status of Abyssinia have been settled by conventions with certain European powers, the most important being that of 1896 with Italy, and the agreement of Dec. 13, 1906, whereby Great Britain, France and Italy undertook to respect the integrity of the country.

Abyssinia is essentially a pastoral and agricultural country, although highly mineralised. Cotton, coffee, and sugar are grown, and the forests produce ebony, mahogany, and other hard wood. The minerals are almost unworked, with the exception of gold. The main avenue of trade is the French-Ethiopian railway, which runs from

edge of deserts. Some species furnish valuable drugs, gums, and tanning material.

The acacias of the greenhouse come from Australia, the East Indies, and South America, and vary in height from 5 ft. to 20 ft. The flowers are yellow, white, and red. They flourish in any ordinary mixture of loam and sand in a temperature of from 50° to 65°. The mop-headed, standard, so-called acacia tree of suburban gardens is really robinia, or false acacia, raised from seeds or cuttings in the ordinary way. The Australian wattle is an acacia, and this the Anzao troops planted on the graves in Gallipoli.

ACADEMY (Gr. akademeia). Originally the name of a piece of land N.W. of Athens, so called from its supposed former owner, the hero Academus. It contained a gymnasium and a grove of plane and olive trees. It was a favourite resort of Plato, who lectured there daily on philosophy. Hence his followers were known as Academics, and his school as the Academy. The name is now used for any artistic, literary, or scientific society and in Scotland and Ireland for a school, e.g. Edinburgh Academy.

In England there is the Royal Academy, which holds an annual exhibition of pictures at Burlington House, London, and the British Academy, founded in 1893, for the promotion of historical, philosophical and philological studies. The various Royal Societies are academies, except in name. Edinburgh has the Royal Scottish Academy, chiefly concerned with art, and Dublin the Royal Irish Academy.

Of academies abroad the most famous are the Académie Française and the Accademia della Crusca, founded in Florence in 1582. The former, with its forty members called the Immortals, was established in 1635 and is the final authority on all matters connected with the French language. With four other academies it forms the Institut de France. In the U.S.A. there is the American Academy of Arts and Sciences. See Burlington House.

ACADIA OR **ACADIE**. Name by which Nova Scotia (q.v.) was officially known by the French before 1713. It was given by the early French

settlers, many of whom, after the final cession of the province to the English in 1713, migrated to Canada or were exiled in circumstances related in Longfellow's Evangeline.

ACANTHUS (Gr. akanttha, prickly). Genus of herbs with bold, handsome foliage. They are mostly natives of S. Europe, the best known being *Acanthus mollis*, with soft teeth edging the leaf lobes, and *A. spinosus* (bear's breech), with stiff prickles. Both species are frequently cultivated as foliage plants. *Acanthus spinosus* is said to have furnished the Greeks with the idea for the capital of the Corinthian column, an idea elaborated more on the lines of *Acanthus mollis* in Roman art.

ACACIA (Gr. akis, point) An extensive genus of spiny shrubs and trees of the leguminous order. They are natives of hot countries, and grow in belts on the extreme



Acacia, Australian Wattle

Acarus. Minute parasitic animal. See Mite.

ACCELERATION (Lat. accelerare, to hasten). Word used in its most general sense to indicate any change in velocity. Commonly, however, acceleration is employed to denote a change in speed only. It may be uniform, in which case equal changes of speed occur in equal times, or it may be variable. If the speed is increasing, then the acceleration is positive; if decreasing, negative. Uniform acceleration is measured by the change in speed taking place in a given time when divided by that time. Variable acceleration is measured by dividing the change in velocity occurring in an interval so small that the acceleration does not appreciably change in it by the time.

ACCENT. Mark used to indicate stress in pronunciation. Those now most commonly used, e.g. in French, are the old classical accents, the grave or heavy ('), the acute or sharp (') and the circumflex, a combination of both (^). In the French the use of the circumflex generally indicates the dropping out of a consonant before another consonant. Certain other marks called diacritical serve as guides to pronunciation, e.g. the cedilla (,) placed under c, chiefly in French and Portuguese, when the letter is to be sounded like s, not like k. In Spanish the tilde (~) is placed over n (ñ) to indicate the y-sound heard in poniard.

ACCENTOR (Lat. ad, to; cantor, singer). Name given to a sub-family of small birds, probably related to the thrushes. They occur in Europe, N. Africa, and parts of Asia, and are usually found in thickets and hedges in hilly districts. The group is represented in Great Britain by the hedge sparrow, which is no relation of the house sparrow. Its plumage is dusky brown, with a reddish back and



Accentor or British hedge sparrow

bluish-grey head and neck. The eggs are blue without spots.

ACCEPTILATION (Lat. acceptilatio, reckoning a thing as received). In Roman law, complete legal discharge from all liability. In Scots law it is not necessary that an obligation should be based on valuable consideration, as in English law. In English law, before a contract or obligation is binding there must be consideration, i.e. something to be done or forborne. In Scotland the doctrine of consideration is rejected.



Acanthus leaf (above) which probably suggested Corinthian capital (below)

ACCESSORY. Term used in criminal law to denote that while a person may not have taken a principal part in the commission of an offence, yet he has incurred some degree of criminal responsibility. Accessories are of two kinds: accessory before the fact and accessory after the fact. An accessory before the fact is one who, though absent at the time the offence was committed, yet procured, counselled, or abetted another to do it. An accessory after the fact is one who, knowing that an offence has been committed, relieves, receives, comforts, or assists the felon so that he shall escape from justice. See *Accomplice*.

ACCIDENT. Accidents may be divided into general and industrial. The former are largely but not wholly due to vehicular traffic. In 1926 there were in the United Kingdom 120,805 non-fatal street accidents and 4,876 which were fatal, and 374 persons killed and 23,433 injured in railway accidents. In 1928 the number of street accidents had risen to 156,024. The responsibility for preventing these accidents as far as possible rests upon the Board of Trade, which holds inquiries into such accidents, and the police, who have power to regulate street traffic.

Industrial accidents are those that happen in the course of one's occupation. In the United Kingdom in 1923 there were 154,319 accidents in the factories of Great Britain, of which 953 were fatal. The duty of reducing their number rests upon the Home Secretary, who acts through a staff of inspectors, to whom every accident of the kind must be reported. Persons injured in the course of their employment, provided that their own negligence has not contributed to the accident and that their salaries or wages do not exceed £250 a year, are covered by the Workmen's Compensation Acts.

The vast industrial changes brought about by the Great War led to a great increase in the number of accidents to workpeople, and Dr. H. M. Vernon issued in 1918 an important report on them. He concluded that increase in the speed of production was one of their chief causes. Fatigue was less important. According to modern research the psychological factor is one of the most important in the causation of accidents. The movement known as safety first has done something to protect pedestrians and others. See *Safety First: Workmen's Compensation*.

ACCLIMATISATION (F. à, to; climat, climate). Term for the adaptation of people, animals, plants, or trees to a new environment, particularly with reference to climate. Applied to an individual or a race, it has special significance with reference to disease. In the case of an individual it means that a person has acquired the power of absolutely or partially resisting agencies which otherwise would be injurious to his existence. Applied to an entire race, acclimatisation is a form of protective evolution.

In animals and plants acclimatisation depends in general on two factors, food and enemies. Other factors are climatic temperature and habit.

ACCOLADE (Lat. ad, to; collum, neck). Act of conferring knighthood by gently striking on the shoulder with a naked sword. It is performed either by a sovereign prince or by a knight holding authority from such a prince. See *Knighthood*.

ACCOMMODATION. Term in English law, generally applied to a bill of exchange or promissory note which is executed by the parties thereto, so as to enable one or all of them to discount it, and so raise money.

The term is also used in a wider sense, meaning to lend money generally; for instance, the accommodation granted by a banker.

Visual accommodation is the process or power of focussing the eyes to enable objects to be seen at different distances. The adjustment is effected by alterations in the convexity of the crystalline lens behind the pupil, through which rays of light pass to the retina. See *Eye*.

ACCOMPLICE (Lat. ad, to; eum, with; plicare, to weave). One who assists another in the commission of a crime. An accomplice may be an aider and abettor or an accessory. The evidence of accomplices is always admissible against a prisoner, but requires corroboration. The evidence of other accomplices is not corroboration, but the dying declaration of an accomplice is admissible. Such declaration, however, must have been made in the certain expectation of immediate death. See *Accessory*.

ACCORDION (late Lat. accordare, to agree). Portable reed instrument with bellows and a small keyboard. To save weight and space, each key usually sounds two notes with the alternating action of the bellows. A Viennese invention, it dates from 1829.

ACCOUNTANT. The keeping of professional accounts is of ancient origin. Records of the 12th century in Italy are known, but it was not until 1581 that the first association of accountants was founded in Venice. The initial growth of the profession in the United Kingdom is traceable to Scotland, seven accountants being mentioned in the Directory of Edinburgh as practising there in 1773.

To-day the two chief bodies of accountants in Great Britain are the Institute of Chartered Accountants in England and Wales (Moorgate Place, London, E.C.2) and the Society of Incorporated Accountants and Auditors (Victoria Embankment, London, W.C.2). Their examinations are recognized virtually throughout the English-speaking world, although there are separate societies for accountants in Scotland, Ireland, Canada and elsewhere.

The period of articles prescribed by the Institute of Chartered Accountants is five years, but for university graduates the period is reduced to three years. Sitting for examination without service under articles is permitted in the case of accountants' clerks of six years' continuous service.

A professional accountant must be able to conduct an audit of the accounts of financial, commercial, municipal and utility undertakings. He must also be able to act as liquidator, trustee, receiver and arbitrator. Qualified accountants are required to-day in every field of industry, so that the supply is not likely to exceed the demand.

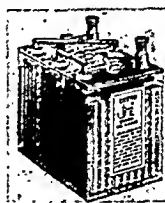
ACCRA or **AKKRA.** Seaport and, since 1876, capital of British Gold Coast Colony, 80 m. E. of Cape Coast. It has rly. communication with Tafo, 65 m. distant. Surveys for additional construction to connect it with Kumasi started in 1914. A municipality, Accra is a signal, telegraph, and wireless station, and has a light-house, banks, Anglican church, and racecourse. It has no harbour and landing is by surf boats. It exports gold dust, palm oil, ivory, rubber, gum, and timber. Pop. 38,049.

ACCRINGTON. Municipal and parl. borough and market town of Lancashire, England. On the river Hindburn, 23 m. N.W. of Manchester by the L.M.S. Rly., it is an important cotton-spinning centre, with bleaching, cotton printing and dye works, and manufacture of chemicals and textile machinery. There are quarries and collieries near. S. James's Church, rebuilt in 1763, dates from 1554; the town hall, market hall, mechanics' institute, and other buildings are modern. First mentioned in Henry II's reign, Accrington was given a charter of incorporation in 1878. It returns one member for Parliament. Market days, Tues., Fri., and Sat. Pop. 43,610.

ACCUMULATION (Lat. ad, to; eumulare, to heap up). Term used in English law. By the *Theellusson Act* (1800) restrictions were placed on the accumulation of the income of property in the hands of trustees. A testator or settlor can direct the accumulation of the income of property only for one of the following periods: (1) the life of the settlor; (2) 21 years after his death; (3) the minority of any person or persons living at the settlor's death; or (4) the minority of any person who, if of full age, would be entitled to the income.

ACCUMULATOR. An accumulator is a device by means of which energy can be stored for future use. Accumulators are of various types, which differ according to the method in which the power to be stored is generated and applied. In engineering, the principal types of accumulator for the storage of energy on a large scale are hydraulic, steam, pneumatic, and electric.

The hydraulic accumulator is used to create an artificial head of water so as to maintain a constant pressure in water used for driving hydraulic machinery. The ordinary weight type of hydraulic accumulator consists of a long vertical cylinder in which a loaded ram works up and down. By varying the weight on the ram the pressure on water pumped into the cylinder may be changed according to requirements.



Accumulator for portable ignition

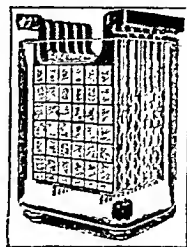
The electric accumulator is also known as a storage or secondary cell or battery. By its use electrical energy, converted into electrochemical energy, can be stored for a length of time so as to be available for reconversion into electrical currents. See *Battery*.

ACCUSATION. Term used in English law. It is a crime to accuse or threaten to accuse; or to send to any person any letter or writing with intent to extort money or gain, accusing or threatening to accuse either that person or another of a crime, or of any misconduct not amounting to a crime. See *Blackmail*.

ACE (Lat. as, a unit). Term originally used to denote the side of the dice with one pip. Hence the expression, when dicing with two cubes, deuce ace, i.e. deuce turned up with one die and ace with the other. The ace is also the one pip in playing cards; but though in dice always indicating the lowest, in cards the ace is often the highest of each suit. The term denotes one point at Badminton, racquets, tennis, etc.

The term ace was used in the Great War to designate a fighting pilot who had brought down five enemy machines in aerial combat.

ACELDAMA. Name meaning, in Aramaic field or place of blood. The modern Hakeldamm, it is a spot S. of Jerusalem identified with the potter's field of Zech. 11 and Matt. 27, and the *Aceldama* of Acts I, which Judas bought or the chief priests acquired as a burial place for strangers. During the Crusades pilgrims were hurried here.



Accumulator for a country house

ACETAL (Lat. acotum, vinegar). Colourless liquid ($C_2H_4O_2$), having a pleasant fresh smell and nutty after-taste. It was discovered among the products of the slow combustion of alcohol over platinum black, and was investigated more fully by Liebig in 1833. Acetal is one of the compounds which develop in and modify the flavour of wines. It is prepared by distilling a mixture of alcohol, manganese dioxide, water, and sulphuric acid.

ACETIC ACID. Acid ($C_2H_4O_2$) which occurs naturally in the juices of many plants, either in the free state or combined with potassium or calcium. Vinegar, the only acid known to the ancients, owes its sour taste to acetic acid, of which it contains from 3 p.c. to 10 p.c. Vinegar is produced mainly by the souring of wine or the fermentation of malt mash, the alcohol in these liquids being oxidised to acetic acid.

The acid is, however, chiefly made by the destructive distillation of wood, the impure acetic acid thus obtained being known as pyroligneous acid. Glacial acetic acid is the strongest acetic acid and has caustic properties.

Acetic ether is obtained by heating acetic acid and ethyl alcohol in the presence of sulphuric acid. It is used in medicine, organic synthesis, flavouring, etc.

ACETONE. Product (C_3H_6O) generally obtained by the distillation of wood or by the dry distillation of acetates. During the Great War it was obtained by several new processes. Acetone is a clear liquid with a peppermint-like and pungent odour. It has special properties as a solvent for resins, fats, celluloid, and gun-cotton, and is very largely used in the manufacture of cordite, synthetic indigo, and aeroplane dope. It is employed in place of alcohol for the manufacture of chloroform, and has the property of absorbing about 24 times its volume of acetylene, in which form it is an excellent illuminating agent.

ACETYLENE. Hydrocarbon gas (C_2H_2) given off by calcium carbide when mixed with water. A pound of calcium carbide yields about five cubic ft. of gas, which has an illuminating value sixteen times greater than an equal volume of coal-gas. The light is very white, and yields a spectrum very similar to that of daylight. The oxy-acetylene flame, obtained by projecting oxygen and acetylene from a mixing jet, is the hottest gas flame known, having a temperature of over $3,500^\circ C$. It is used to a great extent for cutting through plates and bars of iron and steel, and for welding metals of all kinds.

Small acetylene generators, such as those used for some cycle, hand-, and motor-car lamps, are of the simplest description, consisting only of a carbide container into which water drips through an adjustable valve from a water reservoir above. The pressure of the gas tends to check automatically the entry of an excess of water. In more elaborate apparatus for producing gas on a larger scale, movements of the gasometer are made to regulate the admission of water into the carbide chamber or of carbide into a water chamber. Calcium carbide is produced by fusing lime and coke together in an electric furnace. See Gas.

ACHAEA (Gr. Achaia). Name of an ancient division of Greece. It is on the N. coast of Peloponnesus and is bounded N. by the Gulf of Corinth. Mountainous, with a narrow strip of fertile land along the coast, it is the chief currant-growing district of the mainland. Patras is the chief town. Under the Byzantine Empire Achaea was a despotat or principality, and was conquered by the Turks in 1460. There was another Achaea in Thessaly.

In Homer, Achaeans is the general term for all Greeks as opposed to Trojans. In historical times the name was confined to the inhabitants of the Peloponnesian state of Achaea.

The Achaean League was originally a federation of twelve cities which gradually extended throughout Greece up to 146 B.C., when Achaea became a Roman province.

ACHATES. In Roman legend, the friend and faithful follower of the Trojan hero Aeneas. Achates is always distinguished by the epithet *fidus* (faithful), and his name has become proverbial. See Aeneas.

ACHELOUS. Longest river wholly within Greece. Now known as Aspropotamo, or white river, it rises in the Pindus mts., flows S. and divides Actolia from Acarnania before falling into the Ionian Sea. Its length is about 130 m. In Greek mythology, Achelous was a river god, son of Oceanus and Tethys.

ACHERON. In ancient geography the name of several rivers. The best known was in Epirus. It flowed through the Acheronian lake into the Ambracian gulf, and was regarded with awe as in some way connected with the underworld. Another was in Italy. Mythology knew of a river Acheron in Hades, which itself was often called by that name.

ACHEULIAN. Middle period of the lower palaeolithic age in Europe, when the warm Chellian was followed by a colder climate. Human remains are lacking, or of uncertain attribution, but the flint industry developed greatly, the houcher, or hand-axe, becoming finer, even-edged, ovate, and then pointed, and the flakes themselves utilised. First studied at St. Acheul, on the Somme—whence the name—the stations extend from England, across Central Europe to Poland.

ACHI BABA. Hill in Gallipoli. A barren ridge nearly 600 ft. high, it sends out rocky spurs on each side to the sea and so forms a barrier across the W. end of the peninsula. In 1915 it was fortified by the Turks, and the British attempts to take it were incidents in the Gallipoli campaign. See Krithia.

ACHILL or **EAGLE ISLE.** Largest island belonging to the Irish Free State. It lies off the W. coast, and forms part of county Mayo, from which it is separated by the narrow Achill Sound; area 57 sq. m. The surface is mountainous. There are cromlechs, stone circles, and other antiquities. Pop. 5,260.

ACHILLES. Greek hero, according to legend the son of Peleus and Thetis, and third in descent from Zeus. As king of the Myrmidons, he took part in the expedition against Troy, and in the *Iliad* Homer makes him the leading figure on the Greek side. By his mother Achilles was made invulnerable, the most popular version being that she did this by dipping him in the river Styx. In so doing she held him by the heel; consequently this was untouched by the water and hence originated the proverbial phrase about the heel of Achilles.

After Achilles had reached Troy he performed redoubtable deeds against his foes, eventually carrying confusion into the Trojan ranks. The circumstances of Achilles' death are variously described, although not by Homer. In the *Odyssey*, Homer tells how his remains were buried on the shores of the Hellespont.

The Achilles statue in Hyde Park, London, is a restoration, in bronze, of one on the Quirinal Hill, Rome, and was erected in 1822 as a memorial to the first Duke of Wellington.



Achilles, Greek hero
Ancient marble statue,
from Villa Borghese,
now in Louvre, Paris

The Achilles Club was founded in 1920, membership being confined to athletes from Oxford and Cambridge, who engage in contests with public schools, etc. The address is 71, Eccleston Square, London, S.W.

ACHIN, **ATCHEEN** or **KOTARAJAH.** Town of N.W. Sumatra, Dutch East Indies, it is the Dutch Atjeh. On the Achin river, 4 m. by rly. from the port of Olchleh, and the capital of the prov. of Achin, which is about 20,500 sq. m. in area. It lies at the foot of Gold Mountain, 5,660 ft. The Dutch, to whom the prov. with other territory in Sumatra had been ceded by Great Britain in 1824, sent out in 1873 the first of several expeditions to subdue the native risings. Dutch civil government was established in 1880, but hostilities were resumed in 1896 and 1898, and again in 1901-4.

ACHISH. A Philistine king of Gath with whom David twice found refuge when fleeing from Saul (1 Sam. 21 and 27-9). On the first occasion David feigned madness to avoid recognition.

Achor. Valley in Canaan. Here Achan was stoned (Josh. 7) for secreting spoil in his tent after the fall of Jericho.

ACHRAY. Small loch or lake in Perthshire, Scotland, between lochs Katrine and Vennachar. It is mentioned in Scott's poem *The Lady of the Lake*. About $1\frac{1}{2}$ m. long and $\frac{1}{2}$ m. broad, it provides good fishing.

Achromatic Lens (Gr. *achromatos*, colourless). Optical instrument for correcting the chromatic aberration (q.v.) of white light.



Janet Achurch,
British actress
Downey

Mrs. Charrington toured the world with this play, interpreting Ibsen for the first time in English in many lands. She died at Ventnor, Sept. 11, 1916.

ACID (Lat. *acidus*, sour). Popularly, an acid is any sour substance, but chemically acids are salts of hydrogen, as belonging to a class of substances which always contain hydrogen. Other general characteristics are that they have a sour taste, possess the property of neutralising alkalis to form well-defined salts and change the colour of blue litmus paper to red. As some salts exhibit acid properties, it is necessary to add that the substances must contain no basic elements or group of elements.

Other elements than hydrogen are present in acids. If the acid contains oxygen, e.g. sulphuric acid (H_2SO_4), the abstraction of water (H_2O) leaves the anhydride or acid oxide. If the acid contains no oxygen, it is indicated by the prefix *hydro*, e.g. hydrochloric acid (HCl), or hydrocyanic acid (HCN). The termination *ic* indicates that the characteristic element or group exercises its highest valency; the termination *ous* means that the second highest valency obtains.

Some acids on treatment with the hydroxide of an alkali metal exchange all their hydrogen for metal, thus producing a normal salt, while other acids produce acid salts in addition, i.e. all the hydrogen is not replaced. The former variety of acid is termed monobasic, and the latter class polybasic.

Inorganic acids or mineral acids are combinations of non-metallic elements with hydrogen only, or with an additional element, generally oxygen. Organic acids are considered as derived from hydrocarbons or their alcohols by the replacement of hydrogen (H), or hydroxyl (HO), by the carboxyl group (CO-OH). Examples of inorganic acids are sulphuric acid, hydrochloric acid, and nitric acid, while well-known organic acids are acetic acid, citric acid, and tartaric acid.

Acidimetry is the name given to the chemical process of measuring the amount or strength of acid in solid or liquid substances.

ACIREALE. Ancient town and epise. see on the E. coast of Sicily. It is 9 m. by rly. N.E. of Catania, at the S.E. base of Mt. Etna and the mouth of the river Acis, from which it takes its name. It has important thermal springs, and is a favourite sea-bathing place. Features are the cave and rocks of Polyphemus and the grotto of Galatea. Pop. 35,587.

ACIS. In classical mythology, a shepherd of Sicily, son of Faunus, beloved by the nymph Galatea. His rival, Polyphemus the Cyclops, crushed him to death with a mass of rock, whereupon the gods changed his blood into a stream of the same name at the foot of Mt. Etna. The story, told by Ovid, is the basis of Handel's oratorio, *Acis and Galatea*.

ACKWORTH. Parish in the W. Riding of Yorkshire, England. It is 3½ m. S. of Pontefract on the L.M.S. and L.N.E. Junction Rly. At a school here, managed by the Society of Friends, John Bright and other prominent Quakers were educated. Pop. 4,831.

ACLAND. Name of an English family long settled in Devon and Somerset, the baronetcy dating from 1645. John Dyke Acland (d. 1778), soldier and politician, was the eldest son of Sir Thomas Acland. He keenly advocated the vigorous prosecution of the war with America, and in 1776 sailed with General Burgoyne's expedition.

Henry Wentworth Dyke Acland (1815-1900) was appointed Lee's Reader in Anatomy at Oxford, 1845, and was Regius Professor of Medicine there, 1858-94. It was largely through him that the study of natural science was introduced and that of medicine revived at Oxford. He was created a baronet in 1890.

Thomas Dyke Acland (1809-98) succeeded his father as 11th baronet in 1871. He became Tory M.P. for West Somerset in 1837, but in 1846 followed Sir Robert Peel, and finally joined the Liberal party, representing North Devon, 1865-85. His second son, Arthur Herbert Dyke Acland (1847-1926), who succeeded to the family baronetcy in 1919, is best known as an educationist. His son, Sir Francis Dyke Acland (b. 1874) entered the House in the Liberal interest and held several ministerial appointments under Asquith.

ACLINIC LINE (Gr. a, not; klinein, to bend). Line along which there is no dip of the magnetic needle. Elsewhere, owing to the magnetic attraction of the earth, freely suspended and horizontally balanced needles dip downwards at one end after having been magnetised. The acclinic line, also called the magnetic equator, makes an irregular curve roughly following the equator. Lines along which the magnetic dip is everywhere the same are called isoclinic lines.

ACNE. Chronic disease of the skin, most frequently caused by obstruction of the ducts of the sebaceous or oil glands. Several forms are recognized, the commonest being acne vulgaris, which appears most frequently on the face, back of the neck, back, and chest. The first sign is an eruption of small red pimples, which may suppurate, and often in the centres of these a small black point, a blackhead or comedo, the obstructed termination of the duct, may be seen. Treatment is

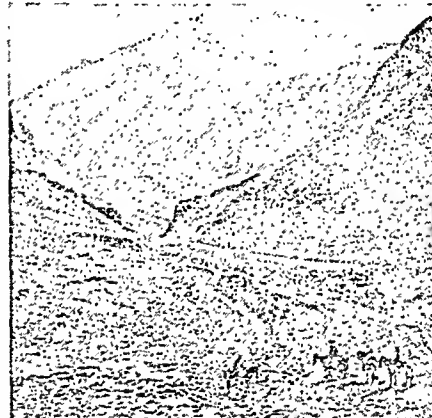
by local applications and building up the constitution by healthy living.

ACOLYTE (Gr. akolouthos, attendant). Name given in the Roman Catholic Church to a young cleric of the fourth minor order ranking next to a subdeacon. His office, first mentioned at Rome in the 3rd century, was that of a candle bearer. The name is also given in the Anglican church to one who performs similar duties.

ACOMA. Indian village in New Mexico, U.S.A. It is 80 m. W.S.W. of Albuquerque, and is supposed to be the oldest continuously inhabited place in the States. It stands on a sandstone rock or mesa, at an alt. of 250 ft. above the floor of the cañon, which is here 6,040 ft. above sea level, and is approached by a winding stairway. Around it is an Indian reservation of nearly 100,000 acres. Pop. 830.

ACONCAGUA. Highest mt. in S. America, some 90 m. E. by N. of Valparaiso. An extinct volcano, it is in the Andes on the borders of Chile and Argentina, the summit, 23,097 ft., being in the latter country. It was first ascended in 1897 by Zurbriggen. A river of the same name rises on its S. slopes and flows for 200 m. to the Pacific.

It gives its name also to a province of Chile, 5,406 sq. m. in area, and extending from the



Aconcagua, the highest peak of the Andes. It gives its name to one of the provinces of Chile

Andes to the Pacific. The capital is San Felipe, and the population about 132,000. See Andes.

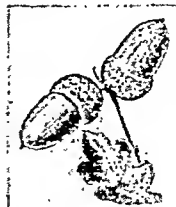
ACONCIO, GIACOMO (1492-1566). Italian philosopher, theologian, jurist, and engineer. Having left the Church of Rome, he was banished and took refuge in England. He became a favourite of Queen Elizabeth, to whom he dedicated his *Stratagems of Satan*, which, written in a tolerant spirit, made him many enemies.

ACONITE. Genus of Ranunculaceae, one of which is Monkshood, its active principle is one of the most deadly poisons known. Treatment in cases of poisoning, while awaiting the doctor, is to give an emetic, keep the patient lying down, apply warmth to the limbs, and start artificial respiration if the breathing is failing. See Monkshood.

ACORN. The fruit of the oak-tree (quercus). Botanically it is a nut, standing in a cup which is composed of a number of consolidated bracts.

Acorn Barnacle. Popular name for a genus of Crustacea. See Barnacle.

ACOUSIMETER (Gr. akouein, to hear; metron, measure). Instrument for gauging



Acorns and oak leaf

the acuteness of the sense of hearing. It consists of a steel bar which is beaten with a hammer and it was invented by the French aurist, Jean Gaspard Itard (1775-1838).

ACOUSTICS (Gr. akouein, to hear). Name sometimes given to the theoretical treatment of the manifestation of sound, but more correctly the investigation of the conditions in which sounds are heard in everyday life, more especially sounds heard in confined places.

Buildings used for public speaking, churches, balls, theatres, etc., vary much in their acoustic properties. The indistinctness of sound in such places is always to be referred to the reflections of the sound waves, which, impinging on the walls or roof, are reflected back and conflict with the waves proceeding from the original source of sound. Many devices have been used to neutralise these effects.

Very few actual data, however, have been arrived at to show what is the best shape of interior and what the best proportionate dimensions in order to ensure good acoustic qualities. It has been proved that the wires stretched across balls or theatres effect little or nothing, and that in some cases it is impossible to alter the echoes or interferences with sound by any sound-reflecting devices. In general, the reflections or echoes can be rendered less noticeable by the abolition of large smooth surfaces and by the substitution of broken surfaces which do not reflect the sound in simultaneous volume. See Sound.

ACQUAVIVA, CLAUDIUS (1543-1615). Fifth general of the Jesuits. Born at Naples of a noble family, he joined the Society of Jesus in 1567, and was elected general in 1581. As an organizer and educator he proved the ablest general the order has ever had. His scheme for regulating Jesuit education is still authoritative within the society. He died at Rome Jan. 31, 1615.

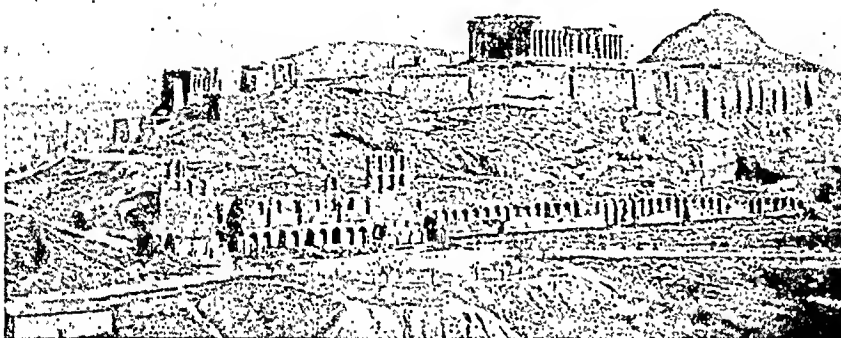
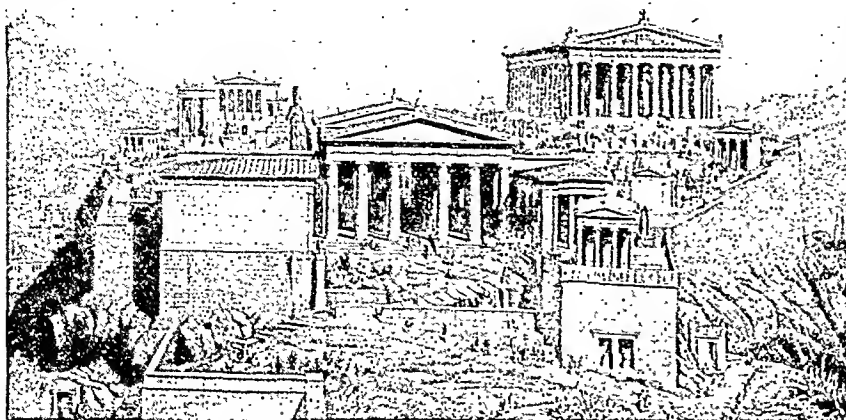
ACQUITTAL (Lat. ad, to; quietare, to quiet). Legal term, meaning the discharge of an accused person by order of the court after he has been properly indicted. It is a bar to any further prosecution for the same matter.

ACRE (Gr. agros, field). British imperial land measure containing 4,840 sq. yds. It is divided into four roods. Local acres, generally smaller in size than the statute acre, still survive in Scotland, Ireland, and parts of England. The word, variants of which are found in most European languages, is occasionally used to denote open ground generally or a particular piece, e.g. the familiar God's acre. See Weights and Measures.

ACRE, ST. JEAN D', OR AKKA. Seaport and town of Palestine. On a promontory at the base of Mt. Carmel, 80 m. N.N.W. of Jerusalem, it is connected by rly. with Haifa and Damascus. The harbour is partly sanded up, and shipping goes mostly to Haifa. It trades in cereals, oil, etc. Apart from the ruined Crusaders' walls, few old buildings remain.

Of remote antiquity, the Accho of the O.T. (Judges 1), and the Ptolemais of the N.T. (Acts 21), Acre, known as the Key of Palestine, was captured by the Arabs in 638. After passing to the Crusaders it was again lost by the Christians in 1291. The Turks took it in 1517, and it fell into decay. After its revival, a French trading community settled here, and Napoleon besieged it in 1799, but was defeated by the Turks aided by Sir Sidney Smith's sailors. In 1832 Ibrahim Pasha captured and held it till 1840, when it was taken by the British, Austrian, and Turkish fleets. It was restored to Turkey the next year. During the Great War Acre was occupied by British cavalry Sept. 23, 1918. Pop. 6,420.

ACRIDINE (Lat. acer, sharp). Basic substance (C₁₂H₈N) contained in crude anthracene. From this it can be extracted as



Acropolis of Athens. Below, the ruins seen from the south-west. The Parthenon dominates the hill, while beyond it to the left is the Erechtheum, and, still farther to the left, the Propylaea. To the right rises Mount Lycabettus. Above is a restoration of the Acropolis seen from the west.

acridine chromate by adding sulphuric acid and potassium bichromate. On treating the acridine chromate with ammonia the base is obtained. The most characteristic property of acridine is that it causes sneezing when its dust or vapour is inhaled. It is the active ingredient in electric snuff. Acridine derivatives are employed as dye-stuffs.

ACRISIUS. In Greek mythology, king of Argos and father of Danaë. To prevent the fulfilment of an oracle which declared he should be slain by his grandson, Acrisius shut up Danaë in a tower. There, however, she was visited by Zeus in the form of a shower of gold, and had a son Perseus, by whom Acrisius was accidentally killed some time later.

ACROBAT (Gr. akrobatos, walking on tip-toe). General term for a professional performer on the trapeze, a tight-rope walker, or a tumbler. In medieval times such performers, male and female, were called in England tumblers, and their feats are illustrated in several 13th and 14th century MSS. A troop of acrobats has always been one of the stock turns of a travelling circus, and daring trapeze performances are to be seen at the chief music halls. Charles Blondin in 1859 walked several times across a tight rope over Niagara Falls, once with a man on his back.

ACROCERAUNIA (Gr. akros, highest; keraunos, thunderbolt). Promontory of Albania, now called Cape Glossa or Cape Linguetta. It had an evil repute in classical times, especially among sailors, and Horace refers to its ill-famed rocks. Shelley mentions it in his poem *Arethusa*, as does Tennyson in his poem, *To E. L. on his Travels in Greece*.

ACROGENS (Gr. akron, top; gen-, to be born). Plants that grow by additions to the summit only. The term was formerly used to denote the ferns, mosses, and horsetails.

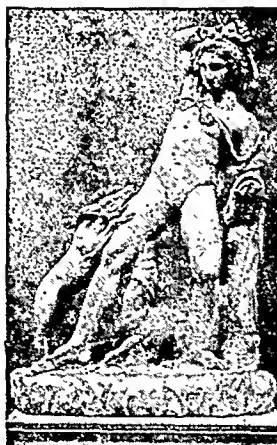
ACROGRAPHY. Process of making printing blocks. It was invented by an American, N. S. Amstutz. A gelatine relief is made from a photographic negative and mounted on a cylinder. A sheet of celluloid is secured round it and the cylinder rotated against a V-shaped cutting tool, which produces sharp furrows on the celluloid, corresponding with the variations in the gelatine relief.

The cylinder is shifted through a minute distance after each revolution, the two movements taking place automatically and exposing the whole surface to the cutting tool. See *Printing*.

ACROLITH

(Gr. akron, top; lithos, stone). Ancient Greek statue, of which the trunk was of wood and the head, arms and feet of stone. The draperies were often covered with gilding.

ACROMEGALY (Gr. akron, top; megas, large). Rare disease, the most prominent symptom of which is enlargement of the bones, particularly those of the hands and feet.



Actaeon changing into a stag and attacked by his dogs

Antique in British Museum

ACROPOLIS (Gr. akros, topmost; polis, city) Greek hill stronghold. Applied originally to a site on the top of a rocky hill, the word came to mean the citadel itself, and is specially applied to the Acropolis of Athens. This is a long mass of rock 500 ft. above sea level, at its highest point, and precipitous except on its western side. The approach, called the Propylaea, is a wall of Pentelic marble, with five gateways.

During the Persian war its buildings were destroyed and rebuilt by Cimon, and in the age of Pericles it was adorned with splendid specimens of Athenian architecture: the Parthenon, or temple of the maiden goddess Athena, from which the Elgin Marbles, now in the British Museum, were brought to England by Lord Elgin in 1812; the Erechtheum, sacred to Poseidon, god of the sea, and to Erechtheus, a mythical king of Athens; the temple of Nike Apteros or Wingless Victory; the Odeum, a hall for musical entertainments, built by Pericles; the theatre of Dionysus; and a temple of Asclepius (Aesculapius). The statues included the colossal Athena Promachos in bronze; the ivory and gold statue of Athena by Pheidias in the Parthenon, and six statues of maidens known as the Caryatides in the Erechtheum. See *Athens*.

ACROSTIC (Gr. akron, end; stichos, row). Series of lines of which the first words are chosen because their initial letters, read downwards, compose a word or sentence. In the double acrostic ingenuity is carried to the further point of making the terminal letters of each line perform a similar, complementary function. Acrostics once engaged the serious attention of poets and poetasters.

ACT. In drama, that portion of a play which is performed continuously, and is followed by a brief period of rest, or *entr'acte*, intended to denote the passage of time. This division, even that into five acts, dates back to Roman times. On the other hand, the ancient Greek drama was not thus divided, breaks in the action being filled in by choric passages. Modern dramatists have largely broken with the five-act tradition, and their plays are frequently divided into but three or four acts, indicating three more or less definite stages in the story unfolded—exposition, development, and climax. An act may consist of one or several scenes. See *Drama*.

ACTAEON. In Greek mythology, a famous huntsman, pupil of the centaur Chiron. Having watched the virgin goddess Artemis (Diana) bathing, he was changed by her into a stag, in which form he was torn to pieces by his fifty dogs on Mt. Cithaeron. The dogs are supposed to represent the dog days which destroy vegetation.

ACTA SANCTORUM (Lat. Acts of the Saints). Collection of histories and legends of saints and martyrs projected by Heribert Rosweide (d. 1629), and begun at Antwerp in 1643, by Jan van Bolland, a Jesuit. See *Bollandists*.

ACTING. The origins of the art of acting, like those of drama, are probably to be traced in ritual, associated as that must usually have been with dancing. To this, which from a religious gradually became a communal affair, first pantomime, then recitation or dialogue would be added. Masks were worn by primitive tribes, and masks long kept their place in connexion with the art; early players sometimes copied the appearance and movements of animals—so perhaps arose comic acting—and only by degrees would speech replace mere incantations of magic.

In the Middle Ages, really a new civilization, acting starts again much as in Greece or the East. The first medieval actor was the priest who dramatised his Church's service; and in the miracle plays, until they were given in the

streets, the clergy must have monopolised the acting.

Clowning folk-comedy passages figured in most miracle plays, and from quite early days seem to have been left to professionals. As the mysteries passed into the hands of artisans, and from theirs into those of strolling players, the clergy's attitude changed, with the result that before the end of the 16th century interdicts vetoed performances of ecclesiastical plays on the grounds of the ignorance and incompetence of the actors.

The French farce players provided something more professional, but their methods were coarse and their technique was trivial alongside the work of exponents of the famous Italian comedy of art.

On the English stage talent soon revealed itself with the opportunities afforded by Shakespeare. The Elizabethan stage, whatever its structure, was essentially a platform stage, and the appeal of the theatre was, and continued to be, rhetorical and perhaps statuesque rather than, as to-day, pictorial.

Boys played heroines' parts until the Restoration, when to the re-opened theatres came the actress, scoring at first chiefly as comedienne. Her influence would seem to have bettered the technique of comedy acting, for Molière bears witness to the care taken about accentuation, character painting, and ensemble. Betterton, in England, seems to have had a stiffer style, and it was left to Garrick to restore naturalism to the stage and replace tumid declamation by insistence on the human element in acting.

Since the actor must be a perfect instrument and his body must form no small part of that, he should, unless specialising in comic or eccentric character, be well proportioned, have an agreeable bearing and possess features which are mobile and can be built up into something like beauty or strength. He should keep himself physically fit, be a fair adept at fencing, have mastered the tricks of make-up, be able to wear clothes of all periods easily, and gesticulate far more freely than is common in English private life; he should have learnt repose, and with it the manipulation of the hand, the carriage of the person, and the art of throwing himself into graceful postures.

He should be acquainted with the customs and manners of different eras. He should own a trained and musical voice, have the gift of memorising, and the adaptability to work in ensemble. He must have the instinct for phrasing, no less important, as Charles Wyndham

ACTINIC RAY (Gr. *aktis* ray). Rays of sunlight which do not give out heat, but produce chemical changes. A beam of sunlight is made up of rays which range in colour from red to violet. Beyond the violet rays are other invisible rays known as ultra-violet. These are of much shorter wave length, do not give heat, but are much more active in producing chemical changes. They are the rays which produce alterations in the chemicals of the photographic plate, and are also notable for their effect on body metabolism. *See* Light.

ACTINIUM. Radio-active substance accompanying thorium extracted from pitchblende. It was discovered in 1899. Actinium disintegrates, seven successive radio-active products having been identified as formed during the process. Actinium emanation has the characteristic property of rendering bodies with which it comes in contact temporarily radio-active. *See* Radium.

ACTINOLITE. (Gr. *aktis*, ray; *lithos*, stone). Natural silicate of calcium, magnesium,



Acting. Scene in the green room of a Greek theatre, showing an author (seated) directing an actor on the management of his hands

After mosaic found at Pompeii

and iron. A member of the group of monoclinic amphiboles, it contains no alumina and is green in colour. It occurs in fibrous aggregates, or elongated crystals.

ACTINOMETER. Instrument for measuring at any moment the direct heating power and chemical properties of the solar rays, invented by Sir John Herschel in 1825. With it is used the actinograph, which records variations in power of the solar rays.

ACTINOMYCOSIS (Gr. *aktis*, ray; *mykes*, fungus). Disease in cattle, occurring rarely in the horse, and sometimes in sheep, pigs, and dogs. Human beings occasionally suffer from it. In cattle it is commonly known by the name of wooden tongue, because it usually attacks that organ, producing a hard growth. The disease is due to a parasite known as the ray fungus, which reaches the tissues of the animal by means of some foodstuff, especially barley, on which the fungus grows.

ACTION. In legal phraseology this term means "a civil proceeding commenced by writ, or in such manner (e.g. by originating summons) as may be prescribed by rules of court." Thus, divorce suits are not actions, nor any bankruptcy proceedings, because they are commenced by petition and not by writ. Nor are criminal proceedings actions, because they are commenced by summons, indictment, or information; and, moreover, they are not civil proceedings. *See* Appeal.

ACTIUM. Promontory of Acarnania on the coast of ancient Greece. Here, Sept. 2, 31 B.C., the great naval battle took place between the forces of Antony and Cleopatra and those of Octavian, commanded by Agrippa. Antony's defeat left Octavian (Augustus) master of the Roman world.

ACT OF GOD. Term used in English law to mean some act or convulsion of nature so extraordinary that it could not be foreseen; or, if foreseen, could not be guarded against. For example, an extraordinarily high tide, a tempest of rare violence, and the like. Act of God is, as a rule, a good defence to an action: e.g. where one is bound to keep a sea wall in repair, and it is overthrown by a remarkably high tide.

ACT OF PARLIAMENT. Official name for a measure which has become the law of the land. The word bill is applied to a measure on its introduction, and for it to become an Act it has to be read three times in the House of Commons, approved by vote, and sent to a committee for examination. Any alterations by this committee must be approved by the House. The bill is then sent to the House of Lords, where the same procedure is gone through, and, finally, having received the royal assent, it becomes an Act.

The Acts of each session are arranged in chapters, and officially quoted according to the year of the reign in which they are passed.

The Acts of the English Parliament go back to 1235. The Acts of the Scottish Parliament date from about 1430 to 1707, and those of the Irish from 1310 to 1800. *See* Assent.

ACTON (A.S. *ac*, an oak; *tun*, a town or farm). Munic. borough of Middlesex, England, 4 m. W. of London (Paddington). A residential and industrial suburb, it is reached by the G.W., L.M.S., Metropolitan and Central London railways, and by trams and omnibuses. It has manufactures of motor parts and accessories, engineering works, aeroplane construction works, laundries, dyeing and cleaning works, and an aerodrome. Here are the enormous offices of the Ministry of Pensions. Other buildings are the town hall and the technical institute opened in 1929.

In the 18th century Acton's medicinal springs, which Queen Elizabeth had visited and which were long fashionable, were reputed to possess the qualities of Cheltenham waters. Richard Baxter, Henry Fielding, and Bulwer Lytton were residents. It was made a borough in 1921 and the division sends a member to Parliament. Pop. 63,040.

ACTON, JOHN EMERICH EDWARD DALBERG, 1ST BARON (1834-1902). British historian and moralist. Born Jan. 10, 1834, at Naples, of an old Roman Catholic family, Acton was the eldest son of Sir John F. E. Acton 7th Bart. In 1858 Acton settled at Aldenham, Shropshire, where he formed his famous library of 59,000 volumes, now in the university of Cambridge. He sat as Liberal M.P. for Carlisle, 1859-65, but spoke only once in the House. Honoured by many universities, Acton was appointed, in 1895, regius professor of modern history at Cambridge and elected honorary fellow of Trinity College. Lord Acton was a profound scholar and a gifted historian. He planned *The Cambridge Modern History*, and died June 9, 1902.

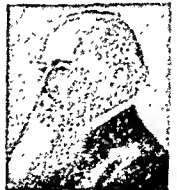
His grandfather, Sir John Francis Edward Acton, 6th Bart. (1736-1811), was invited in 1779 to reorganize the Neapolitan navy, and became successively minister of marine, minister of war, generalissimo of the sea and land forces, and prime minister of Naples.

ACTS OF THE APOSTLES. Fifth book of the N.T., giving the earliest history of the Christian Church. The authorship was attributed by early writers to S. Luke, and this has never been seriously questioned. The date was probably about A.D. 65.



Acting. Mask to intensify voice

showed, in comedy than in poetic drama; he must live the character he plays, as much when silent as speaking. Finally, to say nothing of imagination and brains, he must have laughter, emotion, and every mood ready at the playwright's call. *See* Drama; Theatre. Consult *How to Act*, H. Browning, 1925; *The Drama in Europe in Theory and Practice*, E. F. Jourdain, 1924.



Lord Acton, British historian
Elliot & Fry

The first twelve of the chapters describe the rapid spread of Christianity after the Ascension of Christ, and deal mainly with the Church in Palestine, with S. Peter as the dominant figure. The remainder of the work consists of a somewhat broken biography of S. Paul and an account of his missionary journeys.

ACTUARY. Word of Roman origin, now mainly used to describe those who work out calculations for insurance companies and similar bodies. They calculate the cost of a pension scheme, and the payments necessary to keep it solvent; work out rates for annuities and the cash values of reversionary interests; and report upon the solvency or otherwise of a friendly society. Their interests are protected by the Institute of Actuaries (Staple Inn, Holborn, London, W.C.) and by the Scottish Faculty of Actuaries (14, Queen Street, Edinburgh). See Insurance.

ADAD OR HADAD. Storm god in Babylonian and Assyrian mythology. Controller of storm and flood and their consequence, famine, he was a power to be dreaded, or to be invoked for the overcoming of enemies. Under another of his names, Rammon, said to be the Rimmon of the O.T. (2 Kings 5), he is connected with the flood legends.

ADALIA. Seaport of Turkey. It is on the Gulf of Adalia, an opening on the S. coast of Asia Minor, about 200 m. S.E. of Smyrna. Timber, grain, cattle, and horses are exported, but its commercial importance has declined through inadequate harbour facilities. Founded by Attalus II (220-138 B.C.), king of Pergamum, and known as Satalia to the Crusaders, Adalia, or Attalia, figures prominently in the medieval history of the Levant. Pop. 28,000, including 9,000 Greeks.

ADAM. Biblical figure, the reputed progenitor of the human race. According to the narrative in Genesis I, on the sixth day "God created man in his own image, in the image of God created he him; male and female created he them." In the second chapter a similar account, though with some variations, is given: "And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life, and man became a living soul."

According to the second narrative Adam was created first and Eve afterwards, because "it is not good that the man should be alone." They were placed in the Garden of Eden and given dominion over the rest of the animal creation. They were allowed to eat of the fruit of all the trees in Eden except the tree of knowledge, which they were forbidden to touch. The serpent, however, tempted them, and Eve succumbed, and afterwards induced her husband to partake of the forbidden fruit. For this they were driven from Paradise and a curse was laid upon them.

The literal truth of this narrative has been called in question by modern criticism. It is not easy to reconcile it with the facts of science, especially with the recent developments of geology and biology. Similar narratives are found in most mythologies, and some remarkable parallels have been found in the legends of Babylonia and Persia.

ADAM, JULIETTE (b. 1836). French authoress. Born Oct. 4, 1836, at Verberie, daughter of Dr. Lamber, she married in 1851 M. Lamassine, a lawyer, and in 1868 M. Edmond Adam, a senator (d. 1877). The leading woman writer in France for over fifty years, and one of the most learned, progressive, and vivacious, she founded a salon described as "the birthplace of the Republic." In 1879 she established *La Nouvelle Revue*, which she edited until 1899; under the name of Count Paul Vassili she wrote plays, works of travel, poetry, fiction, criticism, biography and politics. See Mme. Adam, La Grande Française, Winifred Stephens, 1917.

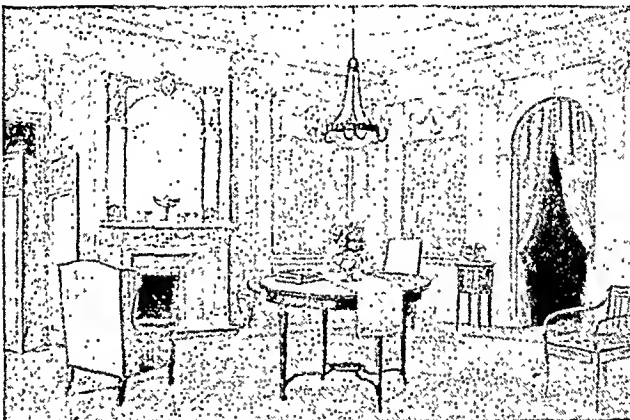
ADAM, ROBERT (1728-92). British architect. The second son of William Adam, of Maryburgh, he was born at Kirkealdy, and educated at Edinburgh University. In 1754 he went to Italy, and for eight years studied the buildings in that country. In 1764 he published drawings of Diocletian's palace at Spalatro, in Dalmatia, which he selected as a typical residential building of classical times.



Robert Adam.
British architect

On Adam's return from Italy in 1762 he was appointed architect to George III, but resigned this position in 1768, when he became parliamentary candidate for Kinross-shire. In this year also he began the plans for building the Adelphi—so called by him because his three brothers, especially James, were associated with him in this work. Adam's other works included the fine screen to the Admiralty building, Whitehall; Lansdowne House, London; the Infirmary at Glasgow; the Register House, Edinburgh; Osterley House, Brentford; Caen (or Ken) Wood House, Hampstead; and Luton Hoo, Bedfordshire. He died March 3, 1792, and was buried in Westminster Abbey.

ADAM STYLE. Adam's architecture was more than equalled by his achievements as a decorator of interiors. His ceilings, chimney-pieces, staircases, etc., were designed with a



Adam style. Drawing room furnished and decorated in the style introduced in the 18th century by Robert Adam, and remarkable for lightness and grace

lightness and grace that brought a new note into the application of classicism to domestic dwellings, and has influenced interior decoration to this day. He designed furniture and fittings to harmonise with the result that an Adam room is distinguishable by its perfect unity.

While arabesques, sphinxes, and griffins were introduced, extravagances were severely toned down. Prominence was given to conventionalised floral, geometrical, and ribbon forms, often combined with the key, wave, boney-suckle, and palm motifs, sometimes framing medallions and panels with figure or other paintings or designs in line relief. Such panels and medallions on walls, ceilings, and furniture were painted by Angelica Kauffmann, Zuechi, Pergolesi, and others. Colour schemes were subdued in tone, in which half-tints prevailed.

In furniture, satinwood, amboyna, hawwood, and other light woods were used in combination with mahogany. Everything was light and elegant, with marked leaning towards straight lines, though curved forms were also employed. Legs of chairs and tables were tapered and usually lightly fluted. Carving was reduced to the minimum, reliance being mainly on outline and harmonising tones. See Adelphi; Furniture

ADAMANT (Gr. a, not; damacin, to tame). Word applied in the 3rd century B.C. to the emery stone of Naxos, then the hardest known crystalline stone. It was long a synonym for the lodestone and among scientists for the diamond. Adamantine spar is a semi-transparent, light brown corundum, which exhibits the phenomenon of asterism or a cluster of stars.

ADAMELLO. Mountain of Italy, 11,661 ft. high, in the Lomhard Alps. The chief peak of a great glacier region between the Val Camonica, on the W., and the Etschtal, or Adige Valley, on the E., it was first ascended in 1864 by Julius Payer. In April, 1916, the crest of the glacier was captured by the Italian Alpini from the Austrians.

ADAMITES. Name of several sects who prayed and worshipped in a state of nudity. The first, in Africa, was an obscure Gnostic sect of the 2nd century; another, in Antwerp, belonged to the 12th century; and a third, sometimes called Picards, after their Flemish founder, was exterminated by the Hussite general Ziska in 1421. They professed to revive the original innocence of Adam.

ADAMNAN, SAINT (624-704). Abbot of Iona. Born at Drumbone, Donegal, brought up in a monastery, and influenced theologically by the Venerable Bede, he became abbot of Iona in 679. He wrote, in Latin, a Life of S. Columba, which has been translated into English, and is a very valuable historical work. He also wrote a work on the Holy Places, based on experiences understood to have been communicated to him by Arculfus, a Gallic bishop shipwrecked on the British coast while returning from the Holy Land. He died Sept. 23, 704.

ADAMS, JOHN (1735-1826). The second president of the U.S.A. Born Oct. 30, 1735, at Braintree, later Quincy, Massachusetts, he graduated at Harvard and became a lawyer. As a delegate from Massachusetts, he was a member of the continental congress at Philadelphia in 1776. He helped to draft the Declaration of Independence, and was president of the Board of War in Washington's Cabinet. As a commissioner from Congress, Adams repeatedly visited France and Holland, and was a member of the body which arranged the treaty of 1783 between Great Britain and the U.S.A. Two years later he was appointed minister to Great Britain and in 1796 was a candidate for the presidency. He was supported by the Federalists and defeated his opponent, Thomas Jefferson. In 1800, however, the two were again candidates, and this time Adams was beaten. He died at Quincy, July 4, 1826.

ADAMS, JOHN (c. 1760-1829). English seaman, mutineer and settler, whose real name was Alexander Smith. Under the lead of Fletcher Christian he took part in the mutiny on H.M.S. Bounty (q.v.), April, 1789. Of the nine members of the crew who left Tahiti and, with Tahitian wives, settled on Pitcairn Island, he was in 1808 the sole survivor.



John Adams.
American president

ADAMS, JOHN COUCH (1819-92). British astronomer. Born at Launceston, Cornwall, June 5, 1819, he is famous for having predicted the existence of, and ultimately discovered, the planet Neptune. Owing to delays in investigating it at Greenwich and Cambridge, the credit of priority passed to the French astronomer, Leverrier. Adams's work was completed in June, 1846, and the planet was found by the German astronomer Galle on Sept. 23, 1846, very near the place assigned to it by Leverrier. It was observed at Cambridge six days later. Adams became professor of astronomy in 1858, and was director of the Observatory at Cambridge from 1860 until his death, Jan. 21, 1892.

ADAMS, JOHN QUINCY (1767-1848). Sixth president of the U.S.A. The son of John Adams, the second president, he was born July 11, 1767, at Quincy, Massachusetts.



J. Quincy Adams, American president

After studying at Paris, Leyden, and Amsterdam, he became professor of rhetoric at Harvard. In 1814 he was one of the negotiators of the treaty with Great Britain which ended the war of 1812, and from 1814-17 he was American minister in London. Appointed in 1817 secretary of state under President Monroe, he was partly responsible for the purchase of Florida from Spain, and strongly supported the Monroe doctrine. He was a candidate for the presidency in 1824, when none of the four candidates secured the necessary majority, and the House of Representatives chose Adams. Defeated on offering himself for re-election in 1828, in 1831 he entered the House of Representatives, where he became a supporter of the emancipation of the slaves. He died Feb. 23, 1848.

ADAMS, MAUDE KISKADDEN (b. 1872), American actress. Born at Salt Lake City, Nov. 11, 1872, both her parents being on the stage, she made her theatrical debut in children's parts. After experience under the management respectively of E. A. Sothorn, C. Frohman, and John Drew, she made a hit in 1892 in *The Masked Ball*. This was followed by successes as Babbie in *The Little Minister*, 1898; the Duke in *L'Aiglon*, 1900; Miss Phoebe in *Quality Street*, 1902; and Rosalind in *As You Like It*, 1910.



Maude Adams, American actress

ADAMS, WILLIAM (c. 1575-1620). English sailor and the first Englishman to settle in Japan. Born at Gillingham, Kent, Adams went, in 1598, as pilot on board the *Charity*, a Dutch vessel bound for India. The ship lost its way and the crew found themselves off the coast of Chile. Making their way across the Pacific, they reached Japan in April, 1600, and at Osaka Adams interviewed the ruler of that country, who gave him an estate and kept him in Japan. Adams married and assisted in founding an English settlement on the island of Hirado. He died May 16, 1620. A monument to him was unveiled at Yokosuka in May, 1918. His story is found in the publications of the Hakluyt and Japan Societies.

Adam's Apple (Lat. *Pomum Adami*). Protuberance of the larynx seen in the front of the neck. See *Larynx*.

ADAM'S BRIDGE. Chain of rocks and sandbanks, running N.W. to S.E. between Rameswaram Island, off the S. coast of Madras, and Manar Island, off the N.W. coast of Ceylon. At high tide the bridge, which is 17 m. long, is

covered by a few feet of water. However, three winding and difficult channels have been dredged, enabling vessels to pass from the Gulf of Manar and Palk Strait.

ADAM'S NEEDLE. Popular name of the various species of yucca, also known as bear's grass and Spanish bayonet. They are handsome plants belonging to the lily family, and natives of America. The long, thick, and mostly rigid sword-shaped leaves are borne in tufts or rosettes, and end usually in a spine, while the edges often bear slender threads. The large, drooping flowers are borne in a dense panicle several feet in length, and are succeeded by three valved pods. The leaves yield fibres from which cloth and cordage are made.



Adam's Needle, a species of Yucca

ADAMSON, WILLIAM (b. 1863). British politician. He began life as a miner in Fife-shire and for 27 years worked in the pits. In 1902 he became assistant secretary of one of the unions of Scottish miners, and in 1908 its general secretary. In Dec., 1910, he became M.P. for West Fife. In 1917 he was chosen chairman of the Parliamentary Labour Party, and in 1918 was made a privy councillor. He was secretary for Scotland, Jan.-Nov., 1924, and returned to that office in 1929.



Wm. Adamson, British politician
Elliott & Fry

ADAM'S PEAK. Mt. in Ceylon, 7,353 ft. in height. There is an impression in the granite resembling a human foot, 5 ft. long and 2½ ft. broad. According to Arab tradition it was formed by Adam, who stood on one foot at this spot to expiate his crime. The Hindus attribute the mark to Buddha. The mt., a place of pilgrimage, is 44 m. E. of Colombo.

ADANA. Town of Turkey. The capital of the vilayet of Adana, it is on the Seihun Irmak, 42 m. by the Bagdad Rly. N.E. of the port of Mersina and near the Cilician Gates. The river is crossed by a bridge attributed to Justinian and since restored. Pop. 72,600.

ADAPTATION (Lat. *ad*, to; *aptare*, to fit). Biological process which any living organism undergoes in adjusting itself to the conditions under which it exists. In order that a living creature may survive and reproduce itself, it is necessary that during the whole of its existence there must be a more or less close adaptation to surroundings.

There are two main theories to account for this obvious fact. One is the Lamarckian doctrine, which holds that adaptation has been secured through transmitted acquired effects of use, disuse, or injury. The other, commonly called the Darwinian theory, which has various modifications, is that of natural selection, which claims that individuals and races have become adapted to their environment by the survival of the fittest.

The characters thus naturally selected for survival are thought by some to have been minute variations which meet the ever-changing surroundings; and by others to have been much larger variations, or mutations, as they are termed, which were of great advantage to the individual. In either case the process is one of adaptation. This is the outstanding characteristic of all living organisms, whether plant or animal, and is true both of mental and bodily qualities. See *Evolution*.

ADCOCK, ARTHUR ST. JOHN (b. 1864). British author and journalist. Born in London, Jan. 17, 1864, he is known as the editor of *The Bookman*. A versatile and authoritative literary critic and humorist, he is the author of more than 30 volumes of verse, fiction, essays, and London literary topography.

ADDA. Town and river port of British Gold Coast Colony. It is on the Volta, some 6 m. from its mouth, and 62 m. E.N.E. of Accra. Pop. 12,000.

ADDAX (*Addax nasomaculatus*). Genus of African antelope related to the gemsbok. It has fine ringed horns, sometimes nearly a yard long, which twist in an open spiral in both sexes. Found in N. Africa and Arabia, and an animal of the desert, it is a little over 3 ft. in height, has a tuft of hair on the forehead, and develops a fine mane in winter.

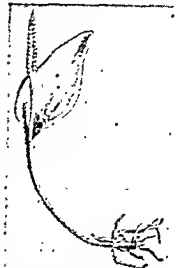
ADDER OR VIPER (*Vipera berus*). Venomous snake, the only one in Great Britain. The word is really nadder, a nadder being corrupted into an adder. It is found in every county in England, Scotland, and Wales, but, like other snakes, is absent from Ireland.

The average size of adult vipers in Great Britain is from 20 ins. to 25 ins. Specimens of 30 ins. and upwards have been taken, but are rare. A smaller variety, known as the small red viper, averages from 10 ins. to 12 ins. in length. The adder is distinguished by its flattened head, upon which are two dark hands converging in the form of a V. Along the back there is a dark zig-zag line, and along the sides are two rows of dark patches, one on each side. Its food consists of mice, slow-worms or other lizards, young birds, newts, and water voles.

The females are slightly larger than the males as a rule, less brilliantly coloured, and can be distinguished by their shorter tails. The upper jaw carries the poison fangs about ½ in. in length, pointing backwards to the throat. The reproduction is viviparous, the young being born alive. The bite of the adder is rarely fatal, except in the cases of young children and persons in poor health.

ADDER'S TONGUE FERN (*Ophioglossum vulgatum*). One of the least fern-like of the ferns. Each plant produces but one frond, which is divided into a smooth, leathery, oval blade, 3 ins. or 4 ins. long, and an erect spike of fructification bearing a double row of capsules which contain the spores. It is much more plentiful than is commonly supposed, growing inconspicuously among grass in damp pastures.

ADDINGTON. District of Croydon containing Addington Palace, long a residence of the archbishops of Canterbury. The house was built in 1772, probably on the site of the manor house. In 1808 the estate was bought for the



Adder's Tongue, a pasture fern

archbishop, and the prelates lived here until 1902, when it was sold. It was then remodelled by Norman Shaw, R.A., and some of its 1,200 acres sold for building land. In 1928 it became a country club, with a golf course.

ADDIS ABABA. Capital of Abyssinia. Standing among the mts. in Shoa, at an alt. of over 8,000 ft., 225 m. W. by S. of Harar, it consists of villages and suburbs scattered round the royal palace, a collection of unimposing buildings enclosed by walls. It is connected by rly. with Jibuti, in French Somaliland. Founded in 1885, it was made the capital by Menelek II in 1892, is an important trading centre, and has telegraphic and telephonic systems. The treaty with Italy was made here, Oct. 26, 1896. Pop. 65,000.

ADDISCOMBE. Residential suburb of Croydon, with a station on the Southern Rly. From 1812-61 the East India Company had a college here for instruction in the scientific branches of the Indian army.

ADDISON, CHRISTOPHER (b. 1669). British politician. Born at Hogsthorpe, Lincolnshire, June 19, 1669, Addison was educated at Harrogate and St Bartholomew's Hospital, London. He was for a time professor of anatomy at University College, Sheffield. In 1910 he entered political life as M.P. for Hoxton, and in 1914 became parliamentary secretary to the Board of Education. In 1915 he was secretary to the new Ministry of Munitions; in 1916 he became minister of munitions himself, and in 1917 head of the new ministry of reconstruction. In 1919 he was transferred to the Local Government Board, and in June, 1919, became the first minister of health, resigning in 1921. Later he broke away from Mr. Lloyd George and joined the Labour Party. In 1929 he was elected M.P. for Swindon and was made parl. secretary to the Ministry of Agriculture.

ADDISON, JOSEPH (1672-1719). English essayist, poet, and statesman. Son of Lancelot Addison, who became dean of Lichfield, he was born



Joseph Addison, essayist and statesman

Painting by Kraemer

May 1, 1672, at Milston rectory, near Amesbury, Wiltshire. He went to schools at Amesbury and Lichfield; to the Charterhouse, where his friendship with Steele began, and in 1687 to Oxford, where he became a fellow of Magdalen College in 1698. The walk by the Chervell is named Addison's Walk. Leaving England in 1699, Addison spent nearly four years in France, Italy and Germany.

When he returned to England at the close of 1703, in straitened circumstances, Tonson introduced him to the Whig coterie known as the Kit-Cat Club, and through Halifax he was commissioned to write a poem in celebration of the victory of Blenheim. This poem, *The Campaign*, 1704, secured for him a commissionership of excise and an under-secretaryship of state. His *Fair Rosamond*, an unsuccessful opera, followed in 1706, and in 1708 he was returned M.P. for Lostwithiel, an election later declared invalid. In 1708 he went as chief secretary to Ireland, where he made many friends, including Swift, and sat in the Irish Parliament as member for Cavan. In 1710 he became M.P. for Malmesbury.

Collaboration with Steele on *The Tatler* led to the foundation by them of *The Spectator*, 1711-14. On his essays therein, and especially his portrait of Sir Roger de Coverley, his literary fame mainly depends, though his papers in *The Guardian*, *Freholder*, and *Old Whig* are also noteworthy. His *Cato*: a Tragedy, proved for political reasons a great success in 1713, and in 1714, on Anne's death, he became secretary to the regency. In 1715 he was again in Ireland as chief secretary, and in 1716 was appointed a commissioner for trade and colonies. On Aug. 3, 1716, he married Charlotte countess of Warwick. From April, 1717, to March, 1718, he was a secretary of state, and he died at Holland House, London, June 17, 1719. He was buried in Westminster Abbey. His hymns include "When all Thy mercies, O my God."

ADDISON'S DISEASE. Constitutional disease associated with changes in the suprarenal capsules or small glands attached to the kidneys. The most frequent cause is tuberculosis of these glands. The disease begins with symptoms of weakness and languor, followed by irritability of the stomach, feebleness of the heart, and pigmentation of the skin, which is often the first symptom to attract attention. Death may occur from heart failure or from development of tuberculosis. It is named after Dr. Thomas Addison (1793-1860).

ADDLESTONE. Town of Surrey, England. It is 21 m. from London, with a station on the Southern Rly., and is chiefly a residential district for Londoners. Pop. 8,000.

ADDRESS. In Great Britain each session of Parliament is opened by the sovereign or his deputy with a speech outlining the business which it is proposed to transact. To this both Houses return addresses of thanks, which are usually made the occasion of important debates, especially in the Commons. By moving amendments to the Address members are enabled to ventilate real or imaginary grievances, and to bring up questions for discussion. When, after discussion, the Address is voted, it is taken to the sovereign, who returns thanks to the Lords by the Lord Steward, and to the Commons by the Comptroller of the Household. See *Parliament*; *King's Speech*.

ADDRESS, FORM OF. In formally addressing persons of rank or office the following styles are adopted. *e* stands for address on envelope, *l* for commencement of letter, and *p* for personal address in speech.

ROYALTY. The King: *e.* The King's Most Excellent Majesty:

l. and *p.* Sire contracted to Sir. The Queen: *e.* The Queen's Most Excellent Majesty; *l.* and *p.* Madam, contracted in speech to Ma'am. Prince: *e.* His Royal Highness Prince; *l.* and *p.* Sir. Princess: *e.* Her Royal Highness Princess; *l.* and *p.* Madam.

NOBILITY. Duke: *e.* His Grace the Duke of; *l.* My Lord Duke; *p.* Your Grace. Duchess: *e.* Her Grace the Duchess of; *l.* and *p.* Madam, or Your Grace. Marquess: *e.* The Most Hon. the Marquess of; *l.* My Lord Marquess; *p.* My

Lord. Earl, Viscount, and Baron: *e.* The Rt. Hon. the Earl of — the Rt. Hon. Viscount —, the Rt. Hon. Lord —; *l.* and *p.* My Lord.

ECCLESIASTICAL. Archbishop: *e.* His Grace the Lord Archbishop of; *l.* My Lord Archbishop; *p.* Your Grace. The wife of an archbishop or bishop has neither rank nor title, and is plain Mrs. —. Bishop: *e.* The Right Rev. the Lord Bishop of; *l.* and *p.* My Lord. For a retired bishop: *e.* The Right Rev. Bishop Brown or whatever the surname may be, and only in personal conversation is the title My Lord retained. Cardinal: *e.* His Eminence Cardinal; *l.* and *p.* Your Eminence. Archdeacon: *e.* The Venerable the Archdeacon of; *l.* and *p.* Venerable Sir. Dean: *e.* The Very Rev. the Dean of; *l.* Very Rev. Sir, or Mr. Dean; *p.* Mr. Dean. (No title on retirement.) Clergymen generally: *e.* The Rev. A. B.; *l.* and *p.* Rev. Sir. In the case of Roman Catholic clergy it is customary to add Father to Rev.

LEGAL. Lord Chancellor: *e.* The Rt. Hon. the Lord High Chancellor; *l.* and *p.* My Lord. Judge of the High Court: *e.* The Hon. Sir A. B.; *l.* Sir; *p.* My Lord, but in court only. County Court Judge: *e.* His Honour Judge A.; *l.* Sir; *p.* Your Honour, but in court only. Magistrate: *e.* J.P. after the surname; *l.* and *p.* Sir, and Your Worship. Recorder: *e.* The Worshipful (of London the Rt. Worshipful) the Recorder of; *l.* and *p.* Sir, and Your Worship. Sheriff of London: as Recorder of London.

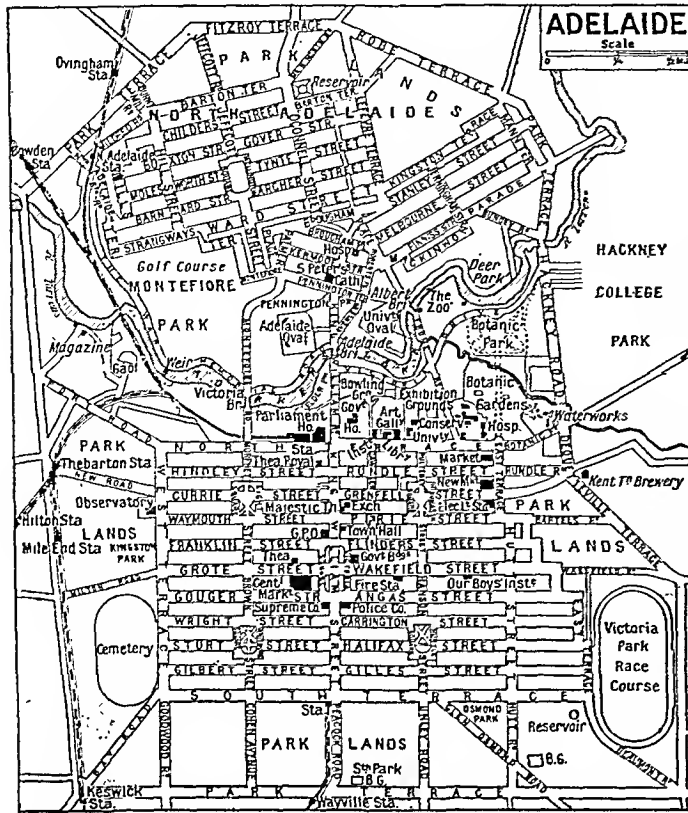
MUNICIPAL. Lord Mayor: *e.* The Rt. Hon. the Lord Mayor of; *l.* and *p.* My Lord. Lady Mayoress: *e.* The Rt. Hon. the Lady Mayoress; *l.* and *p.* Madam, or My Lady. Lord Provost: *e.* The Rt. Hon. the Lord Provost of; *l.* and *p.* My Lord. The wife of a Lord Provost has neither rank nor title. Mayor: *e.* The Worshipful the Mayor of; *l.* and *p.* Sir.

ADDRESSOGRAPH. Addressing machine by which printed matter, not necessarily limited to addresses, is put on paper by the use of embossed metal printing plates. Different matter is printed at each stroke of the machine at speeds varying from 500 to 7,000 an hour, according to the particular type of machine.

ADELAIDE. Capital of South Australia. It stands near St. Vincent Gulf, 7 m. by rly. S.E. of Port Adelaide. An important centre of the Australian railway system, it is situated on a plain, overlooked on the E. and S. by the



Adelaide. King William Street, the noble thoroughfare which runs through the centre of the city from the Torrens River to the South Terrace
Courtesy of the Australian Government



Adelaide. Ground plan of the Queen City of South Australia, which is celebrated for its magnificent situation and its broad and regularly laid-out streets

Mount Lofty range, which rises between 4 m. and 8 m. beyond the town. The Torrens, crossed here by four iron bridges, has been converted by a dam into an extensive lake.

On the wide, regular streets stand many imposing buildings—the government house, parliament house town hall, South Australian institute, jubilee exhibition building (1887), and hospital. Adelaide is the seat of an Anglican and a Roman Catholic bishopric, with cathedrals dedicated respectively to S. Peter and S. Francis Xavier, its chief educational institutions being the university, founded in 1874. S. Barnabas College, S. Peter's College, and a school of mines and industries. A large railway station was opened in 1928. The Botanic Gardens have an area of 40 acres, and the adjoining Botanic Park and Zoological Gardens are 85 acres in extent. There are also extensive parks and parklands on the outskirts. At Marble Hill, 12 m. distant, in the Mount Lofty range, is the viceregal summer residence.

Adelaide is the mining share market of Australia and the trade centre of South Australia, its chief exports consisting of wheat, flour wool, wine, and copper; its manufactures include leather, iron, and woollen goods. It has a wireless station. At the census of 1921 the pop. was 255,318. In 1929 it was estimated at 328,000.

Another Adelaide is in Cape Province, S. Africa, 90 m. from King William's Town. Pop. 2,600.

ADELAIDE. Queen of William IV, king of Great Britain. The eldest child of George Duke of Saxe-Coburg-Meiningen, she married in 1818 William duke of Clarence, who became king in 1830. Her alleged meddling with politics made her very unpopular. After nursing the king in his last illness, her health broke down,



Adelaide, Queen of William IV

the boisterous humour of which made him popular in America and Great Britain. Elbow Room and Random Shots are among his other works. He died Aug. 10, 1915.

ADELPHI, THE (Gr. adelphoi, brothers). Name of a locality in London, between the Strand and the Thames Embankment. It was created by the enterprise of the brothers Robert and James Adam, who, in 1768, began to reclaim this part of the foreshore of the Thames for building purposes. They obtained parliamentary sanction in 1771, and by constructing the Adelphi Arches provided raised ground on which they built Adelphi Terrace and the streets named after the four brothers Adam, James, William, John, and Robert.

The Adelphi Theatre, in the Strand, London, was built in 1806 by the inventor of "Old True Blue" washing blue, John Scott, who with his

and she went to Malta, where she built the church of S. Paul at Valetta. She died at Bentley Priory, near Stanmore, Middlesex, Dec. 2, 1849.

ADELBODEN. Village and health resort of Switzerland, in the Bernese Oberland. In the canton of Berne, it lies in the Adalboden valley, 10 m. by road (diligence) S. of Frutigen, on the rly. from Thun. It has mineral springs, an old church (1433), and timbered houses. Beautifully situated at an alt. of over 4,000 ft., it commands fine views.

ADELER, MAX (1841-1915). American humorist, whose real name was Charles Heber Clark. Born in Berlin, Maryland, July 11, 1841, he was the son of a clergyman. He is famous as the author of *Out of the Hurly Burly*, 1874,

station and port of call for liners on the seaway to and from India, and was given a fresh significance by the construction of the Suez Canal. It is the capital of a settlement named after itself and of the Aden Protectorate, is a cable and wireless station, and has two harbours, but only the inner harbour is of commercial value. On the isthmus connecting Aden with the mainland are salt works.

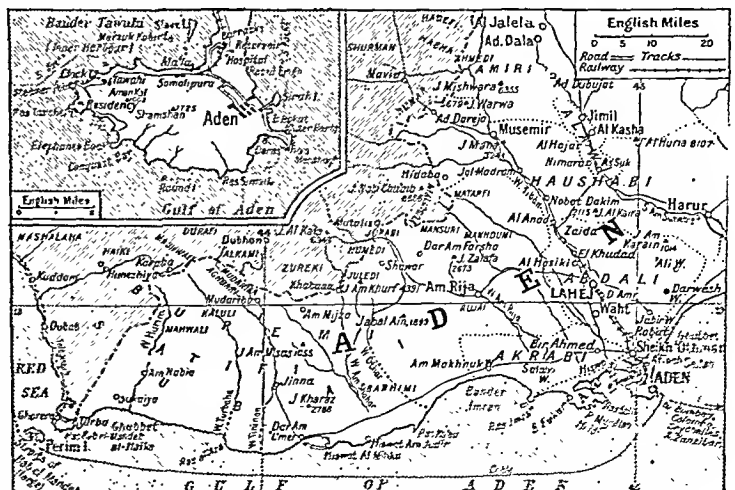
The Protectorate, area 9,000 sq. m., adjoins on the N.W. the Yemem, and on the W. extends to the Hadhramaut, in Arabia. Its frontier, which was delimited by an Anglo-Ottoman Commission in 1905, runs from Turba, on the gulf, to the river Bana, and thence N.E. to the Great Desert. The islands of Perim and Kuria Muria off the Arabian coast, and Socotra off the African coast, are dependencies of Aden.

Part of Arabia Felix, Aden was of considerable importance in Roman times. Unsuccessfully attacked by the Portuguese in 1513, it fell to the Turks in 1538, and was fortified by Solymann the Magnificent. Seized in 1735 by the Sultan of Lahej, it was the subject of many struggles until 1839, when it was annexed by Great Britain in consequence of numerous outrages on British ships. There was fighting in the Protectorate during the Great War and the Turks held Lahej from July, 1915, until the Armistice.

In 1928 the differences between the British Government and the imam of Sanaa came to a head. For some years the imam had been in possession of parts of the Protectorate and had rejected a formal offer to settle the difficulty. His troops, therefore, were driven out and the administration of Aden was reorganized. The British Government gave control of military affairs to the Air Ministry and of political ones to the Colonial Office. The Government of India remained responsible for internal affairs.

The gulf of Aden is an arm of the Arabian Sea, between Arabia and Somaliland on the east coast of Africa. Its length is about 500 m. and its greatest breadth about 200 m.

ADENOID (Gr. aden, gland; eidos, form). Mass formed by the overgrowth of the lymphoid tissue at the back of the nose. The condition may be found in infants, but is most common between the ages of three and eighteen. The first effect of adenoids is to hinder or prevent breathing through the nose, and this, in its turn, leads to other and sometimes serious developments. The growth may lead to deafness, or set up serious inflammation of the ear. Children suffering from adenoids are frequently irritable and listless and backward at school. The growth can be removed by a



Aden. Map of territory surrounding this important fortified British coaling station, with inset map of the peninsula on which the town itself is situated

surgical operation which is not dangerous, and is almost always satisfactory.

ADENOMA. Name given to a tumour or new growth which arises in connexion with secreting glands and, in microscopic structure, simulates the tissue from which it is formed. Some of the polypi which are found in the rectum and nose are tumours of this nature.

Adenomata are almost invariably non-malignant, that is to say, they do not, like cancer, tend to spread into the deeper tissues or give rise to fresh growths in other parts of the body. Occasionally, however, an adenoma does become malignant. The growth of these tumours is slow. Sometimes they become cystic, i.e. develop a cavity containing fluid.

Adiaphora (Gr. things indifferent). Term formerly applied by the Stoics to things on the borderland between good and evil

ADIGE. River of Italy, the ancient Athesis and the German Etsch. Its length is about 240 m. Rising in Tirol, in the Rhaetian Alps, and flowing past Trent and Verona, it enters the Adriatic S. of Chioggia. Subject to floods, it is with difficulty navigable upstream as far as Trent. In its lower courses it is canalised and connected with the Po. It figured in the battles in 1915-16. See Trentino

ADIPOCERE (Lat. adeps, fat; cera, wax). Wax-like substance formed in the process of decomposition of fatty animal matter, particularly in bodies buried in wet soil or immersed in water. In Great Britain adipocere takes from eight to twelve months to form in any quantity, but in hot countries the process is more rapid. When formed, adipocere remains unchanged for an indefinite period

ADIIRONDACK MOUNTAINS. A group of mts. situated in the N.E. of the state of New York. The head streams of the Hudson river rise in these picturesque mts. Numerous small lakes afford excellent fishing, and there are extensive forests of pine, birch, beech, etc., about 4,000 sq. m. of which have been constituted a state reserve. The region, especially Keene Valley, is a hunting and tourist resort. There are rich deposits of magnetic iron ore. The highest summit is Mt. Marcy or Tabarus, 5,346 ft. See Appalachian Mountains.

ADIT (Lat. aditus, entrance). Opening driven into a mine horizontally, not, as a shaft, vertically. Adits are generally driven on a slight up-gradient to allow of a ready flow of water, their principal purpose being for drainage, although they are also used for ventilation. One of the longest adits in the world is the Kaiser Josef Erbstolln in Hungary, which is over 10 m. long.

Adjaria. A little republic in the Caucasus. It is part of the larger republic of Georgia, its capital being Batum. See Georgia

ADJOURNMENT (Lat. ad, to.; diurnus, daily; cf. fr. jour, a day). Literally a postponement to another day. The word is chiefly used in connexion with debates in Parliament and meetings of other public bodies, where it is opposed to dissolution, which is the end of the meeting in question. One of the privileges of the House of Commons is that the member who moves the adjournment of the House opens the debate when it is resumed.

ADJUDICATION (Lat. adjudicare, to adjudge). A term used in bankruptcy law. The court is said to adjudicate or declare a debtor bankrupt when satisfied that there is reason for so doing. See Bankruptcy.

ADJUSTMENT (Lat. ad, to.; justus, exact). Term that is used in marine insurance. It means settling the exact amount of money an insured person shall receive for goods lost at sea. Being often a complicated matter, the work has fallen into the hands of a specially

trained class of men called adjusters. These have formed themselves into a society, the Average Adjusters' Association, which makes rules for their guidance. See Insurance.

ADJUTANT (Lat. adjutare, to assist). Term formerly employed in ordinary language, but at present only used in the military sense. In the British Army an adjutant is a regimental staff officer who is recommended for appointment by the commanding officer of a battalion, regiment, squadron, or brigade and assists in all details of duty. The appointment is almost always held by a captain, but occasionally by a senior lieutenant. The adjutant receives and issues orders on behalf of the commanding officer, inspects guards and escorts before they go on duty, directs the drilling and tuition of recruits, superintends the work of the orderly room and general administration of the unit, and keeps the regimental books and records. In peace time officers of the regular army are appointed as adjutants of all auxiliary forces.



Adjutant, a bird of the stork family

The adjutant-general is a member of the Army Council and the head of the department that looks after the supply and discipline of the men, the medical services, etc.

ADJUTANT (Leptoptilus dubius). Indian stork of the genus which includes the marabout stork of Africa. It is a large bird, standing nearly 5 ft. high, and the extended wings often measure 15 ft. from tip to tip. Its bald head and the pouch hanging on its breast give it a somewhat repulsive appearance. It is useful in India as a scavenger.

ADLER, NATHAN MARCUS (1803-90). Jewish scholar. Born at Hanover and educated in Germany, he was in turn chief rabbi of Oldenburg and Hanover. In 1844 he became chief rabbi in London, where he promoted union among the various Jewish congregations, and organized Jewish schools.

His son, Hermann Adler (1839-1911), became in 1863 principal of the Jews' College in London, and succeeded his father as chief rabbi in the British Empire in 1891.



Hermann Adler, Jewish scholar

ADLER, Victor (1852-1918). Austrian politician. Born at Prague of Jewish parentage, he qualified as a doctor, but gave up his professional work for the propaganda of social democracy. He became leader of the Socialist party, sat for many years in the Reichsrath, and was foreign minister at the time of his death. The chief director and proprietor of the Arbeiterzeitung, and author of numerous books and pamphlets on Socialism, he died in Vienna, Nov. 11, 1918.

His son Friedrich, like his father a social democrat, shot Count Stürgkh, the Austrian prime minister, in Vienna, Oct. 21, 1916. Condemned to death for the murder, he was reprieved, and took part in the revolution at Vienna in Nov., 1918.

ADMETUS. In Greek legend, son of Phereas, king of Phereas in Thessaly. He took part in the Calydonian boar hunt

and the voyage of the Argonauts. The devotion of his wife, Alcestis, is the subject of a play by Euripides, freely adapted by Browning in Balaustion's Adventure. Apollo obtained from the Fates the promise that Admetus should never die if somebody else consented to die in his stead, and Alcestis volunteered.

ADMINISTRATION, LETTERS OF. Phrase used in English law. When a person dies without a will; or leaves a will but without an executor named therein; or the executor has died before the testator; or the executor declines to act, the proper course is for some person to take out letters of administration to enable the deceased's property to be dealt with and his debts paid. Until this is done, no one can legally pay anything owing to the deceased, or in any way meddle with his property. Letters of administration will be granted to the widow or next of kin, or if none of these wishes to act, then to a creditor. An administrator has to give a bond, with sureties, for an amount generally double the value of the estate, that he will administer it faithfully.

ADMIRAL (Arab. amir-al-bahr, commander of the sea). Title borne by naval officers of high rank. Its first use occurs in a convention dated March 8, 1297, wherein William de Leybourne is described as Admiral of the Sea of the King of England. In addition to admirals proper there are in the British navy rear-admirals, vice-admirals, and admirals of the fleet. Promotion from captain to rear-admiral and then to vice-admiral is by seniority.

The rank of admiral, also reached by seniority, is the highest in which naval officers are usually employed, and all the principal commands, both afloat and ashore, are generally held by admirals. The age limit is 65, and retirement is enforced after three years' unemployment, or immediately on promotion if the officer has not served as a vice-admiral. Advancements to the rank of admiral of the fleet are made by the sovereign's selection, subject to qualifications as to service. Officers of this rank are rarely given employment, and are retired at 70 or on completing five years in the rank.

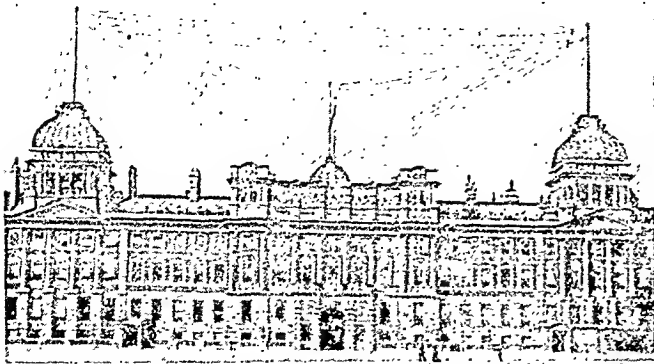
Admirals when on active service fly a flag indicative of their rank, whence the term flag officer. The admiral of the fleet's flag is a Union Jack, and the admiral's a plain S. George's Cross, while vice- and rear-admirals have respectively one and two red balls on the cross next the staff. Until 1865 the flag ranks below admiral of the fleet were subdivided into those of red, white, and blue squadrons.

ADMIRALTY, BOARD OF. The governing authority of the British navy. The Lords of the Admiralty constituting the Board are commissioners appointed by letters patent for executing the duties of the former Lord High Admiral. The office was first put into commission in 1628, and from 1709 onward, except in 1827-8, when the duke of Clarence was Lord High Admiral, it has always remained in commission.

The Board consists of the First Lord, a member of the Cabinet; the Civil Lord and the parliamentary secretary, also politicians, and four Sea Lords. These are the chief of the naval staff, the chief of naval personnel, the controller and the chief of supplies and transport. Other members are the deputy chief

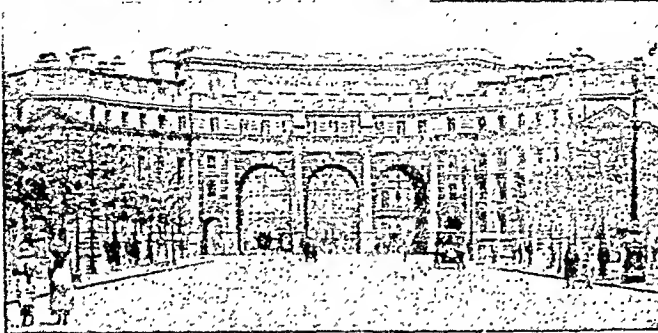


Admiral. Insignia of rank on sleeve cuffs of officers of the British Navy. Left to right: Admiral of the Fleet, Admiral, Vice-Admiral, Rear-Admiral



and assistant chief of the naval staff, and the permanent secretary, a civil servant. The Sea Lords and their assistants are professional seamen.

The headquarters of the Admiralty are in Whitehall, London, S.W., overlooking St. James's Park. Admiralty Arch, at the entrance from Trafalgar Square to St. James's Park, is a memorial to Queen Victoria. See Navy.



Admiralty. The Admiralty Arch between St. James's Park and Trafalgar Square. To the right are the Admiralty headquarters, also shown above

ADMIRALTY, COURT OF. English court of law which existed until 1875, and is now represented by the Probate, Divorce, and Admiralty Division of the High Court of Justice. At one time there were in England several admirals, each with his own court, but from about 1400 there was only one admiral, the lord high admiral, for all England, and consequently only one court. Its duties were to punish crimes committed on the high seas, to decide questions about prizes, and the like.

ADMIRALTY ISLANDS. Group of islands in the Pacific, N. of New Guinea. They are ruled by Australia under mandate from the League of Nations. Part of the Bismarck Archipelago, their total area is some 600 sq. m. Manus, the largest, about 55 m. long, is mountainous but fertile. The natives are of Papuan origin and cannibals. Coconut trees abound, and the pearl fisheries are valuable. Discovered by the Dutch in 1616, they became German in 1885, and were occupied by Australian troops in Sept., 1914.

ADOBE. Spanish word meaning sun-dried bricks. These bricks are made of mud, chopped straw or similar material being added to prevent cracks in the drying. The word is also used for the earth from which the bricks are formed and any structure made of the material indicated. Slime of this kind of earth serves for mortar.

Adobe bricks are found plentifully in prehistoric structures in hot climates. Egypt abounds in them, and in the pre-Aztec remains of Mexico they are sometimes ball-shaped, as if moulded in the palms of the hands. An adobe structure is formed by embedding dry mud in wet mud.

ADONIJAH. David's fourth son (2 Sam. 3). Born when his father reigned over Judah only, he claimed to be heir apparent, being supported by Abiathar and Joab, and using similar means to those adopted by Absalom. David, then nearing his end, caused Solomon to be anointed and enthroned. Adonijah was pardoned, but, falling under suspicion of reviving his claim, was put to death by Solomon (1 Kings 1-2).

ADONIS. In Greek mythology, a beautiful

youth beloved by Aphrodite. When he was killed by a wild boar, Aphrodite's grief was so great that Zeus allowed him to spend alternately six months among the living and six among the dead. The worship of Adonis, of Phoenician origin and widespread in Mediterranean countries, was in essence the worship of a spirit of vegetation. The gardens of Adonis, which formed part of the

ADOUR. River of France. The ancient Aturus, it rises in the Pyrenees and flows over 200 m. N. and W. through Hautes-Pyrénées, Gers, and Landes to the Bay of Biscay below Bayonne. It is navigable for about 80 m., and is in parts canalised.

ADOWA, ADUWA OR ADOA. Town of Abyssinia. Capital of the prov. of Tigré, it stands 6,270 ft. above sea level, and is the chief centre of trade between the interior of Tigré and the coast. Pop. 5,000.

On March 1, 1896, an Italian army was defeated here by the Abyssinians, who were armed with French rifles. During a night march the plans of the Italian general went wrong. The enemy attacked, and the Italians lost over 6,000 killed and 4,000 taken prisoner. The Abyssinians, too, lost heavily, but the Italian invasion was stopped and peace made.

ADRAMYTI (Turk. Edremid). Seaport of Asia Minor. It stands at the head of the gulf of the same name opposite Mitylene, and 80 m. N. of Smyrna. The ancient Adramyttum was near. The Gulf of Adramyti is an arm of the Aegean Sea (q.v.).

ADRAR (Berber, highlands). Name of three large districts in the Sahara, known respectively as Northern, Western, and Eastern Adrar. See Sahara.

ADRASTUS. In Greek legend, king of Argos and Sicyon. With six other chiefs, he organized the expedition of the Seven against Thebes to restore the fugitives Tydeus and Polynices, in which all the leaders perished except himself. Ten years later he led the sons of the fallen heroes, known as Epigoni or descendants, in a second war, in which Thebes was destroyed.

ADRENALIN (Lat. *renes*, the kidneys). Active principle of the supra-renal gland, a small organ attached to the kidneys. It was discovered in 1901, is a very powerful astringent, and occurs as a light brown powder with a bitter taste. It causes contraction of the arteries, and is used to arrest hæmorrhage.

ADRIAN. Roman saint, martyr, and soldier. Converted by witnessing the heroism of some Christian martyrs, Adrian was put to death at Nicomedia, March 4, 303. He is regarded as the patron saint of the soldier, and churches in Flanders are named after him. His festival is kept on Sept. 8. According to legend Adrian's limbs were cut off on an anvil, an emblem which appears on representations of his figure.



Adonis. Reproduction from the picture of Venus and Adonis by Titian, remarkable for its refined voluptuousness and graceful composition. From the printing in the Museum, Madrid.

festival in his honour, were collections of plants in flower which soon withered. Shelley in his poem *Adonais* likened Keats to Adonis.

ADOPTION (Lat. *ad*, to; *optare*, to select). Legalised recognition of the child of other parents as one's own. In ancient Greece the adopter had to be without male children, fully in control of his property, and 14 years older than the proposed adoptive child. In Rome, adoption was of two kinds—adoption proper and arrogation. In the former, the person adopted had to be still under the father's control; in the latter, he was completely independent. In both the adopter had to be childless.

In Great Britain, by a law passed in 1926, an adoption order can be made by a judge or magistrate in cases where the adopter is at least 21 years older than the child adopted. A child so adopted is in exactly the same position as a child born in lawful wedlock. A register of adopted children is kept at Somerset House, London, by the registrar-general.

After the Great War devastated French and Belgian towns were adopted by English ones. Birmingham, for instance, adopted Albert.

Adoptionism is the belief that Jesus Christ was the Son of God by adoption only.

ADOPTIVE ACT. An adoptive act is an Act of Parliament which local authorities may or may not adopt at their pleasure. Acts empowering local authorities to establish free libraries, museums, and baths, for example, are usually adoptive, as are some concerning public health.

ADRIAN. Name of six popes. Adrian IV, pope from 1154 to 1159, was Nicholas Breakspear, the only Englishman who has been pope. Born at Langley in Hertfordshire, he became a monk in France, and, made abbot of a house near Arles, attracted the attention of Eugenius III, who made him a cardinal. He did good work for the church in Norway and Sweden, and in 1154 was elected pope. By crowning Frederick I as emperor in 1155, he so displeased the Romans that they drove the two rulers from their city. Returning in 1156, Adrian was involved in a quarrel with Frederick about their respective rights, which occupied him until his death at Anagni, Sept. 1, 1159.

Adrian VI, a Dutchman, was tutor to Charles V. He was pope from Jan., 1522, until his death, Sept. 14, 1523.

ADRIANOPOLE (Gr. Hadrianopolis, the city of Hadrian). City of Turkey. Called Edirneh by the Turks, it is on the Maritza at its junction with the Tunja, 137 m. by rly. W.N.W. of Constantinople. In addition to the 16th century mosque of Selim II, a ruined palace, and a Byzantine bridge, it has an immense bazaar, barracks, hospitals, schools, and municipal and military buildings, and is the seat of a Greek archbishop. Pop. 34,700.

Originally called Uskudama, and renamed after the emperor Hadrian, who rebuilt it about A.D. 125, from 1361 to 1453 it was the capital of the Ottoman Empire. Here, after the Russo-Turkish War, was signed the treaty of Sept. 14, 1829.

The battle of Adrianople, fought Aug. 9, 378, ended in the defeat of the Romans by the Goths, who then settled in the Empire. The success of the Goths was due to their cavalry.

In Nov., 1912, during the first Balkan War,

Adrianople was attacked by the Bulgarians and Serbians, but they failed to carry it. In March, 1913, they made another attempt, and this time the fortress, with 40,000 men and 600 guns, was captured. This victory was confirmed by the treaty of London of May 30, 1913, but in the second Balkan War Adrianople was again occupied by the Turks, to whom it was formally restored by the treaty of Constantinople of Sept., 1913.

ADRIATIC SEA. Arm of the Mediterranean, the ancient Mare Adriaticum. Extending N.W. between Italy and Yugo-Slavia, its length is 470 m., mean breadth 110 m., and area, including islands, about 52,000 sq. m. The W. shore is comparatively low, with few inlets; the E. is steep, rocky, barren, broken, and fringed with islands. The Dalmatian and Albanian coasts are picturesque, and near Cattaro high mountains dip down to the sea. Its fisheries give occupation to the seafaring population of the western coasts and islands. The chief ports are Venice, Ancona, Bari, and Brindisi on the W.; Trieste, Pola, Fiume, Zara, Ragusa, Cattaro, Durazzo, and Avlona on the E.

During the Great War there was fighting for the control of the Adriatic. The Austrians raided the Italian coast, but in 1916 the Italians were strong enough to land a force in Albania. With the arrival of the German submarines, which did considerable damage to the Italian fleet, the British sent drifters to protect the nets and mines, and the attempts to destroy these led to fighting. Gradually the Italians got the upper hand and more than once entered Pola, the Austrian base. In 1918 it was found possible to close the Sea to the enemy by placing a barrage across the Straits of Otranto.

In 1919 serious difficulties arose about the possession of the eastern, or Austrian, side of the Adriatic, with its islands. In 1920, by the treaty of Rapallo Italy and Yugo-Slavia came to terms, each obtaining additions of territory.

ADULLAMITES.

Name given in derision to those members of the Liberal Party who, in 1866, left their colleagues rather than agree to Earl Russell's proposals for parliamentary reform. The most prominent of these was Robert Lowe, afterwards Viscount Sherbrooke, and their defection led to the resignation of Russell's ministry. The name was due to John Bright, who likened the dissenters to the distressed and the discontented who flocked to David in the cave of Adullam (1 Sam. 22).

ADULT SCHOOL.

Institution for social, educational, and religious work, mainly organized and supported by the Society of Friends. These schools exist throughout Great Britain, and recent statistics showed a total of about 1,400 schools and nearly 50,000 members. The movement has spread

to Australia, New Zealand, Canada, the U.S.A. and other countries.

The schools meet usually on Sunday mornings at an early hour. Associated with them are libraries, savings banks, study circles, lectures, social evenings, and technical classes, also benefit, coal, hook and athletic clubs.

The schools are organized in the National Adult School Union (30, Bloomsbury Street, London, W.C.1). This has a magazine, One and All, and maintains several guest houses for holidays, conferences, etc.

ADULTERATION (Lat. adulterare, to corrupt). Term meaning the debasement of anything by the substitution for one or more of its ingredients of something inferior. It is usually applied to food and drink.

The law relating to adulteration of food is contained in the Sale of Food and Drugs Acts of 1875, 1879, and 1899: while special Acts relate to the purity of milk, cream, butter, and margarine. The Sale of Food and Drugs Acts prohibit the mixing or colouring of any article of food with any ingredient so as to render it injurious to health, and no article so mixed may be sold under a penalty not exceeding £50; and they forbid the sale to the prejudice of the purchaser of any article of food which is not of the nature, substance, and quality demanded.

The Acts also provide for the appointment of public analysts and of inspectors who can purchase samples for analysis. The inspector after purchasing a sample for analysis must inform the seller of his intention to have it analysed, and must then and there divide the sample into three parts, each of which is then marked, sealed or fastened up, one part being delivered to the seller, one being taken for analysis, and one being retained for future comparison and production in court if necessary. In 1928 the Ministry of Health examined 129,034 samples, of which 7,524, or 5.8 per cent, were found to be adulterated. Of 67,350 samples of milk examined, 5,542, or 8.2 per cent, were adulterated, or not up to the standard. In 1927 the percentage was 7.4, and in 1926 it was 6.9.

ADULTERY (Lat. ad, to; alter, other).

Unfaithfulness to the marriage vow, or sexual connexion by a husband or wife with someone other than the lawful spouse. Legally, adultery is committed where these conditions obtain, however innocent the adulterer may be morally.

By English law either husband or wife can obtain a divorce if the other party has been guilty of adultery. Before 1923 the wife could not obtain one unless the husband had been guilty of cruelty or desertion, in addition to the adultery. See Divorce.

ADUR. River of Sussex, England. About 20 m. in length and navigable for sailing barges, it enters the English Channel at Shoreham. The yacht-building industry, which used to flourish in the artificial harbour by which it enters the sea, received considerable stimulus during the Great War.

ADVENT (Lat. adventus, coming). The four weeks immediately preceding Christmas, reckoned from the Sunday nearest to St. Andrew's Day. Beginning the church year, this season is observed as one of solemn preparation for Christmas and for the second Advent or Parousia (Matt. 24-5). According to one hypothesis, this second Advent is past and judgement is proceeding.

ADVENTISTS. Name of several sects, mainly of American origin. The Second Adventists, founded in 1831 by William Miller (1781-1849), believe in the imminence of the second Advent, and have repeatedly assigned dates for it. Seventh Day Adventists date from 1844, believe the second Advent imminent, but do not date the event, and observe the seventh day as the Sabbath.



Adrian IV,
English Pope



Adriatic Sea. Arm of the Mediterranean lying between Italy and Yugo-Slavia. Most of its eastern coast belonged to Austria until 1918

ADVERTISING. Advertising is now generally taken to mean the methods employed to make known to a large public the merits of some commodity, such as a food or beverage, or of some utility, such as insurance or the service of a railway company. The same or similar means, however, may be employed for other purposes, such as appeals for charitable objects and political or other propaganda. A sustained effort on the part of an advertiser to achieve a particular object is called a campaign, and the amount of money devoted to it is the appropriation.

In some form or other advertising is obviously as old as society itself. Only within the last few decades, however, has it been practised on a large scale, or its possibilities systematically studied. The great development of the newspaper and periodical Press in the latter half of the 19th century, following on the repeal of the taxes on newspapers by Gladstone, favoured the rapid growth of advertising, while another impetus came somewhat later from the perfection of mechanical methods of reproducing illustrations, which enabled the advertiser to make wide use of the work of the artist and the photographer. The duty on newspaper advertisements, first enforced in 1712, was abolished in 1853.

Advertising may be divided into Press advertising, i.e. advertisements in newspapers and periodicals; circularising through the post and distributing leaflets; exhibiting posters; and miscellaneous forms such as illuminated signs.

Most advertisers find it to their advantage to secure the assistance of an advertising agent, who will recommend the methods suitable for a particular case, and prepare the necessary advertisements. The advertising agent finds his remuneration for this work in the commission allowed by publishers, bill-posters, and others. An advertisement consultant is frequently called in to give advice. Large advertisers often have on their staff a skilled advertising manager, but even in such cases the cooperation of an agent is desirable if only in making contracts and for relieving the advertiser of clerical detail.

LAW OF ADVERTISING. Offers made to the public in an advertisement become a contract upon acceptance by a member of the public who complies with the conditions required. Again, when goods are offered for sale to the public, and the goods are described in an advertisement, there is an implied condition that the goods must correspond with the advertised description. Copyright exists in advertising matter, but only when literary composition and originality can be proved. There is no copyright in expressions in common use. Advertisement space booked for a specified period (e.g. an insertion once a week for thirteen weeks) cannot be cancelled unless the seller of the space agrees to forgo his rights. The seller of space may decline any advertisement of an illegal or scandalous nature without incurring any liability.

Advertising is now a large and important profession with its trade journals and organizations, its clubs and benevolent funds. The Aldwych Club (Exeter Street, Strand, London, W.C.) is mainly for advertising men. The chief trade journals are *The Advertising World* and *The Advertisers' Weekly*.

ADVOCATE (Lat. ad, to; vucare, to call). Term common to all members of the legal profession when representing a client before any court or tribunal. In Scotland the word is used in a more definite sense. There the advocate is a member of the higher branch of the legal profession, the equivalent of the English barrister. To become an advocate one must pass certain examinations and pay certain fees, arranged and controlled by the Faculty of Advocates. The examinations

are in general subjects and afterwards in law.

All advocates must be members of the Faculty of Advocates as only those who are can plead before the Court of Session. It dates from 1532 when a College of Justice was founded in Scotland. The head of the faculty is the dean. Its headquarters are in Parliament Square, Edinburgh. Its fine library in the Parliament House is now the National Library of Scotland.

ADWOWSON (Lat. advocatio, legal aid, patronage). Right of presenting to an ecclesiastical living—e.g. a rectory or vicarage. The owner of the advowson is called the patron of the living. An advowson may be sold, or bequeathed, and passes to the trustee in bankruptcy if the patron becomes bankrupt. A patron must not take money for presenting a clergyman to the living. To do so is simony, and the presentation will be void. See *Benefice*.

ADZE (A.S. adesa, axe). Woodcutting tool resembling an axe. The line of its blade is at right angles to the line of its handle, instead of in line with it, and the blade is curved towards the hand of the user. It is used for rough-planing timber. Slight modifications of form are indicated by adjectives indicating shape or purpose, such as flat-headed adze, ship adze, notching adze.

AEACUS. In Greek legend, son of Zeus by the nymph Aegina, and king of the island named after her. The father of Telamon and Peleus, he was renowned for his integrity and justice, and after his death, with Minos and Rhadamanthus, was made by Pluto one of the judges of the underworld.

AEDILE (Lat. aedes, a building). Roman magistrate. In republican times the chief duties of the aediles were the superintendence of public buildings and of the water supply, direction of the police, provisioning of the city, management of public games, and care of the public archives. Instituted 494 B.C., they were at first two in number, both plebeians; but in 366 two more, called curules because they sat in a curule chair, were appointed.

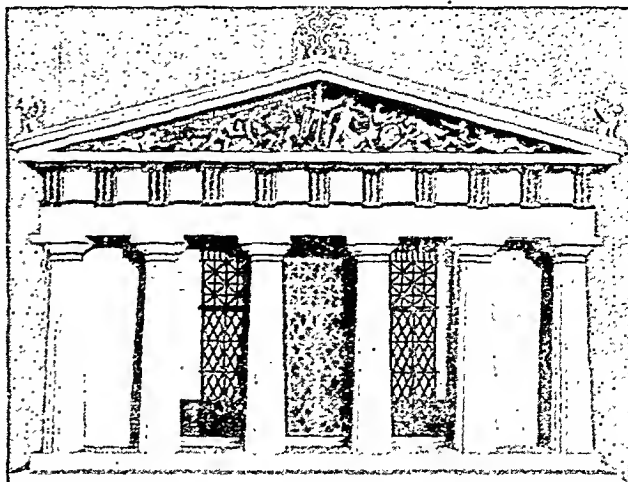
AEDUI. Celtic tribe, living between the Loire and the Saône. They were the first Gallic people to join the Romans, and were treated with special regard by Caesar, who defended them against external foes. Their chief town was Bibracte, later Augustodunum (Autun).

AEETES. In Greek legend, king of Colchis, in Asia Minor, and possessor of the Golden Fleece. Jason and his Argonauts were assisted in their search for it by his daughter Medea. See *Golden Fleece*; *Jason*.

AEGADES ISLANDS (anc. Aegates; Ital. Egadi). Three mountainous islands, Favignana, Maritimo, and Levanzo, off the W. coast of Sicily. They were the scene in 241 B.C. of the defeat of the Carthaginian fleet by the Romans. Goat rearing and tunny fishing are the chief industries. Pop. 7,000.

AEGEAN CIVILIZATION. Name given to the pre-Hellenic civilization, also known as Minoan and Mycenaean. Its chief cities were Troy in Asia Minor, Mycenae and Tiryns in Greece, and Knossos and Phaestus in Crete.

The excavations of Schliemann, begun in 1870 at Hissarlik (Troy), and continued at



Aegina. Reconstruction, at Munich, of the Temple of Aphaea. See p. 24
From Furtwängler, 'Die Aegineten der Glyptothek'

Tiryns and Mycenae, showed that such a civilization existed in 1500 B.C. His conviction that Crete would produce even more important results has been justified by the discoveries, since 1894, of A. J. Evans and others. It is established that about 3000 B.C. Crete had passed from the stone to the bronze age, and was inhabited by a people whose civilization, anterior to those of Greece and Mycenae, reached its height about 2000 B.C.

The term Minoan, adopted by Evans, though less comprehensive than Aegean or Mediterranean, suggests Crete under a great ruler of the Minoan dynasty as the centre of this civilization. Its successive phases, the dates of which are approximately fixed by a comparison with Egyptian chronology and the various stages of development shown by the pottery finds, have been arranged as Early, Middle, and Late Minoan, each being similarly divided into three. The period covered extends from about 3000 to 1100. The first palaces of Knossos and Phaestus, built about 2000 and destroyed about 1750, were rebuilt and remodelled. The golden age of Crete lasted about a century (1500-1400), towards the end of which the island was invaded and the palace of Knossos burnt. The 14th century witnessed the decline of Minoan civilization, the 11th its overthrow.

The remains of the palace, identified by Evans, from its intricate arrangements, with the ancient Labyrinth, exhibit architectural talent of a high order. Most interesting are the Throne Room, The Hall of the Double Axe, possibly the fetish of some divinity, and the Queen's Hall, with frescoes representing religious processions, bull fights, boxing contests, and other scenes from national life. Explorers have been struck by the excellence of the sanitary arrangements indicated, and the similarity of the female attire to that of the modern society lady.

The early inhabitants probably belonged to the so-called Mediterranean race, distinguished by long heads, dark complexions, and short stature. They at first used a pictorial system of writing, and later linear signs; numerous specimens have been discovered, but not deciphered. Essentially a seafaring people, they carried on an extensive commerce, especially with Egypt. The Cretans were skilled carpenters and metal-workers, but agriculture seems to have been little practised. They had a metal currency and a system of weights of Babylonian origin. The chief Cretan divinities were a nature goddess, and a younger male subordinate, the former identified with various Hellenic goddesses, the latter with Zeus. See *Crete*. Consult *The Palace of Minos*, Sir A. Evans, 2 vols., 1922 and 1928.



Aegean Sea. It separates Greece from Asia Minor, and is closely studded with islands, one of which, Lemnos, was a British base during the Great War

AEGEAN SEA OR GREEK ARCHIPELAGO (Gr. archipelagos, chief sea). That part of the Mediterranean which lies between Greece and Asia Minor. Its length N. to S. is about 400 m., its greatest breadth is about 170 m., and its navigation difficult. The waters abound in fish and sponges. The chief of its numerous islands are Euboea, the largest, Mitylene, Thasos, Samothrace, Imbros, Lemnos, Chios, Cos, Samos, the Sporades, and the Cyclades.

AEGEUS. In Greek legend, king of Athens and father of Theseus. On returning from Crete, whither he had gone to deliver Athens from the tribute to the Minotaur, Theseus forgot to change his black sails for white, the agreed signal of his success. Aegeus, seeing the black sails, threw himself into the sea, which was called Aegean. See Minotaur.

AEgina. Island and ancient city of Greece in the Saronic or Aegina Gulf, an opening of the Aegean Sea. About 40 sq. m. in area, it is mainly rugged, fertile though stony on the W., produces cereals, wine and fruit, manufactures pottery, and has a valuable sponge fishery. The city, taken about 456 B.C. by the Athenians after a long siege, dates back to pre-Dorian times. Some remarkable sculptures were found in the ruins of the temple of Aphaea in 1811 and taken to Munich. Pop. 8,500. See illus. p. 23.

AEGR. In Norse mythology, the giant of the seashore. He was the husband of Ran, the storm giantess, and father of nine daughters—the billows. The name is also applied to the bore or tidal wave on the English river Trent.

Aegis. In Greek mythology, the shield of Zeus and other divinities. The word now has the general meaning of protection.

AEGISTHUS. In Greek legend, son of Thyestes and cousin of Agamemnon. During

to complete the work of an examination for this reason may he given an aegrotat or pass certificate, the examiners being satisfied that but for illness he would have passed in the ordinary way.

AELFRIC (c. 955-1022). English scholar. A pupil of Ethelwold, first at the Benedictine monastery of Abingdon and then at Winchester, he was made abbot of the new monastery of Cerne Abbas, Dorset, in 987, and later head of the Benedictine monastery at Eynsham, near Oxford, where he died. His main works include 80 Homilies, his Colloquium, a Discourse on the occupations of monks, and translations of the early books of the Bible.

AENEAS. In classical legend, Trojan hero. According to the story in Virgil's Aeneid, after the fall of Troy he escaped with his father Anchises and his son Ascanius or Iulus. After much wandering he was driven by a storm to Carthage, where he won the love of Dido, its queen, who, being abandoned by him, committed suicide. He afterwards made his way to Latium in Italy, where Lavinia, the king, promised him his daughter Lavinia in marriage. After killing Turnus, a rival suitor, Aeneas married Lavinia and became the ancestor of the Romans. Killed in battle while fighting against the Rutulians, he was worshipped as a god.

The Aeneid, Virgil's epic poem based on the legendary adventures of Aeneas, is really a glorification of Rome and of the Julian house to which the Emperor Augustus belonged, and as such became the national epic. It has been translated into English by J. W. Mackail, 1885, and others. See Virgil.

Aeneas Silvius. Name by which Pope Pius II (q.v.) is known. His full name was Aeneas Silvius de Piccolomini.

his cousin's absence at the siege of Troy, Aegisthus carried on an intrigue with his wife Clytaemnestra. On his return Agamemnon was murdered by them, a crime avenged later by Agamemnon's son Orestes.

AEGOSPOTAMI. River in the Thracian Chersonese. Here in 405 B.C. a battle was fought between the Athenian fleet and that of the Spartans under Lysander assisted by a Persian squadron. The defeat of the Athenians destroyed their naval supremacy and deprived them of the hegemony of Greece. The name means rivers of the goat.

AEGROTAT (Latin, he is ill). Phrase used at universities and other educational establishments for a certificate excusing a student from work or college duties on account of illness. A student unable

AEOLIAN. One of the three great branches of the ancient Greeks. The Aeolians spoke a dialect distinct from that of the Dorians or the Ionians. The poets Alcaeus, Sappho, and Anacreon wrote in the Aeolic dialect. The original home of the Aeolians, who claimed descent from Aeolus, son of Hellen, was in Thessaly, but they spread to other parts of N. Greece, and colonised Lesbos and Tenedos and a strip of land in Asia Minor, afterwards called Aeolia or Aeolis.

AEOLIAN HARP. Musical instrument. It consists of a box containing wires or strings loosely stretched to produce musical notes when a current of air passes through them. A gentle breeze causes low notes to sound, and as the air current increases in intensity higher notes of the harmonic series are elicited.

AEOLOTROPY (Gr. aiolos, shifting; trepo, to turn). Alteration in the electrical, optical and other physical qualities of a body due to change of position. Thus, a tube could be given a twist which would alter its electrical conductivity, and would then be said to be aeolotropic in regard to its electrical conductivity. Iceland spar is a mineral which does not exhibit the same optical refractivity in all directions. Its condition is said to be one of optical aeolotropy.

AEOLUS. In classical mythology, the king of Aeolia, one of the Lipari Islands. He was the god of the winds, which he kept shut up in a mountain. According to Homer, he gave Odysseus (Ulysses), when starting on his voyage home, a bag containing the unfavourable winds. The bag was untied by one of the crew, the winds escaped, and the ship was forced to return to Aeolia.

AEPYORNIS (Gr. aipys, tall; ornis, bird). An extinct wingless bird of Madagascar. Related to the extinct moa and the existing apteryx of New Zealand, it stood about 13 ft. high, and its fossilised eggs, occasionally found in the marls, are a foot long and correspondingly large.

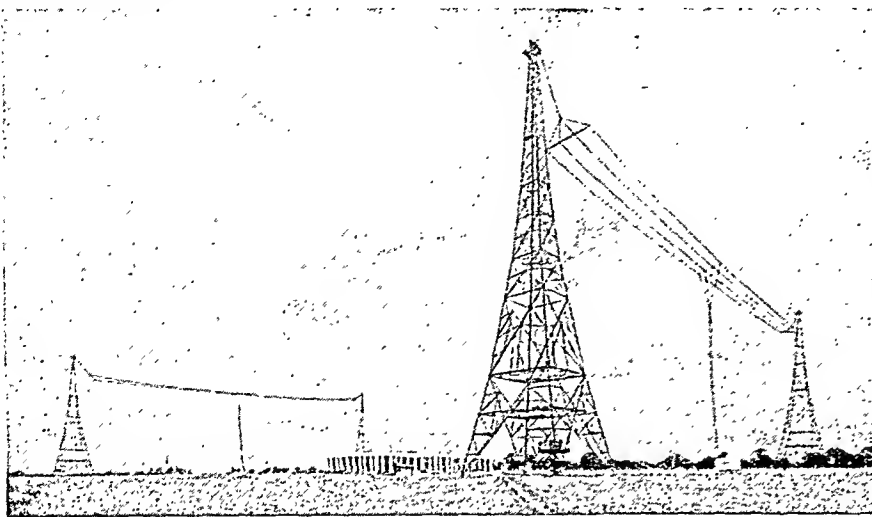
Aerated Bread. Bread charged with carbonic acid gas in the place of yeast. See Baking.

AERATED WATER. Beverages charged with an excess of carbonic acid gas (carbon dioxide) or, occasionally, oxygen. The carbonic acid gas is made by the action of sulphuric acid on calcium carbonate or sodium bicarbonate. In smaller installations and soda fountains, liquid carbonic acid gas, prepared by the complete combustion of coke, is employed. When the gas is generated it is passed into a gas-holder, and the necessary pressure applied. This is required in the subsequent operations of dissolving the gas in water and bottling the liquid.

AERIAL. Name given to the antennae of a wireless telegraphic or telephonic installation. They are the wires which transmit or collect the electrical waves whereby communication is set up between two stations. The broadcast licence issued by the Postmaster General limits the length of an aerial to 100 feet.

AERIAL DERBY. Aeroplane race round London. Originated by The Daily Mail, it was organized by that newspaper, which presented a gold cup. The first race was won in 1912 over a course of 81 m. by the English aviator T. O. M. Sopwith on a 70 h.p. Blériot monoplane at a speed of 60 m. per hour; in 1923 (the last year in which the race was flown) L. L. Carter won at an average speed of 192.4 m. per hour.

AEROCLINOSCOPE (Gr. aer, air; klinos, to incline; skopein, to examine). Apparatus used for indicating or signalling the direction of the wind in connexion with the variations of barometric pressure. It consists of a pillar with arms that act like those of a semaphore.



Aerial. Wireless installation erected in 1929 at Brookman's Park, 15 miles north of London, by the British Broadcasting Corporation. See page 24

AERODROME (Gr. aer, air; dromos, course). Term used to signify an area used for the landing and departure of aircraft, including the necessary appurtenances e.g. workshops, stores, etc. The aerodrome comprises a landing ground with prepared approaches. Flanking this are hangars for the machines, and alongside these the repair sheds, workshops, and stores essential for upkeep. At a terminal aerodrome are a customs station where cargo and passengers' effects are examined for duty, and bonded stores for the housing of dutiable goods.

The development of commercial flying has made necessary the provision of a chain of aerodromes on the recognized air routes, supplemented by emergency landing grounds. Thus on the English side of the route from London to the Continent there is the terminal aerodrome at Croydon, and another at Lympne, landing grounds being provided at Popham, Marden, and Littlestone.

At night the aerodrome is marked out by lights, and powerful beacons guide night-flying aircraft to it. By means of a wireless installation; directional and meteorological information is sent out to pilots, who are enabled to keep in touch with the aerodrome throughout the journey.

An aerodrome for airships is furnished with a mooring mast, this being a tall steel structure comprising lifts for goods and passengers, and the necessary pipes for conveying fuel and water to the airship. Plant for the generating and supplying of the inflating gas is also installed.

In 1929 great progress was made towards providing England with a chain of municipal aerodromes. The Air Ministry reported upon 31 sites, and in some cases municipalities bought land and began building. Manchester selected a site on Chat Moss and Nottingham one at Tollerton. The aerodromes for these cities have been licensed, as were those at Hull and Blackpool. In addition Liverpool, Plymouth, Carlisle, and Stoke have bought land and other cities and towns have reserved sites for aerodromes in their town planning schemes. In 1929 the Royal Institute of British Architects offered a prize for a design for an ideal aerodrome.

All British aerodromes used regularly by aircraft carrying paying passengers must be licensed by the Air Ministry, which inspects them. See Airport; Hangar.

AERODYNAMICS. Science which treats of the effect of air or other gases in motion and, mathematically, examines the powers and motion of elastic fluids. In practice it examines the varying resistances of bodies moving in air,

or the varying pressure of air upon moving bodies. As all flying bodies which are heavier than air establish support in the air through forces which produce relative motion, aerodynamics may be defined as the science of flying machines. See Aeronautics; Flight.

Aerofoil. Term used to define the cambered plane or wing of the aeroplane.

AEROLITE. Meteorite consisting entirely of stony material, usually a mixture of silicates of iron and magnesium. It is in contradistinction of siderite, consisting only of metal, and to siderolite, made up partly of metal and partly of stony matter.

AERONAUTICS. The science of aerial navigation. The history of aeronautics falls naturally into two divisions: (1) Balloons; (2) Heavier-than-air machines. Aerial navigation

may be said to have begun with the experiments of the Montgolfiers in France (1783). They used a spherical balloon lifted by hot air, in which animals were sent up. Pilatre de Rozier went up in a Montgolfier balloon which was fastened to a cord so that it could not rise higher than 100 feet. Later, Pilatre de Rozier and the Marquis d'Arlandes made the first free balloon ascent. Two other Frenchmen, Charles and Robert, in the same year made a successful ascent in a hydrogen balloon which was the prototype of the modern spherical balloon. The balloon attained a height of 2,000 feet, and made a trip of 27 miles from Paris to Nesle in two hours.

The natural sequence from the free balloon was the idea of making a navigable balloon. Various attempts were made to propel ordinary spherical balloons by means of oars worked by hand from the car, and even by large propellers made of fabric stretched on frames and turned by a crank from the inside of the car. Such vessels could be propelled over the ground if the air were absolutely calm, but no real success was achieved until the cigar-shaped or spindle-shaped balloon was developed.

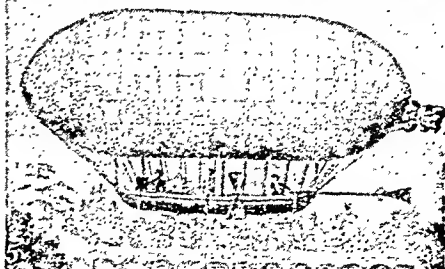
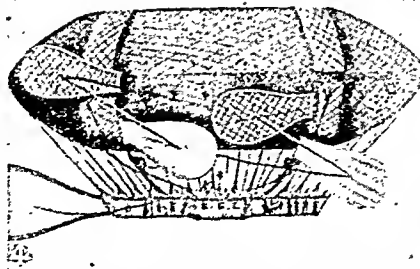
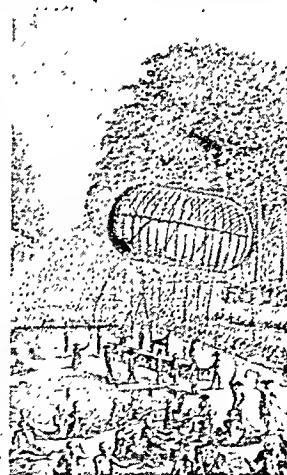
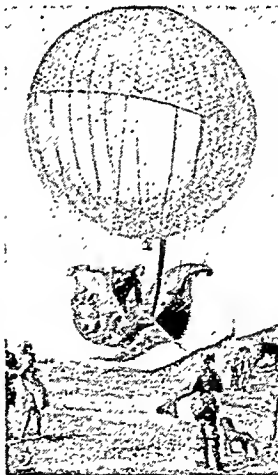
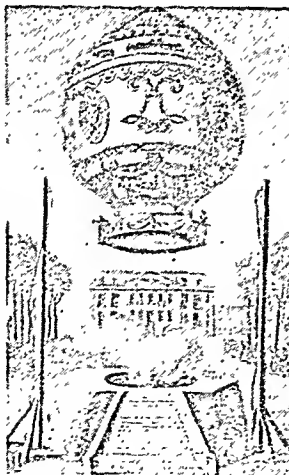
A navigable cigar-shaped balloon, or air-

ship, was made by Giffard in 1852, propelled by a small steam engine. Haenlein in Germany and Dupuy de Lôme in France constructed elongated balloons in 1872, the former pro-

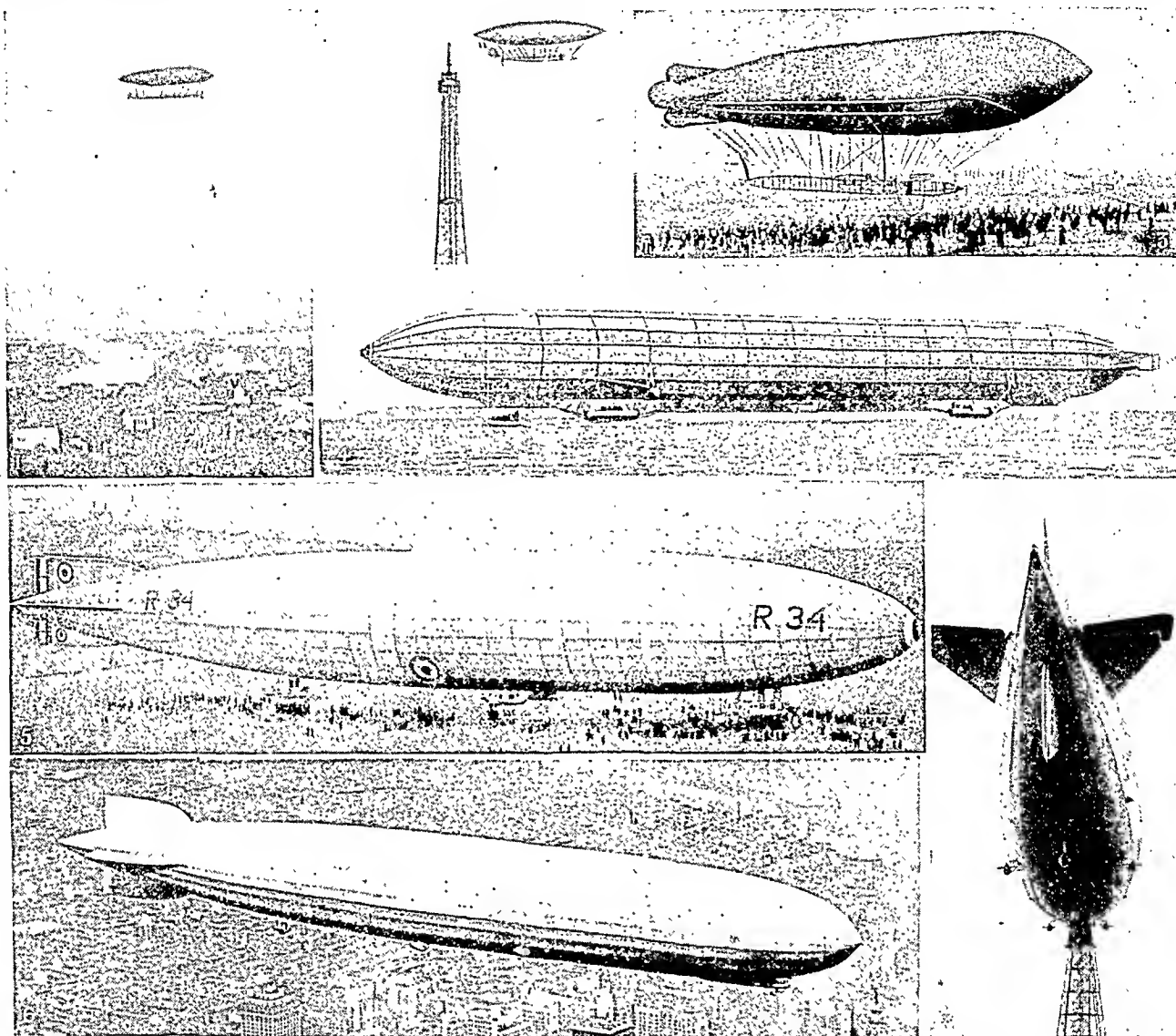


Aerolite of 1,400 lb. which fell on the Alps. Now in Paris

pelled by a gas engine, and the latter, 118 ft. long, by a manually operated screw. Tissandier (1883) and Renard and Krebs (1884)



Aeronautics. 1. First ascent with two passengers in a free hot-air balloon, Nov. 21, 1783. 2. Earliest flight in a hydrogen-filled balloon from Paris to Nesle, Dec. 1, 1783. 3. Earliest ascent in a balloon with steering apparatus, July, 1794. 4. First attempt at a man-power, wing-propelled airship, made in England in 1834. 5. Ascent of Bell's steerable balloon, July 22, 1850; it had man-power side propellers



Aeronautics. 1. Dirigible balloon, La France, passing over Paris, Sept. 25, 1885. 2. Santos-Dumont circling the Eiffel Tower, Paris, Oct. 19, 1901. 3. The French dirigible, Clément-Bayard No. 1. 4. An early German Zeppelin manoeuvring over Lake Constance. 5. Britain's giant airship, R 34, launched near Glasgow, March, 1919. She was the first airship to cross the Atlantic Ocean. 6. Graf Zeppelin, which completed a world tour in 1929, seen over Philadelphia after her Atlantic crossing, 1928. 7. Stern view of British airship R 101, riding at her mooring mast at Cardington, Beds, 1929

constructed electrically propelled dirigible airships, and Schwartz in 1893 turned out an aluminium-covered vessel which is regarded as the progenitor of the rigid type of to-day. Four years later a petrol-engined airship was constructed by Wolfert, but this caught fire during a flight.

With the appearance in 1899 of Zeppelin's rigid type of airship, lifted by separate gas ballonets, and the circuit of the Eiffel Tower by Santos-Dumont in a non-rigid type of craft, aeronautics took on a new complexion. Airships of different types came to be built for military purposes, among them being the Parseval (non-rigid), and Clément-Bayard (non-rigid), and small vessels of a semi-rigid type for Great Britain. During the Great War airships were used by all the belligerents, the Allies employing small non-rigid and semi-rigid vessels for observation and anti-submarine warfare, and Germany sending out her Zeppelins on bombing raids. Recent development has been in rigid airships, since there is a practical limit to the size of the non-rigid type. Any increase in the size of the envelope involves greater internal gas pressure, with a resulting increase of density and loss of lifting power.

Large passenger airships have been built by Great Britain and Germany for service on transatlantic and Far Eastern routes. Other countries have built similar vessels for naval purposes. The Italia, an airship of the Zeppelin type, was lost in Noble's Arctic expedition of 1928. New principles of construction are involved in a vessel built for the U.S. Navy in 1929. This has a metal hull, made of a thin skin of aluminium alloy, and the shell of the airship serves as the container for the lifting gas.

HEAVIER-THAN-AIR MACHINES. Successful model flying machines were built long before one capable of carrying a man was constructed. As early as 1840 Henson and Stringfellow, in England, were experimenting with model gliders intended to be propelled by steam, and in 1848 Stringfellow built a monoplane which flew a distance of about 40 yards. Professor Langley, a half-century later, constructed a steam-driven model aeroplane which made circular flights and covered a distance of over 4,000 feet.

Early man-carrying flying machines were devised with bird-like wings intended to be operated by the muscular power of the pilot, but none of these achieved success. The first

successful efforts took the form of gliders, which may be best described as aeroplanes more or less on modern lines, but without engines. These gliders were launched as a rule from the top of a hill in the face of a wind. George Cayley in 1809 was probably the first to make a successful glider, and the many experiments of Otto Lilienthal, in one of which he met his death, prepared for real flight.

Several other pioneers carried on the work, among those who made successful gliding experiments being Chanute, Langley, Montgomery and the Wrights in America; Pilcher, Wenham, Dunne, and Weiss in England; and Ader, Blériot, Pénard, Santos-Dumont, the Voisin brothers, and the Farman brothers in France. Eventually the brothers Wright in America succeeded in making a petrol-engined man-carrying aeroplane, on the lines of the gliders they had been using, which made a straight flight of 852 feet in December, 1903.

Progress was slow till 1908. Short "hops" were made by Santos-Dumont in 1906, and in October of that year he made a flight of 200 feet. A machine of monoplane type built by a Dane named Ellerhammer also left the ground under its own power early in 1906, and by 1908 many aeroplanes were flying.

regularly in France, and Cody and A. V. Roc had made their first short flights in England. Wilbur Wright brought an improved machine to France for demonstration. In July, 1909, Blériot made a place-to-place flight of 33 miles and, in a later flight, crossed the Channel from Calais to Dover. Henry Farman in the same year flew a distance of 118 miles in just over three hours.

In the Great War aeroplanes were used for a variety of purposes, including reconnaissance, spotting for artillery, and bombing. Suitably armed fighter machines were employed to protect aircraft engaged on other duties, and to prevent enemy aeroplanes from carrying out reconnaissance or observation. Later, special fighter squadrons were organized, and the enemy's aircraft were sought out and attacked far over his own lines, and his aerodromes so invested that aeroplanes were prevented from emerging. Aeroplanes flying low also took part in ground fighting, attacking troops with bombs and with light machine gun.

In naval warfare aeroplanes, seaplanes and flying boats played an important rôle. The aircraft carrier, a warship provided with a flat deck on which aeroplanes could land, came into being. Aeroplanes were used for spotting and attacking submarines, and seaplanes equipped with torpedoes were used to attack surface vessels. The flying boat, an aeroplane with a boat-shaped hull, was employed for long reconnaissance flights over the sea.

As a result of the experience gained in the war great advances were made in the development of speed, climbing power, and range of flight. The tables given in the article on Air Records show the most important steps in the progress made in speed, altitude, and distance of flight. In June, 1919, Alcock and Whitten Brown flew the Atlantic from St. John's, Newfoundland, to Ireland in 15 hours 57

minutes, using a twin-engined Vickers-Vimy biplane. Ross Smith in 1919 flew a similar machine from England to Australia, by stages, in 124 flying hours. The first non-stop Atlantic flight from east to west was made in April, 1923, in a Bremen monoplane and occupied 36 hours.

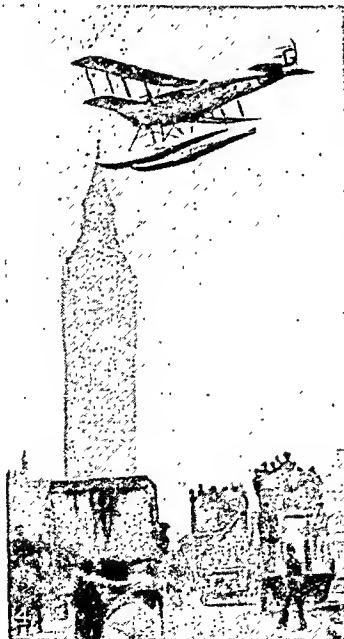
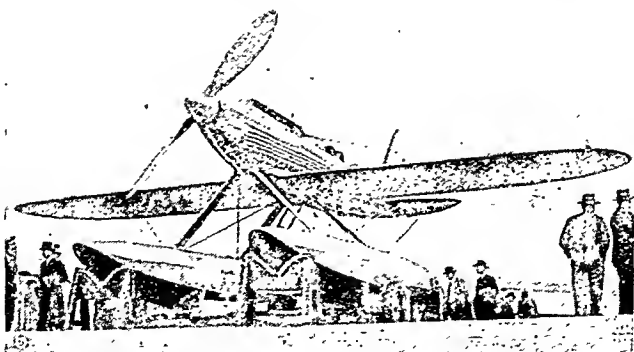
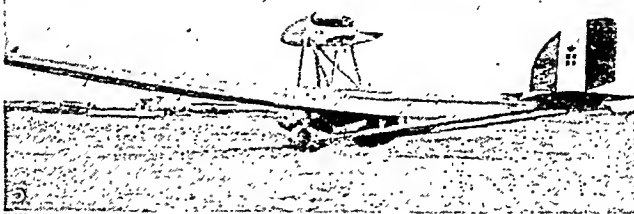
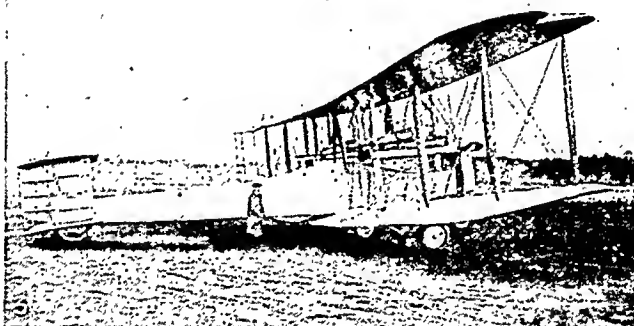
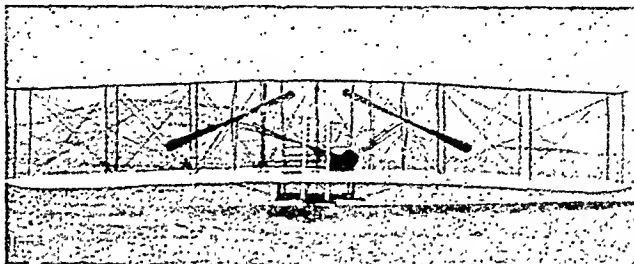
AIR SURVEYS. Aircraft have done much useful work in carrying out geological and other investigations, such as those in connexion with irrigation, settlement and engineering projects. The leading British company had surveyed up to December 31, 1928, over 30,000 sq. m. of land and 50 towns. Aircraft have also been found very useful in polar exploration and in archaeological investigations.

The Aeronautical Society, founded in 1866, is a body devoted mainly to the scientific side of aerial navigation. Membership is open to

all interested in the subject. The offices are at 7, Albemarle St., London, W.1. See Air Force, Royal; Air Records; Airship; Angle; Aviation; Flight; Flying Boat; Schneider Trophy.

AEROPLANE. Virtually a power-driven kite, capable of lateral and longitudinal control. It is a development of the glider, and the first power-driven machine of the Wright brothers was a biplane glider fitted with two propellers. An aeroplane with a single set of planes is called a monoplane, one with two sets a biplane, and one with three sets a triplane.

Essentially an aeroplane consists of a fuselage or body, in a compartment of which the pilot sits, and one, two, or three sets of cambered and inclined planes or lifting surfaces. Ailerons or movable flaps hinged to the wings at the trailing edge give lateral control, and

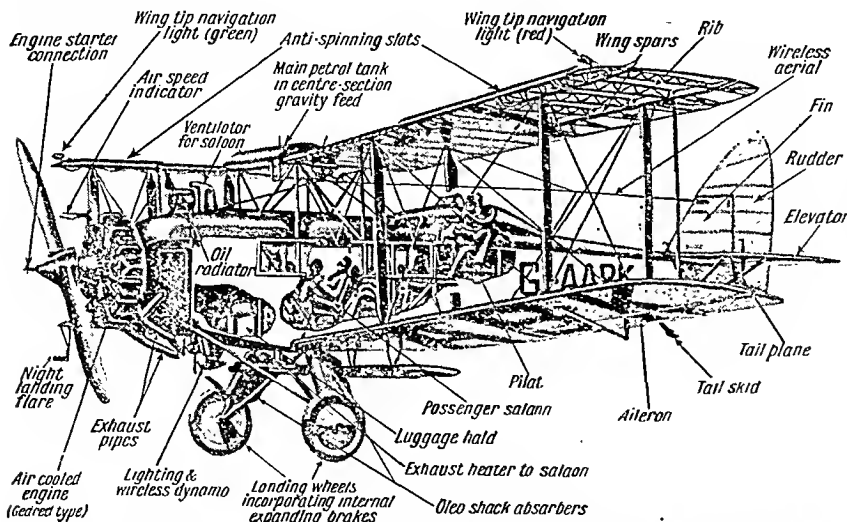


Aeronautics. 1. Wright aeroplane, 1903, from rear. 2. Blériot on first flight across English Channel, 1909. 3. Vickers-Vimy biplane in which first direct transatlantic crossing was made by Alcock and Brown, 1919. 4. Arrival over Westminster Bridge of Cobham in De Havilland seaplane in which he flew to Australia and back, 1928. 5. Savoia S 64 machine in which Ferrarin and del Prete accomplished world's non-stop long distance record, Rome to Natal (Brazil), 1928. 6. Supermarine Rolls-Royce S 6, winner of Schneider Trophy, 1929, and holder of world's speed record 3, courtesy of Science Museum, London; 5, courtesy of Società Idrovolanti Alta Italia

directional control is effected by the movement of a vertical rudder. Hinged horizontal planes or elevators at the rear of the fuselage provide longitudinal control. In large machines there is a separate cabin or saloon for passengers. Propulsion is by the rotation of one or more airscrews, driven by powerful multi-cylinder petrol engines.

The wings are built up of wooden spars and ribs braced and strutted, and the fuselage of wood formers and ply-wood, or of strutted and braced members. Fuselage and wings are covered with fabric, which is then treated with a dope or varnish to tighten it and render it waterproof. Aeroplanes are also built mainly of metal. Thrust, lift, the reduction of resistance, and the overcoming of drag are the keynotes of successful flight.

Controls are operated by a lever in the cockpit, with side to side and fore and aft motion; a rudder bar is worked by the pilot's feet. Instruments to indicate height, speed, etc., and those pertaining to the engines, are fixed handy to the pilot. Gyroscopic and other devices to keep the machine on an even keel are also provided.



Aeroplane. Diagram of a modern single-engined British passenger machine, with principal parts named and portions of wing and fuselage cut away in show details of construction

Since the inauguration of a daily passenger service of aeroplanes between London and Paris in 1919 air liners with two or three engines and a passenger capacity of 20 ply regularly between London and the Continent. In 1929 a service to India was commenced. A Fokker monoplane, said to be the largest in the U.S.A., made successful test flights in September, 1929. Its four engines develop a total h.p. of 1,100, and the cruising radius under full load (30 passengers and a crew of four), is nearly 500 miles. In October, 1929, a German flying-boat, the Dornier Do.X, made a flight carrying 169 persons.

AEROPLANE CLUBS. The growth of aviation has led to the formation of clubs for those interested. On December 31, 1928, there was 13 of such clubs in Great Britain, with a membership of 3,288. See Aeronautics; Airship; Flight; Flying Boat; Seaplane.

Aeroscope. Apparatus by which germs, dust and other impurities are extracted from the air for analysis.

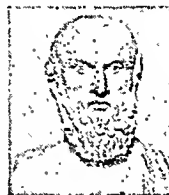
AEROSTATICS. Term meaning that branch of hydrostatics which is concerned with the pressure and equilibrium of the atmosphere and other gases. It is therefore an essential part of the study of aeronautics. In an aerostatic press compressed air is used to make dyewoods yield their pigments. See Aeronautics; Hydrostatics.

AERSCHOT. Town of Brabant, Belgium. It is on the Demer river, 22 m. N.E. of Brussels. Fierce fighting took place here in the opening stages of the Great War. The Germans captured the town on Aug. 19, 1914. The Belgians regained it later, but it was in German hands from Oct., 1914, until the end of the struggle. Pop. 7,800.

AESCHINES (389-314 B.C.). Athenian orator and statesman. He became leader of the party which urged the futility of resistance to Macedonia, and Demosthenes did not hesitate to accuse him of corrupt motives. After the Macedonian victory at Chaeronea (338), Ctesiphon, a friend of Demosthenes, proposed that a golden crown be given to Demosthenes for his services to the state. Aeschines, in 330, prosecuted Ctesiphon on technical grounds. Demosthenes' speech for the defence (De Corona), in which he justified his whole anti-Macedonian policy, was a masterpiece, and Aeschines was exiled. See Demosthenes; Consult also Attic Orators, R. C. Jebb, 1876.

AESCHYLUS (525-456 B.C.). Greek tragic poet. Born at Eleusis, a town of Attica, he fought with distinction in the battles of Marathon (490) and Salamis (480). In 499

he first entered for the prize offered for the best tragedy, but it was not until 484 that he obtained first place. The later years of his life were spent largely away from Athens. Two, perhaps three, visits being made by him to Sicily, where he died at Gela in 456.



Aeschylus, Greek tragic poet. Bust at Capri, Rome.

relates the return of Agamemnon from Troy and his murder at the hands of Clytemnestra, his unfaithful wife; the vengeance exacted by his son Orestes, who kills his mother and her paramour; the pursuit of Orestes by the Furies, and his absolution by the Areopagus at Athens. The Agamemnon is the greatest of all the plays of Aeschylus and one of the world's masterpieces of dramatic literature. The best edition is that of F. A. Paley, 1879, and there are English verse translations of all the plays by E. H. Plumptre, 1868, and Lewis Campbell, 1890.

AESCLAPIUS. Roman, and better known, name of the Greek god Aesclepios. In

classical mythology he was the god of medicine, though Homerspeaks of him as a mortal. By his knowledge of the healing art he was able to restore the dead to life, and his use of this power aroused the anger of Zeus, who killed him with a thunderbolt. In later times the chief seat of his worship was at Epidaurus.



Aesculapius and Hygieia. Statuary in the Vatican.

where his temple served the purpose of a modern hospital. The symbol of Aesculapius, a staff with a serpent twisted round it, is the badge of the R.A.M.C.

AESIR. Plural of As and the collective name for the chief gods of Norse mythology. They included Thor, Baldr, Njörd, Frey, Loki, who with Freyja and other goddesses dwelt in Asgard (home of the gods). They waged war against the powers of evil and were themselves threatened with destruction by Ragnarök, the twilight of the gods.

AESOP (c. 620-560 B.C.) Traditional author of the famous collection of fables. A native of Phrygia and originally a slave in Samos, he is said to have won the favour of Croesus, king of Lydia, who employed him on important missions. One of these was to Delphi, and Aesop, giving offence to the Delphians, was thrown over a precipice. Tradition represents him as very ugly but very witty. The fables in Greek verse by Babrius and in Latin verse by Phaedrus (q.v.) contain translations or adaptations of many fables ascribed to Aesop.



Aesop, famous Greek fabulist. Bust in Villa Albani, Rome.

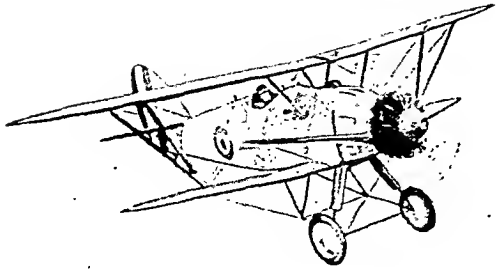
AESTHESIMETER OR **ESTHESIMETER** (Gr. aisthesis, sensitiveness; metron, measure). Instrument for measuring sensitiveness to touch in the human body. Its principle is that two separate points are applied to one part of the body, and the minimum distance at which they are felt as two points is taken as the degree of sensitiveness. It is found that the tip of the tongue is the most sensitive part.

AESTHETICS. The term aesthetic (Gr. aisthetikos, perceptive) is explained in the Oxford English Dictionary as "the philosophy or theory of taste or of the perception of the beautiful in nature and art." One of its purposes is to define the beautiful and to analyse the attitude to it of the human mind. Not only perception is involved, but pleasure, and the objects provoking this are of more than one kind. There is beauty in the ordinary sense, that is, a combination of subtly contrasting but harmonious qualities; and there are the complex sentiments of the sublime and the ludicrous, which are closely connected to the aesthetic feeling.

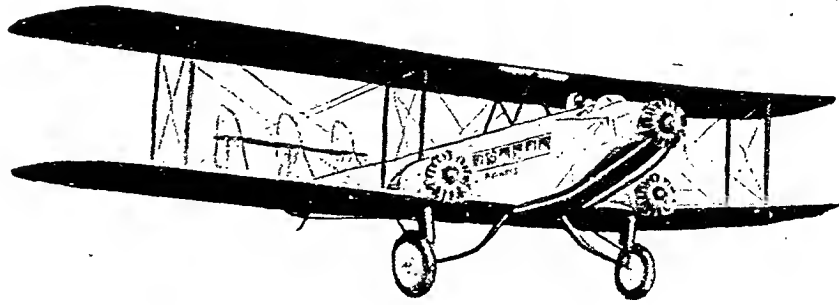
Beauty presented in the arts has essentially the same aesthetic effect as that offered by nature. Practical aesthetics consists in the establishment of a rational basis for art criticism. It enables the student to distinguish, for instance, in architecture, works of art from mere structures of utility; in painting, it teaches appreciation of treatment apart from the subject of the work. The principles of design and ornament also fall under the head of practical aesthetics.

Conditions of production and the psychology of the artist are also the concern of aesthetics. Much light has been thrown on the former by the study of primitive man in whose life a prominent part was taken by art. Later investigations have shown that the practice of forms of art such as personal adornment and the dance is of distinct service to the individual and the community, although recognition of this ultimate utility is not the determining cause of the artistic operation.

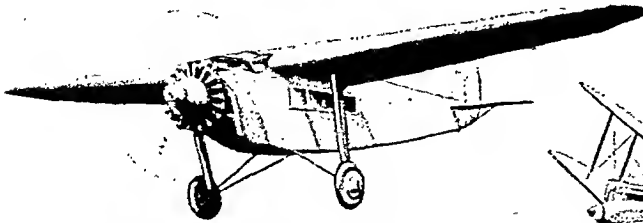
Aestheticism was the popular name for the movement started by D. G. Rossetti, William Morris, and others who rose in revolt against the ugliness of the Victorian age.



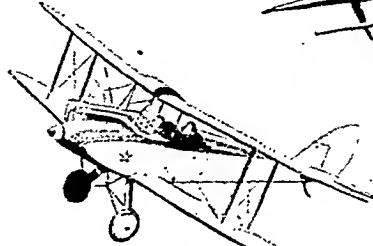
Armstrong Whitworth "Siskin"



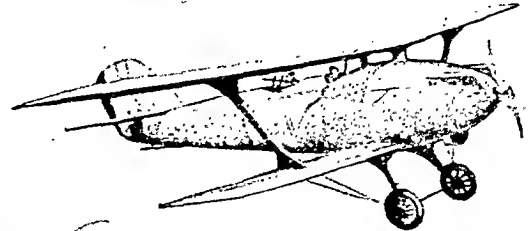
De Havilland "Hercules"



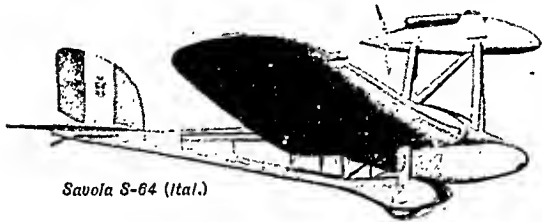
Fokker Super-Universal (U.S.A.)



De Havilland "Gipsy Moth"



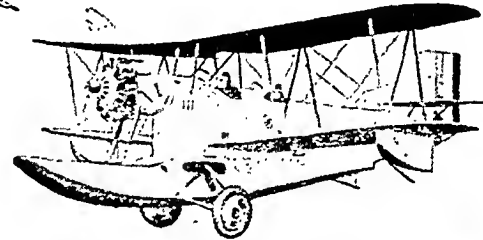
Breguet XIX (Fr.)



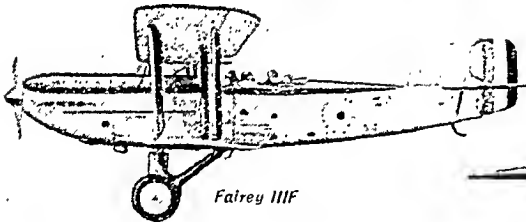
Savoia S-64 (Ital.)



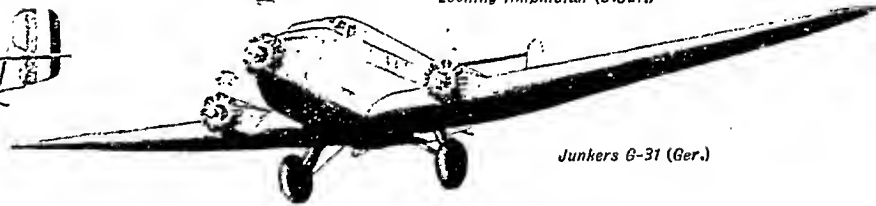
De Havilland "Tiger Moth"



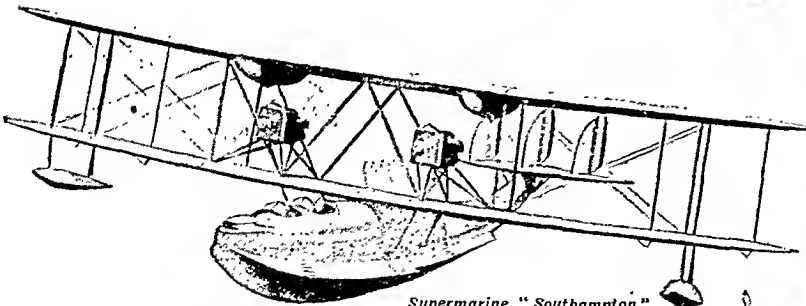
Loening Amphibian (U.S.A.)



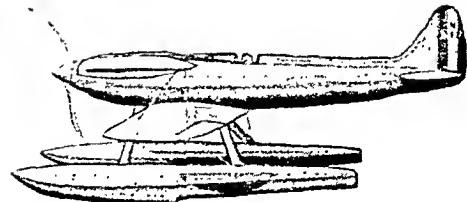
Fairley III F



Junkers G-31 (Ger.)

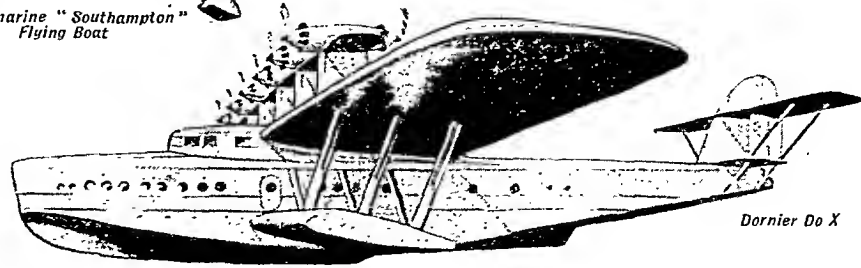
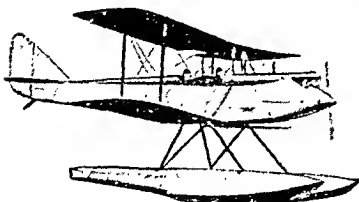


Supermarine "Southampton"
Flying Boat



Supermarine S. 6.

Auro "Avian" Seaplane



Dornier Do X

AEROPLANE. REPRESENTATIVE BRITISH AND FOREIGN MACHINES IN RELATIVE SIZES

The machines illustrated are British unless otherwise stated. In the case of foreign machines the country of origin is indicated in parentheses thus—(Fr.) French: (Ger.) German, etc.

Specially drawn by Leonard Bridgman

Consult Aesthetics, B. Croce, trans. 1909; The Nature of Beauty in Art and Literature, C. Mauron, trs. R. Fry, 1927; The Theory of Beauty, E. F. Carritt, 3rd ed., 1928; The Meaning of Beauty, W. T. Stace, 1929.

AESTIVATION (Lat. aestivare, to pass the summer). In zoology, the summer sleep of animals, resembling the more common hibernation, or winter sleep. It is seen chiefly in molluscs and fresh-water fish that are unable to endure a dry condition.

In elementary botany the term aestivation is used to indicate the arrangement of the parts of a flower in the unexpanded bud.

AETHERIOSCOPE (Gr. aether, air; skopein, to examine). Instrument for measuring differences of temperature produced by radiation. It can also be used to record minute variations of temperature brought about by changing conditions of the sky. It consists of a differential thermometer, the bulbs of which are placed in a concave or encephalic mirror, one of the bulbs being in the focus of the mirror. It was invented by Sir John Leslie, who described it in the Transactions of the R. Society of Edinburgh, 1818.

AETIUS (d. A.D. 454). Roman general under Valentinian III, Roman emperor of the west. He defended the frontiers of the Empire for nearly 20 years, and in 451 defeated Attila near Châlons. His son was betrothed to Valentinian's daughter, but in 454 the emperor, suspecting that Aëtius had designs upon the throne, killed him.

AFFIDAVIT (Lat. ad, to; fides, faith). In English law, a statement put into writing, and then sworn to and signed by the witness, who is called the deponent. The oath may be administered by any person who has authority to administer oaths in the court where the affidavit is to be used, usually a commissioner for oaths: or, abroad, by a British consul. Affidavits are not used, except by consent or special leave, as evidence in the trial of actions, except sometimes in the Chancery Division, but they are used in interlocutory proceedings.

AFFILIATION (Latin ad, to; filius, son). Legal term meaning the fixing of the paternity of a bastard child. Proceedings may be taken against the man by the mother or a public assistance authority, by means of a summons in a magistrate's court. They must be begun either before the birth or within 12 months thereafter: and, upon paternity being proved, the magistrate may order the father to pay a sum to cover lying-in expenses, and not exceeding 20s. a week until the child is 16.

AFFIRMATION (Latin ad, to; firmus, firm). Solemn declaration made before a competent officer in place of a judicial oath. Any person who, on giving evidence, or upon any other occasions when an oath is required, objects to be sworn, is allowed to make an affirmation instead. But he must give as his reason for objecting to an oath either (1) that the taking of an oath is contrary to his religious belief; or (2) that he has no religious belief. In 1833 Quakers and Moravians were allowed to affirm, and in 1888 the privilege was granted by law to others if they had objection to taking an oath. An affirmation has the same force as an oath. See Oath.

AFFORESTATION. The word afforestation is here used in the ordinary sense of clothing bare ground with trees. It represents an effort to repair loss due to reckless exploitation or to destruction by fire. The term also includes plantations designed to turn waste land or poor pasture to better account, to provide shelter from wind, to stem the violence of torrents, to check the denudation of steep ground, or to fix shifting sands.

The need for afforestation varies in each country in inverse proportion to its own timber resources and its facilities for obtaining supplies elsewhere. Great Britain, whose need

of timber is the greatest of all countries, has hitherto relied on her purse and her ships to bring her all she requires. The immense loss incurred on this account during the Great War, and the uncertainty of the world's supplies, especially those of Russia, from which in recent years half the British imports have been drawn, have compelled the Government to adopt a policy of afforestation. The scheme adopted provides for the planting of 1,750,000 acres, which will increase the existing forest area by more than half. This will not suffice to guarantee adequate supplies in normal times unless Canada, which is the great timber reserve of the British Empire, effectually protects her forests from fire.

Afforestation in Great Britain is controlled by the Forestry Commission, which was set up in 1919. It has acquired over 500,000 acres of land, including the crown lands transferred to it in 1924, and has planted over 117,000 acres. It has power to aid afforestation by making grants to local authorities and private individuals. See Forestry.

AFFRIC. Glen, river, and lake of Inverness-shire, Scotland. The glen is considered to be the most beautiful in the kingdom, and the river, 18 m. long, passes through it and the lake to join the Glass river.

AFGHANISTAN. Afghanistan is a country lying N.W. of India and forming a buffer state between Russia and the Indian Empire. Its estimated area is 245,000 sq. m. It is mainly mountainous, broken by deep ravines and fertile valleys. From the N.E. it is crossed by the lofty ranges of the Hindu Kush, some of the peaks reaching 24,000 ft. in height. The climate is generally healthy and dry and is marked by extreme variations of temperature. There are two harvests



Afghanistan. The buffer state between Russia and India. It is mostly mountainous country broken by rocky ravines and fertile plains

annually, yielding cereals, vegetables, and fruit, especially grapes. Copper, iron, and gold are worked. Silk and carpets are manufactured.

Connecting with India there are four main lines of communication, the two most important being from Peshawar through the Khyber Pass to Jalalabad and Kabul; and from Quetta through the Bolan Pass to Kandahar.

Afghanistan, with a population estimated at 6,380,000, is inhabited by a variety of nationalities, generally spoken of as Afghans, though properly only the Durani, one of the two dominant tribes, are Afghans. The languages are Persian and Pushtu, and the religion Mahomedan. The principal towns are Kabul, the capital, in the E., Herat in the W., and Kandahar in the S.

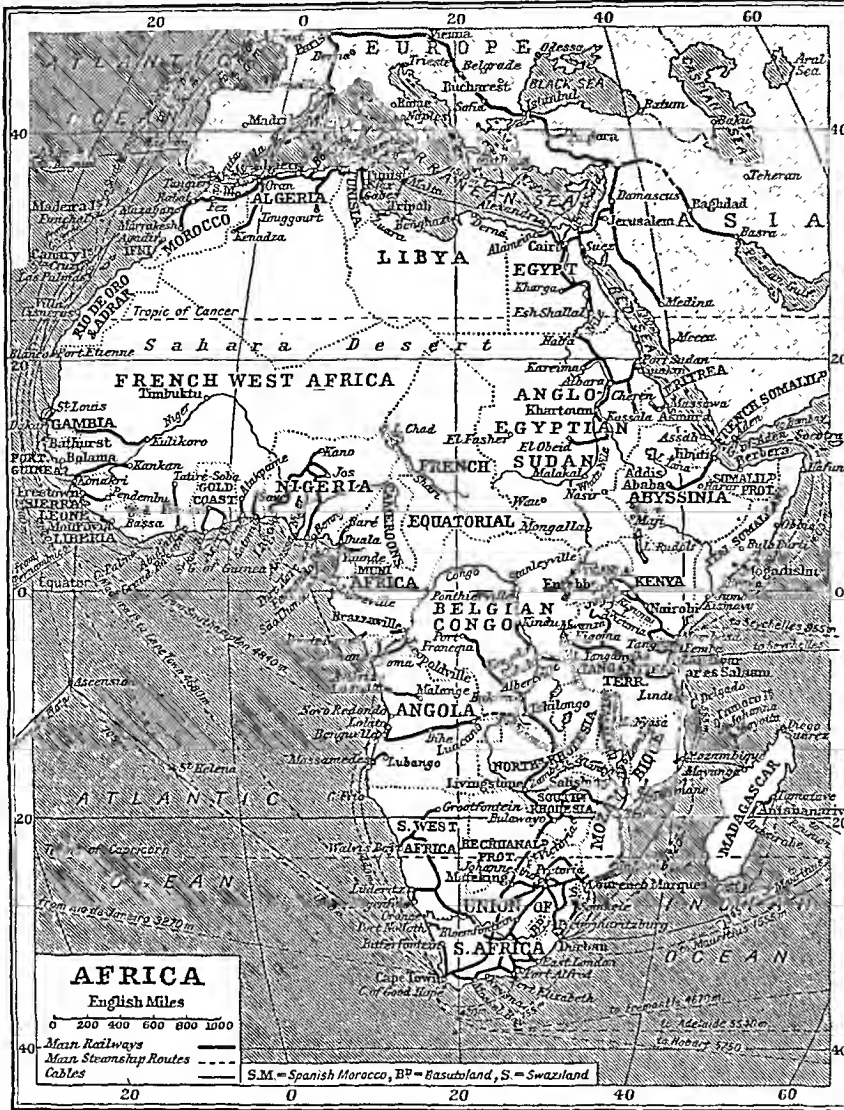
The history of Afghanistan dates from the 5th cent. B.C., its modern history from about 1747, in which year the Durani dynasty was founded by Ahmad Khan. In 1838, following the discovery of negotiations with Russia, Afghanistan was invaded by a British force and the Ameer sent as a prisoner to India. The occupation of Kabul led to an insurrection in 1841 and to a massacre of the British. Two British forces recaptured Kabul in 1842 (first Afghan War). Sher Ali, son of the banished Ameer succeeded him and by his intrigues with Russia provoked in 1878 the second Afghan War.

By a treaty made in 1879 with his son, Britain attained control of Afghan foreign policy, stipulated for residence of her representative at Kabul and extended the British frontier by occupying the Khyber Pass. Further massacres, including that of the British resident, Sir Louis Cavagnari, were followed by Roberts being sent with an army to Kabul, where he remained for nearly a year, engaged in almost constant hostilities. In July, 1880, he marched to Kandahar and defeated the Afghan army besieging that city. From 1881 to 1901 Abd-ur-Rahman was sole ruler, when he was succeeded by his son Habibullah Khan. Difficulties between Russia and Britain concerning the Afghan northern boundary were settled by diplomacy.

Following the assassination of the Ameer in 1919, his third son and successor, Amanullah Khan, began a campaign against Britain, but was defeated at all points and forced to make peace. In 1929, owing to his introduction of western customs, there was a serious rising, during which he and his family and the British residents in Kabul were rescued by the British Air Force. He subsequently abdicated in favour of the rebel leader, Habibullah Ghazi.



Afghanistan. Group of Brahuis, hill people on the Baluchistan frontier. Above, Afghan merchant



Africa. Map of the continent showing its extensive coastline and division into countries

but the latter was soon defeated and a leading Afghan soldier, Nadir Khan, was chosen king in October of that year.

Consult *L'Afghanistan*: géographie, histoire, ethnographie, voyages, R. Furon, 1926; *Afghanistan of the Afghans*, S. I. A. Shah, 1928; *Through the Heart of Afghanistan*, E. Trinkler, trans. B. K. Featherstone, 1928; *Afghanistan*: from Darius to Amanullah, Sir G. MacMunn, 1929.

AFRICA. This great continent forms a S.W. extension of Asia, to which it is attached by the isthmus of Suez. From N. to S. it stretches about 5,000 m., and about 4,000 m. from its W. to E. extremes. The total area is about 11,500,000 sq. m., and the estimated population some 180,000,000.

The coastline is almost unbroken. Orographically the continent may be divided into four regions: (1) the coastal plains; (2) the Atlas region of N. Africa; (3) the north and west African plains, including the Sahara; and (4) the great southern and eastern tablelands. In the southern plateau there are a number of ridges, and in equatorial regions many craters of extinct volcanoes, such as Kilima-Njaro (20,000 ft.) and Kenya (18,500 ft.). The principal rivers are the Nile, Congo, Niger and Zambezi, and about two-thirds of the continent drains towards the Atlantic. There is a vast interior lake system,

including Lakes Victoria Nyanza, Tanganyika, and Nyasa in the E. and Lake Chad in West Africa. The principal deserts are the Sahara, Libyan and Nubian in the N. and Kalahari in the S.

Typical flora includes the date-palm in the Sahara oases, rubber-yielding lianas, the oil-palm and other economic plants in W. and Central Africa, mahogany and ebony in the vast forests of the coastal region and of the Congo basin, cedar and the Ibean camphor in British East Africa, etc. The African fauna proper includes the giraffe, single-humped camel, buffalo, zebra, rhinoceros, lion, leopard, elephant, chimpanzee, gorilla and baboon.

Gold is found over wide districts, especially in the S.; iron ore is worked in Algeria, copper in the Belgian Congo and coal chiefly in S. Africa.

There are four main language groups: Bantu (S. Central Africa), Sudanic (W), Hamitic (chiefly N.), and Semitic (N.E.). The two former are negro groups and together comprise about 1,170 languages, while there are 50 Hamitic languages. The Semitic languages are intrusive and belong to Asia.

The majority of the inhabitants are negroes; others include Bushmen and Hottentots, Eastern Hamites, Libyans, occupying Algeria and Morocco, Semites or Arabs, and numerous tribes of mixed race.

HISTORY. Africa's ancient history is confined to the northern part. The primitive population consisted of pygmies (who still remain in Central Africa), and immigrants from Arabia and Asia. The first settlements were Egyptian, Phoenician and Greek. From the first century Northern Africa was successively annexed wholly or in part by Rome, the Vandals, Arabia, Turkey, and, in the 18th century, France. There was early colonisation of parts of Central and S. Africa by the Egyptians, Phoenicians, Greeks, and Arabs. In the 15th and 16th centuries Portuguese explorers descended the W. coast, reaching the Congo and doubling the Cape.

The first English reached the Gold Coast in 1582. By the 19th century they had out-distanced all other European explorers. They put much of lower Egypt on the map, explored Abyssinia and Senegambia, discovered the Upper Niger and the Orange River, the sources of the Nile and the great lakes bordering Tanganyika. Famous explorers of the time were Bruce, Mungo Park, Burton, Speke, Livingstone and Stanley.

To-day the British Empire in Africa, including mandated areas, comprises some 4,652,000 sq. m., with an estimated population of 50,000,000. The French possessions cover only a little less. The chief of the British possessions are the Union of South Africa, with the S.W. Africa Protectorate, which it governs for the League of Nations, the Anglo-Egyptian Sudan, Rhodesia and the Protectorates of Kenya, Nigeria, Uganda, Somaliland and Nyasaland. Smaller areas are Sierra Leone, Mauritius, Gold Coast and Gambia. Tanganyika Territory is governed under a mandate. The Congo Free State was annexed by Belgium in 1908.

French possessions comprise part of Morocco, Madagascar, Algeria, Tunis, a vast tract in N. and W. Africa which includes most of the Sahara, and part of the Congo; Portugal has territories in W. and S.E. Africa; Italy's dependencies are Eritrea, Italian Somaliland, and Libya (comprising Tripolitania and Cyrenaica), while Spain holds part of Morocco, Rio de Oro and Spanish Guinea.

In 1919, Germany was deprived of her African possessions, Great Britain, France and Belgium being appointed to act as mandatories of the League of Nations. Abyssinia is an independent kingdom, and Egypt was declared an independent state in 1922.

In this work, each country, town and important physical feature is dealt with under its own heading. See Abyssinia; Cairo; Congo; Nigeria; Nile; South Africa, etc.

AFRICA GENERAL SERVICE MEDAL.

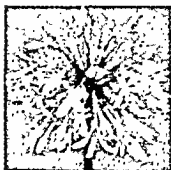
British decoration awarded in 1902 to commemorate military expeditions in East, Central, and West Africa. It shows on the obverse the head and bust of King Edward VII. in a field-marshal's uniform; on the reverse a figure of Britannia with lion gazing over a desert at the rising sun. The ribbon is yellow with black edges and two narrow green stripes.



Africa General Service Medal

The medal commemorates incessant warfare of a minor but exacting type. Clasps awarded are for N. Nigeria and S. Nigeria for various dates; Uganda, 1900; Jubaland, Gambia, Lango, 1901 and 1902; Jidballi and Kissi, 1905; Somaliland, 1901 and 1902-4; British Central Africa, 1899-1900; and Aro, 1901-2. The majority of the clasps have been won by the King's African Rifles. A medal of the same name and similar design was issued in 1916.

AFRICAN LILY (*Agapanthus umbellatus*). Fine bulbous plant of the lily family, with long, fleshy, strap-shaped leaves, from the middle of which rises a leafless stem, two or three feet high. On the top is an umbel of many bright blue funnel-shaped flowers. It is a native of S. Africa, whence it was introduced to English conservatories in 1692. See Lily.



African Lily,
Agapanthus

AFRIDI. Pathan tribe of the Indo-Afghan frontier. Tall, lean, light-tinted Iranian Aryans, and avowedly Sunni Moslems, they speak a north Pushtu dialect. Of their eight clans the Adam Khel, of the Kohat Pass, and the Zakka Khel, of the Khyber Pass, have been the objects of British punitive expeditions.

AFRIKANDER BOND. Association of Afrikaners, i.e. Dutchmen born in S. Africa, formed in British South Africa in 1880. Its object was to secure the independence of the country. In time the objects of the Bond became somewhat less hostile to British rule, but it was supported by the more aggressive section of the Dutch, and during the war of 1899-1902 it sympathised with the Boers.

AGADIR. Bay and port of Morocco, 23 m. S. of Cape Ghir. In 1910, as a counterpoise to the influence of France in Morocco, some German capitalists bought from the sultan concessions over a large part of the country. In July, 1911, the German Government sent the gunboat Panther to Agadir, and her officers promised the Moroccan kais the support of Germany in resisting the control of France. This nearly brought about a European war, but the two Powers came to an arrangement by which France was given a free hand in Morocco in return for the cession of about 100,000 sq. m. of land in the Congo basin to Germany. In 1930 it was made a free port.

Agag. Amalekite ruler spared by Saul against the divine command and cut to pieces by Samuel a. Gilgal (1 Sam. 15).

AGAGIA. Station in the Libyan desert, about 14 m. S.E. of Barrani and 12 m. inland from the Mediterranean. It is near the coast road W. from Alexandria. Near here in Feb., 1916, a British force defeated the Senussi (q.v.).

AGAMEMNON. In Greek legend, king of Mycenae in Argos, and leader of the Greeks in the Trojan War. He was the brother of Menelaus, the husband of Helen, whose abduction by Paris was the cause of the war. The Greek fleet was assembled at Aulis, but detained there by a calm sent by the goddess Artemis, whom Agamemnon had offended by killing a stag sacred to her. To appease the goddess, Agamemnon agreed to sacrifice his daughter Iphigenia; but at the moment of sacrifice she was carried off in a cloud by Artemis.

In the tenth year of the war occurred the famous quarrel between Agamemnon and Achilles over the possession of the captive maiden Briseis. At the end of the war, when Agamemnon returned to Mycenae, he was murdered, together with the Trojan princess Cassandra, by his wife Clytemnestra and her paramour Aegisthus. They were afterwards put to death by Agamemnon's son Orestes. The story is the subject of the trilogy—Agamemnon, Choephoroi, and Eumenides—of Aeschylus and of tragedies by Sophocles and Euripides. See Orestes.

AGAMOGENESIS (Gr. a, not; gamos, marriage; genesis, origin). In biology, an asexual method of reproduction found among some lower animals and in certain plants, in which the reproductive cell develops without fusion with any other cell.

AGAPE (Gr. agapē, love). Love feast peculiar to the early Christian Church. It preceded or followed the Eucharist, and later became a charitable gathering and a social banquet. Abuses arose and it was condemned by the councils of the Church. It survives in the distribution of blessed bread after the Eucharist in Eastern and French churches, and in certain social gatherings held by the Moravians.



Afridi of the Indo-Afghan frontier

Agapemone was the name given to the headquarters of a community of both sexes founded in Somersetshire in 1859 by Henry James Prince, formerly a doctor of medicine and a Church of England clergyman (1811-99). Prince styled himself "the beloved" and a reincarnation of the Holy Ghost. He and his followers lived in a luxuriously furnished building at Spaxton, professedly with all things in common, but yielding implicit obedience to the head. Prince was succeeded by T. H. Smyth Pigott, also a clergyman, in 1902.

AGAR AGAR. Jelly used by bacteriologists for their cultures. It is a vegetable gelatine produced chiefly from a red seaweed known as Ceylon moss (*Gracilaria lichenoides*). The same seaweed is much used in the East as a basis for soups and jellies.

AGARIC (Gr. agarikon, fungus). General term in botany used to denote numerous species of fungi, including the mushroom. They bear their spores on thin plates or gills on the lower surface of the cap and radiating from the stem. See Mushroom.



Agaric. Poisonous kind, the fly agaric

AGASSIZ, JEAN LOUIS RODOLPHE (1807-73). Swiss-American naturalist. Born at Motier, Switzerland, May 28, 1807, he was professor of natural history at Neuchâtel, 1832-46, and an ardent follower of Cuvier. His work in 5 volumes, *Recherches sur les poissons fossiles*, was published 1833-43, and his scientific investigation of the movements of glaciers resulted in *Etudes sur les glaciers*, 1840. In 1848 he was appointed professor of natural history at Harvard, where later he established the museum of comparative zoology. He left his great work on the *Natural History of the U.S.A.* unfinished. He died at Cambridge, Massachusetts, Dec. 14, 1873.



J. L. R. Agassiz,
Swiss-American
naturalist

His son Alexander Agassiz (1835-1910) was born at Neuchâtel, graduated at Harvard in 1855, and was curator of the Harvard Museum of Comparative Zoology, 1874-97. He specialised in marine zoology and established a marine station on Rhode Island in 1875.

The Agassiz Association, an American society for nature study, was named after the elder Agassiz.

AGATE. Form of silica deposited from water, usually presenting a banded or ribbon-like structure due to pauses in its growth. On account of its hardness and toughness it is used as bearings in scientific instruments, e.g. chemical balances. The more delicately banded

and coloured varieties are used as ornamental stones and are known as onyx, cornelian, etc.

AGATHA (d. 251). Saint, virgin and martyr. Sicilian by birth, she suffered martyrdom under Decius at Catania, after having been tortured by the praetor Quintianus, whose addresses she had rejected. Canonised by Pope Gregory I, a chapel in Catania cathedral is dedicated to her, and her festival is kept on Feb. 5. Her name is in the Church of England calendar.

AGATHOCLES (361-289 B.C.). Tyrant of Syracuse. Of humble birth, he entered the army as a common soldier, but having married the widow of his wealthy patron Damas, became the richest man in Syracuse.

Expelled from the city by his enemies, he returned with a band of mercenaries and was besieged in Syracuse 310 B.C., but triumphantly carried the war into the enemy's country in N. Africa. Henceforth (307 B.C.) he was king of all Sicily. His successful campaigns in Italy and the Lipari islands consolidated his rule.



Agathocles, Tyrant of Syracuse
Dust in National Museum, Naples

AGATHON (d. c. 400 B.C.). Athenian dramatist. He was a pupil of Gorgias and a friend of Plato and Euripides. Only fragments of his tragedies have survived, but the Alexandrian critics assigned him a high place. He wrote *The Flower*, the first Greek play with an original plot, the subject of previous dramas having been taken from mythology. He was also the first to make his choral odes mere lyrics.

AGAVE OR AMERICAN ALOE. Plant so called from a superficial likeness to the true aloe, to which it is not related. There are many species of agave, all natives of S. America, Mexico, and the southern United States; the best known is the noble *Agave americana*. The stem is very short and supports a rosette consisting of about 40 leaves some 5 ft. in length and more than 1 ft. broad. They are very thick and fleshy, and the edges are armed with hard spines.



Agave,
or American Aloe

The plant matures slowly in from 10 to 70 years, and then very rapidly develops a flowering stem from 15 ft. to 40 ft., its upper portion bearing several thousands of yellow-green flowers. The flowering exhausts the plant, and it soon dies. The roots and leaves contain fibres from which twine, cordage, and paper are made.

AGEN. City of France. Capital of the department of Lot-et-Garonne. It is on the Garonne, 84 m. by rly. S.E. of Bordeaux. The ancient Aginnum, it is a bishop's see, has a 12th century cathedral, and many old buildings and institutions. It is noted for its poultry, and is a rly. centre. It was the birthplace of Joseph Sealger. Pop. 23,391.

In medieval times the district round the city of Agen was known as Agenais, and formed part of Aquitaine and later of Toulouse

AGENDA (Lat. agenda, things to be done). Name given to the programme of a business meeting of any kind. The agenda is usually prepared by the secretary for the guidance of the chairman.

AGENT. In law, one who acts for and on behalf of another (the principal) in such a way as to make the principal legally liable for his acts and defaults. The legal relationship is termed the agency.

By the doctrine of ratification, if a person purports, without authority, to act for a principal, the principal may, on learning what has been done, ratify the agency and take the benefit and assume the burden of what had been done in his name. If, however, he refuses to recognize it, the agent is personally liable, on what is called a "warranty of authority." The authority of an agent is revoked by the death or bankruptcy of the principal. It may also be expressly revoked at any time by the principal. An agent is entitled to be reimbursed and indemnified for all acts done and expenditure incurred within the scope of the agency. He is liable for negligence in the conduct of his principal's business.

Agent general is the name given to the London business representatives of the six states of the Australian Commonwealth and most of the provinces of Canada.

In France, a government agent who associated with conspirators and disaffected persons generally, incited them to violence and crime, and then betrayed them to the authorities, was known as an agent provocateur.

AGESILAUS (c. 442-360 B.C.). King of Sparta and one of the ablest generals of his time. An appeal from the Greeks of Asia Minor for help against the Persians led him to declare war against Persia. After a victory on the Pactolus in 396 he was obliged to return to defend Sparta against a coalition of Athens, Thebes, Argos, and Corinth. The coalition was beaten at Coronae in Boeotia in 394 B.C. Thebes, however, gradually increased in power, and in 371 Sparta was defeated at the battle of Leuctra, and might have suffered extinction but for the efforts of Agesilaus. In 361 Agesilaus led an expedition into Egypt to assist King Tachos against the Persians, but died in the following year.

AGGTELEK. Village of N. Hungary, in Gömör es Kis-Hont co., N.E. of Budapest. In the neighbourhood are the famous labyrinthine stalactitic caves, measuring, with side branches, over 5 m. in length, in which prehistoric remains have been found.

AGHA or **AGA.** Title used by the Turks for the chief of the janissaries, for military officers, and for the head eunuch. It is also a general term of respect among Mahomedans.

AGHA KHAN. Title of Hasan Ali Shah (1800-81), hereditary chief and unrevealed imam of the Ismailite sect of the Mahomedans.

He was governor-general of the province of Kerman under Fateh Ali Shah, but fell out of favour and fled to India, settling in Bombay under the protection of the British. For his valuable services, notably in the first Afghan war and the Sind campaign, he was granted the title of highness and a substantial pension. Agha Khan III (b. 1875) was knighted in 1902, and for his important service in the Great War was granted the status of a first-class Indian prince. In 1929 he married Andrée Carron, a French lady.

AGHA KHAN III, Indian Prince
Enfayette

AGHA MOHAMMED (c. 1740-97). Shah of Persia and founder of the Kajar dynasty. The son of the Kajar chief, Mohammed Hasan,

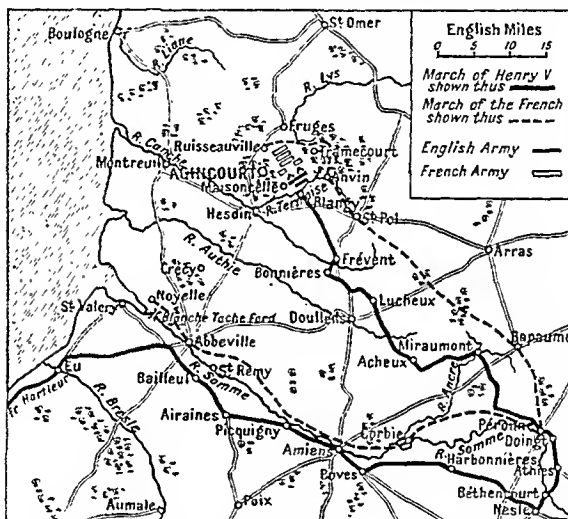
he was mutilated in boyhood by Adail Shah, and became known as the eunuch. After his father's death he surrendered to the Zend chief Karim Khan, by whom he was kept at Shiraz. At Karim's death in 1779 he escaped from Shiraz and began his struggle for the crown. In 1795 he took Kerman, massacred the inhabitants, and murdered the reigning sovereign. He was crowned shah in 1796 at Teheran, which he made his capital, but only reigned until his murder in 1797.



Agha Mohammed,
Shah of Persia

AGINCOURT. Village in the Pas-de-Calais, about 14 m. from St. Pol. It gives its name to the battle fought between the English and the French, Oct. 25, 1415.

The English force of about 9,000, under Henry V, consisted largely of archers, and was outnumbered by the French in a ratio of four to one. With this handicap, and suffering from



Agincourt. Map showing the route followed by the British force under Henry V, before the great battle of Oct. 25, 1415

fatigue and lack of provisions, it nevertheless defeated the French after three hours' fighting, and drove the enemy from the field with losses that nearly equalled the entire British strength.

The British warship Agincourt was built at Elswick for Brazil, and then taken over by Turkey. In 1914, when nearing completion, the British Government took her and she was present at Jutland.

AGIRA. Town of Sicily, in the province of Catania. It was formerly known as San Filippo d'Argiro, being on the site of the ancient Agrigum. It is one of the oldest cities of Sicily, is 35 m. N.W. of Catania and noted for its marble. Diodorus Siculus, the Greek historian, was born here. Pop. 22,485.

AGISTMENT (Lat. ad, to; O. Fr. giste, lodging). Term in English law for the practice of hiring the right to graze cattle. The person who contracts to graze the cattle must take reasonable care of the beasts, or he is liable for damages. The agisted cattle cannot be seized for arrears of rent.

AGITATOR OR **ADJUTATOR** (Lat. agitare, to act frequently). Name, merely meaning an agent, given in 1647 to the representatives chosen by the regiments of Cromwell's New Model Army to present the grievances of the soldiers to the generals and to Parliament.

The agitators, who belonged to the rank and file, acted with the council of officers to resist the arbitrary acts of the Long Parliament; they obtained some money, but their main grievances were not redressed. They seized the king (Charles I) at Holmby House, and the army marched to London, but Cromwell soon restored order, and the agitators disappeared.

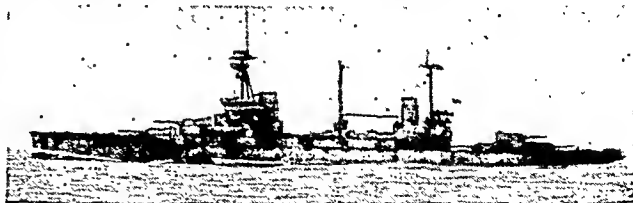
AGNES (d. 306). Roman saint, virgin, and martyr. She was beheaded at the age of 13 under Diocletian, and is commemorated on Jan. 21. A church in Rome is dedicated to her, her name is retained in the Church of England calendar, and her martyrdom is the subject of paintings by Tintoretto and others.

AGNEW. Family of art dealers and publishers. Thomas Agnew (1794-1871) was mayor of Salford in 1851. His sons were Sir William Agnew (1825-1910), the first baronet, and Thomas Agnew. The business was later carried on by William Lockett Agnew (1858-1918) and other members of the family.

In 1870 the Agnews obtained, through marriage, an interest in Punch, and from 1890 Sir William Agnew was closely identified with that periodical.

AGNI. In Hindu mythology, the god of fire. Prominent in Vedic hymn and legend, he is pictorially represented with two faces, three legs, and seven arms, and riding on, or accompanied by, a ram.

AGNOMEN. In Roman nomenclature, an extra name, added as a sign of service to the state or as indicative of some characteristic. Thus Scipio received the agnomen of Africanus as the destroyer of the African power of Carthage; while Fabius was called Cunctator (the delayer), in allusion to his waiting policy against Hannibal.



Agincourt. British warship that took part in the Battle of Jutland. Built for Brazil and transferred to Turkey, she was taken over by Britain in 1914

AGNOSTICISM (Gr. a, not; gnostikos, knowing). Name given by Huxley in 1869 to that mental attitude which regards as unknowable whatever is not capable of scientific demonstration. Hence the existence of God, of the soul in the spiritual sense, and of any other than material existence, is held to be beyond the cognition of man. This attitude is distinct from that of atheism. See Atheism; Free Thought.

AGNUS DEI (Lat. Lamb of God). Symbolic title given to Christ by S. John Baptist (John I) in allusion to His atoning sacrifice. The representation of Christ under the form of a lamb bearing a banner or a staff headed with a Greek cross is of great antiquity in ecclesiastical art.

AGONY COLUMN, THE. Personal advertisement column in newspapers. It contains appeals for missing relatives and friends, and similar matter. These advertisements are often in cipher. The dynastic change brought about in Portugal in 1833 is said to have been conducted by means of the Agony Column of The Times.

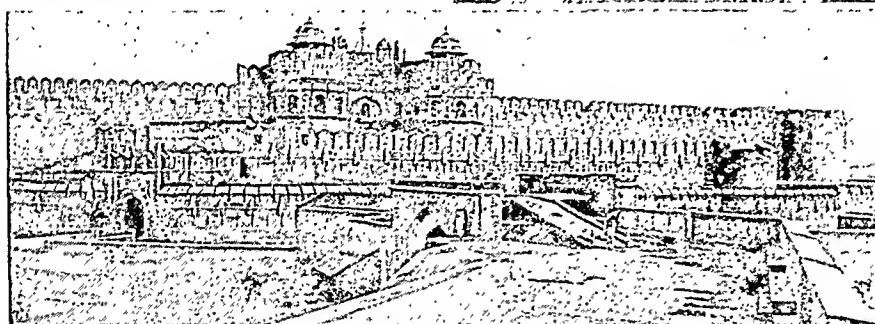
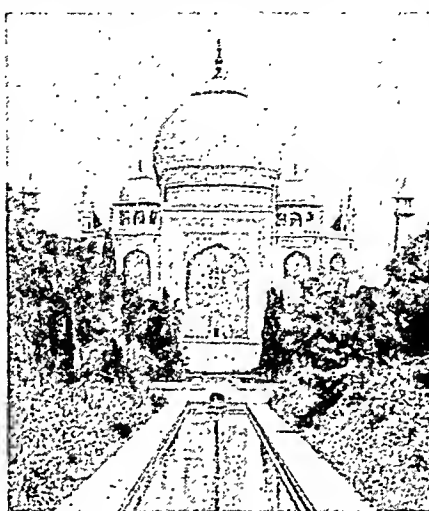
AGORA (Gr. assembly). Originally used to denote the assembly of the people summoned by the kings of ancient Greece, the term came to mean meeting place. It was usually the central square of the city, corresponding to the Roman forum.

AGOUTI. South American and West Indian rodent of the genus *Dasyprocta*. The common agouti is about 18 ins. long and, though distinctly allied to the guinea-pig, somewhat resembles a brown rabbit but without the characteristic ears. Dwelling in woods, and gregarious and nocturnal in habit, it is very destructive in sugar plantations.

AGRA. City and fortress of India from which both a division and a district of the United Provinces take their names. It is on the right bank of the Jumna, 138 m. by rly. S.E. from Delhi. The fortress erected by Akbar in 1566 is surrounded by walls 1½ m. in circumference and 70 ft. high, and contains the palace of Shah Jāhān; beyond the walls E. of the city is the celebrated Taj Mahal. The Moti Masjid and Jama Masjid are magnificent mosques, and there are remains of tombs and palaces.

interpolations. They include the sayings found on papyrus at Oxyrhynchus by Grenfell and Hunt in 1897 and 1904, the genuineness of most of which is questioned. See Logia; consult also Paralipomena: Remains of Gospels and Sayings of Christ, B. Pick, 1908.

AGREEMENT (Lat. ad, to; gratus, pleasing). In English law an agreement presupposes two or more parties and a common intention; also that it is intended to affect the legal relations of the parties. Contract is



Agra. Fort and Delhi Gate of the city of Agra. The fort, built by Akbar in 1566, is surrounded by a strong and lofty two-tiered wall of red sandstone. Above, the Taj Mahal, the white marble mausoleum built in 1632 by the emperor Shah Jāhān for the remains of his favorite wife

British buildings include the Government House, college, and barracks. An important rly. and commercial centre, the city manufactures shoes, lace, and inlaid mosaics, and is an emporium for grain, cotton, tobacco, and sugar. The Jumna river and the Agra canal afford additional transport facilities. From 1566-1658 Agra was the capital of the Mogul Empire. It was captured by Lord Lake in 1803, and withstood a siege of several months during the Mutiny. Pop., city, 185,532; dist., 1,060,528. See Taj Mahal.

AGRAM. Town of Yugo-Slavia, known to the Hungarians as Zagreb or Zagreb. It stands near the left bank of the Save, 42 m. by rly. E.N.E. of Fiume. Its chief buildings include the 15th century Gothic cathedral, archiepiscopal palace, palace of the ban or governor, university founded in 1874, and natural history museum. Founded in 1094 by Ladislaus I, it became a free city in 1242, and the capital of Croatia-Slavonia in 1867. In Oct., 1918, when the Austro-Hungarian empire was breaking up, a Croatian provisional government was set up here. It manufactures leather, linen, carpets, and wagons, and trades in wine, cereals, and hides. Pop. 130,000.

AGRAPHA (Gr. agraphos, unwritten). Word used for reputed sayings of Jesus Christ not found in the Gospels and for certain sayings that, found therein, are thought to be

one kind of agreement. There are others—e.g. marriage. An agreement to make a gift is not a contract. An agreement to do, or abstain from doing, or to pay money is only enforceable if the agreement is a contract. Agreements to be valid must be stamped, usually with a 6d. stamp. See Contract.

AGRICOLA, GNAEUS JULIUS (A.D. 37-93). Roman general and administrator and governor of the Roman province of Britain. In A.D. 59 he served with the Roman army in Britain, and saw further service in Asia, again in Britain, and in Aquitania. Governor of Britain 78-86, he was recalled to Rome by Domitian. Agricola is the subject of a biography by his son-in-law Tacitus, the Roman historian. This claims for him a record as a conqueror and administrator which the result of research has failed to confirm. His recall was probably due to the feeling that the results of the campaigns were not commensurate with his efforts.

AGRICULTURAL CREDIT. In Great Britain, following the example of certain other countries, this is now given to farmers and smallholders by banks and societies.

An Agricultural Credits Act was passed in 1923. By this the Ministry of Agriculture was empowered to make advances to farmers and others on approved security. In five years to March 31, 1928, the amount advanced to

farmers was £4,612,600. In 1928 a further Act was passed with the object of extending the system of agricultural credits. Under it a company was formed, its capital being subscribed by the Bank of England and the large banks. It can give credits for longer periods.

AGRICULTURAL LABOURER. One who works on the land for weekly wages. According to the census of 1921 there were 581,594 agricultural labourers in England and Wales, the number having decreased seriously during the previous thirty or forty years.

Owing to low wages, bad housing, long hours of labour, and a general lack of the amenities of life, agricultural labourers have been long regarded as the poorest and most depressed class in the social system.

Much was proposed but little done to improve their lot until the Corn Production Act of 1917. By this an agricultural Wages Board was set up and a minimum wage of 25s. a week was fixed for the labourers. This lasted until 1921, when the Board was abolished and committees were appointed in the various districts to fix wages by agreement between employers and employed. In 1924 the Wages Board was again set up, but no minimum wage was fixed. Instead, committees appointed for each county, or group of counties, were given the power to settle rates of remuneration. In practice the average minimum wage for adult male agricultural workers is 31s. 8d. per week. Unlike other workers, agricultural labourers were not insured in 1911 against unemployment. Consult The Village Labourer, J. le B. and B. Hammond, 1911.

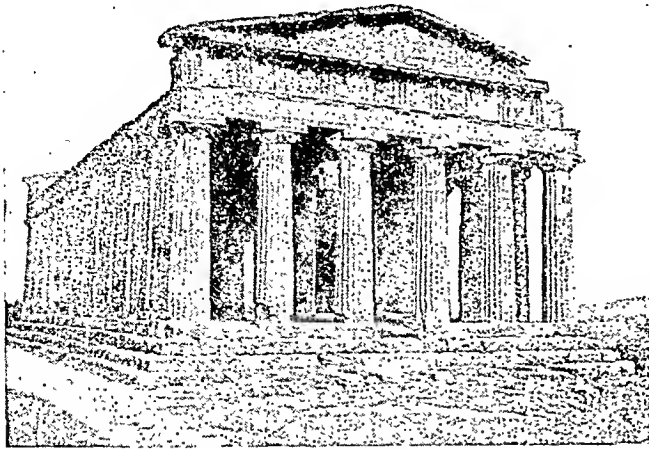
AGRICULTURE. The word means literally tillage of the field, but in popular use it also includes the rearing of animals for food.

The chief concerns of the farmer can be grouped under the three headings of soil, plants, and animals.

SOIL. The agricultural value of soil lies in the fact that it contains soluble mineral matters which are used by plants as food. In a very dilute solution they cling to the soil particles in the form of thin films (hygroscopic water), quite distinct from "free" water, which is removed by drainage. The more thorough the tillage, the greater will be the accessibility to the plant of this mineral food. Soils are commonly classified according to their chemical nature, the three chief types being sand, clay and carbonate of lime. Loams chiefly consist of sand and clay and are most useful to the farmer; marls are limy clay. No soil can be fertile unless it contains humus, which furnishes the essential nitrogenous part of plant food. Soils which are naturally deficient in one or more essential kinds of plant food, or have become exhausted by cropping, require chemical improvement by judicious manuring.

PLANTS. Farm plants may be roughly divided into three groups: (1) Crops and plants to serve as food for man and stock; (2) weeds; (3) fungoid pests, such as rust and potato disease. Some agricultural plants, such as wheat and beans, live for one year only. Others, for example, turnip and beet, last for two years, completing their growth and storing up reserves of food in the first year, and forming flowers and seed in the second. An ordinary mixed farm consists partly of permanent grass (for pasture or hay crops), and partly of arable land, a regular succession of different crops being part of established farm practice.

ANIMALS. An average farmer is concerned with horses, cattle, sheep, pigs and poultry. He must feed them in the most economical manner consistent with keeping them in perfect health, and he must be able to treat at least their simpler ailments. With the exception of pigs and poultry, farm animals are vegetarian.



AGRIGENTUM. The Temple of Concord, one of the most perfect of the surviving examples of Hellenic architecture, in this ancient Greek city in Sicily

IMPLEMENTS AND MACHINERY. These may be divided into six groups: (1) Implements for working or tilling the soil, including many kinds of plough, cultivator, harrow, roller, and hand tools such as spades, forks, hoes, etc; (2) drills and distributors for seeds and manures; (3) implements for collecting and storing crops, such as mowing and haymaking machines, corn reapers and binders; (4) machines for thrashing, winnowing and screening; (5) implements for preparing food for stock, such as turnip cutters, etc; (6) machines for supplying power, including steam, oil and petrol engines.

During the Great War the area of arable land in the United Kingdom was increased by 1,750,000 acres, and before hostilities terminated Britain was raising three-fifths of the grain required for home consumption. Since then the area under plough has shrunk almost continuously, being, in 1928, 13,320,000 acres compared with 15,949,000 in 1918. This period of depression is imputed to high costs and low prices.

The Agricultural Holdings Act of 1908 has as its main object to control the relations between landlords and tenants and to compensate the latter, when their tenancies terminate, for improvements which they have effected.

Agricultural interests in Great Britain are promoted by many bodies, headed by the Ministry of Agriculture and Fisheries (q.v.). The Chamber of Agriculture has for its object to watch over all parliamentary measures affecting agricultural matters. There are Agricultural Organization Societies for promoting cooperative methods by which farmers in a small way, by uniting their forces, can secure advantageous terms. Agricultural Societies are associations of farmers and others connected with the land which render great service by holding shows and meetings, awarding prizes for stock and produce, issuing publications and retaining experts for the assistance of members.

Facts and figures about agriculture all over the world are collected and examined by the International Institute of Agriculture, which has its headquarters at Rome.

See Agricultural Labourer; Bee; Crops; Dairy; Farm; Fruit; Horse; Manures; Poultry; Stock, etc.

AGRICULTURE AND FISHERIES, MINISTRY OF. Department for superintending these industries in England and Wales. Known until 1919 as the Board of Agriculture and Fisheries, it has at its head a minister, usually a member of the Cabinet. It has a parliamentary and a permanent secretary. The Ministry's duties are to look after matters concerned with diseases of animals, with

AGRIGENTUM (mod. Girgenti). Ancient city on the S. coast of Sicily, known to the Greeks as Akragas. Founded by colonists from Gela about 581 B.C., it soon acquired both wealth and territory, and had, it is said, at one time a population of 200,000. Agrigento had many handsome temples, that of Jupiter being one of the finest in Sicily. The Carthaginians destroyed the city in 405, but it was rebuilt by Timoleon in 340. It was sacked during the first Punic War, and again in 210. It remained, however, a great trading centre for several centuries. The city walls can still be traced. See Girgenti.



AGRIMONY. Common British wild-flower

alternately large and small. From June to Aug. it sends up a tall, flowering spike, bearing numerous small yellow flowers and top-shaped fruits with hooked prickles. The rootstock yields yellow dye.

AGRIPPA. The name of two Idumean rulers of Judaea under the Romans. Agrippa I,

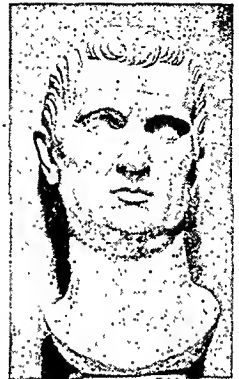
allotments and small holdings, and in general to promote the interests of agriculture. It spends money on agricultural education, and collects and distributes a mass of agricultural statistics and other information. The promotion of forestry and the Ordnance Survey are also in its charge. The head offices are in Whitehall Place, London, S.W.

For Scotland there is a separate Board of Agriculture, while Northern Ireland and the Irish Free State have each a Ministry of Agriculture.

grandson of Herod the Great, killed James, son of Zebedee, and cast Peter into prison. He reigned with much pomp and met with a horrible death at Caesarea, described in almost identical terms by Josephus and in Acts 12.

His son, Agrippa II, with his sister Berenice, heard Paul's statement before Festus at Caesarea, and was "almost persuaded to be a Christian." (Acts 25-26.) After the fall of Jerusalem he returned to Rome, where he died A.D. 100, the last of the Herodians.

AGRIPPA, MARCUS VIPSANIUS (63-12 B.C.). Roman general and statesman, friend and confidant of Octavian, afterwards the Roman emperor Augustus. During the civil wars following the death of Caesar, Agrippa con-



Agrippa. Roman general. Capitoline Museum, Rome

ducted a successful campaign in Gaul in 38 B.C.; effectually checked the menace of Sextus Pompeius by his naval victory at Naulochus in 36; and commanded the fleet at the decisive battle of Actium in 31. After Augustus became emperor, he conducted successful campaigns. Agrippa was responsible for many public works at Rome and was a generous patron of art and letters. His third wife was Julia, the emperor's daughter. See Augustus.

AGRIPPINA (d. A.D. 33). Called the Elder, she was a daughter of Marcus Vipsanius Agrippa and Julia, daughter of Augustus. A woman of strong character, she shared the hardships of the campaigns of her husband Germanicus, by whom she was the mother of Caligula and Agrippina.

Agrippina the Younger married Gnaeus Domitius Ahenobarbus, and was mother of the emperor Nero. She later married her uncle, the emperor Claudius, and persuaded him to adopt her son, to the detriment of Britannicus, his own son by his former wife Messalina. Nero, on his accession, had her assassinated.

AGUASCALIENTES. Capital of the state of Aguascalientes, Mexico. The state, quite a small one, has an area of 2,968 sq. m. with a pop. of 107,581. The town is 365 m. by rly. N.W. of Mexico city and has rly. connexion also with Tampico and the U.S.A. About 6,400 ft. above sea level, it has fruit gardens. Pop. 48,041. There is a town of the same name, which means hot springs, in Peru.

AGUINALDO, EMILIO (b. 1870). Filipino patriot. Born at Cavite, Luzon, of which he was mayor 1893-6, he took a leading part in the insurrection against Spain. In the Spanish-American War he first supported the American forces, but in 1899 led a formidable rising against them. Captured in March, 1901, a month later he swore allegiance to the U.S.A.



Agrippina the Elder. This beautiful example of ancient sculpture has been traditionally believed to represent the mother of Caligula and grandmother of Nero. Capitoline Museum, Rome

AGULHAS (Port. needles). Cape of Africa. The southernmost point of the continent, it derives its name from its jagged rocks, and is subject to violent storms. Agulhas Bank extends E. from the cape along the entire coast of South Africa.

AHAB. King of Israel (875-53 B.C.). He succeeded his father Omri (1 Kings 16-22), and by his marriage with Jezebel, daughter of Ethbaal, king of Tyre, was drawn to the worship of Baal and Astarte. When, to secure Naboth's vineyard for him, Jezebel caused Naboth's death, and Ahab hastened to take possession of the land he coveted, he was met by Elijah with the prophecy of his death and the destruction of his house, a punishment delayed by his repentance. In his reign of 22 years he carried on two successful campaigns against the Assyrians under Benhadad II, and was slain in a third campaign at Ramoth-gilead by a "certain man" who "drew a bow at a venture." Ahab is the name also of a false prophet who was burnt to death by King Nebuchadnezzar (Jer. 29).

AHASUERUS (c. 519-c. 465 B.C.). King of Persia. He is mentioned in Ezra 4, Dan. 9, and Esther, and is usually identified with Xerxes, son of Darius Hystaspes, but doubt has been thrown on the identity of the Ahasuerus of Dan. 9, since Darius the Mede is unknown to history. Ahasuerus is also the name of the principal character in the legend of the Wandering Jew.

AHAZ. Son and successor of Jotham, king of Judah (2 Kings 16; 2 Chron. 28; Is. 7). He became a vassal of Tiglath-Pileser, king of Assyria, whose aid he had sought against the kings of Israel and Damascus. He reigned for 20 years, about 735-15 B.C.

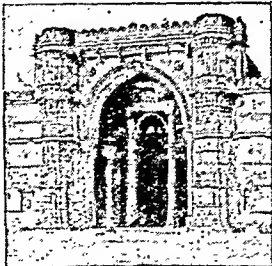
AHAZIAH. Name of two kings mentioned in the O.T. One was son and successor of Ahab, king of Israel (1 Kings 22; 2 Kings 1). He was a worshipper of Baal, and reigned c. 851-49 B.C. The other was son and successor of Jeoram, king of Judah, and of Athaliah, daughter of Ahab (2 Kings 8; 2 Chron. 22), and was slain by Jehu after a year's reign, about 844 B.C.

AHIMELECH. High priest at Nob (1 Sam. 21-22). For giving David the showbread to eat and the sword of Goliath, he and his house were slain by Saul. Another Ahimelech was a Hittite companion of David (1 Sam. 26).

AHITHOPHEL. Friend and counsellor of David (2 Sam. 15-17). He joined Absalom in rebellion, but despairing of success he "put his household in order and hanged himself."

AHMADABAD. Chief city of Ahmadabad district, Bombay Presidency, India. On the Sabarmati river, 309 m. by rly. N. from Bombay, it is an important centre of the cotton industry, and manufactures gold, silver, and silk thread, pottery, paper, and tin. A walled city, 2 sq. m. in area, it has some fine mosques.

Founded in 1412, it was a city of great splendour under the Mogul emperors and capital of the Mahomedan kingdom of Gujarat. Captured by the British in 1780, it was restored to the Mahrattas, but reverted to Great Britain in 1818. Feeling against the Rowlett Act was the cause of disturbances here on April 11, 1919, when two Government buildings were



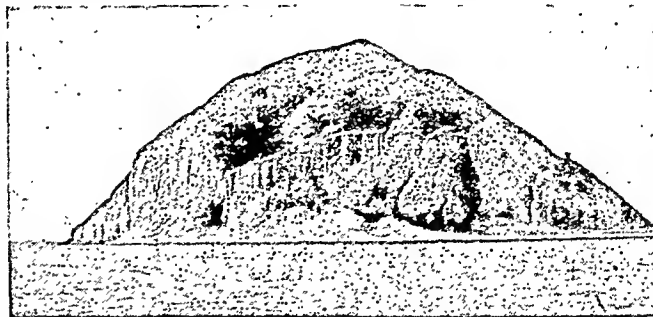
Ahmadabad. Entrance to the Jama Masjid, or Great Mosque

burned. The district has an area of 3,815 sq. m. Pop. city, 274,007.

AHMADNAGAR. Chief town of Ahmadnagar district, Bombay Presidency, India. On the Sina river, it is 218 m. E. of Bombay by the Great Indian Peninsula Rly. A walled city, founded in 1494 and 3 sq. m. in area, it was captured in 1803 by General Wellesley. Its manufactures include cotton and silken goods, copper and brass pots. Ahmadnagar Fort, used during the South African War for the internment of Boer prisoners and during the Great War for Germans, lies $\frac{1}{2}$ m. to the E. The district of Ahmadnagar, with an area of 6,600 sq. m., is chiefly agricultural and produces pulse, millet, oil-seeds, etc. Pop. town, 49,878.

AHRIMAN. Personification of the spirit of evil in the Zoroastrian belief of the ancient Persians and the modern Parsees. Like the Satan of the Bible, he is the chief of a hierarchy of demons of darkness, but, unlike Satan, is regarded as the equal of the creator Ormuzd, or Ormazd, the spirit of good, although before the end of the world he is to be finally subdued. Other forms of the name are Angra Mainyu, and Arimanes. See Zoroastrianism.

AHWAZ, **AHWAS** OR **ANWUZ**. Town of Persia, in Arabistan province. It stands on the river Karun, 70 m. N.E. of Basra, and is notable for the neighbouring ruins of the capital of Artabanus, the last king of Parthia. In the war with Persia, 1857, it was captured by the British. During the Great War the British occupied it in 1915 to protect the oil wells of the Anglo-Persian Oil Company, but they were forced to retire by large Turkish forces in March, 1915. Later in 1915 the British held it again.



Ailsa Craig. Basaltic rocky islet in the Firth of Clyde, Scotland. It rises 1,114 ft. above the sea level

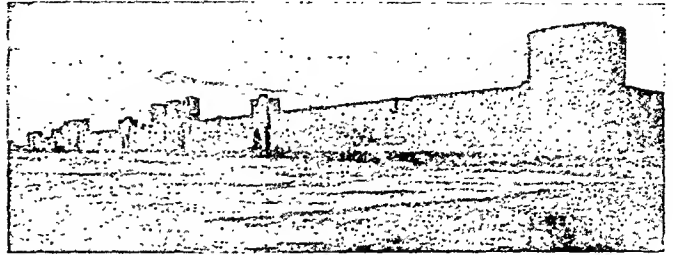
AI OR **HAI**. Royal city of the Canaanites, E. of Bethel (Gen. 13; Josh. 7-8). The Israelites were smitten here after the fall of Jericho. With its inhabitants it was destroyed by Joshua.

AID. Payment made in feudal times by vassals to the king, barons, and other overlords, the equivalent of the taxes of to-day. The Latin word for aid in this sense was auxilium.

At first in England the kings and barons collected aids as often as they could, but by the time of Henry I the number of times they could lawfully do this had been reduced to three: (1) when the eldest son was knighted; (2) when the eldest daughter was married; (3) when the king or lord himself needed ransom. The term aid was also used in the time of the later Plantagenet kings (1272-1377) for other taxes, such as money paid in lieu of military service. See Feudalism.

AIDAN (d. 651). Saint and Apostle of North Britain. He was a monk of Iona and was sent to Northumbria at King Oswald's request. There he won the people to Christianity, and was consecrated first bishop of Lindisfarne in 635. He made this place the centre of his missionary work, and when Oswald died his successor Oswy protected him. He died at Bamborough, Aug. 31, 651.

AIDE-DE-CAMP. Word, of French origin, applied to an officer who serves a general or a



Aignes Mortes. Famous fortifications of the historic French town in the department of Gard. They were built about 1280

governor in a personal capacity. In times of peace his functions are secretarial and domestic. In war he arranges for the comfort of the commander and sometimes acts as camp commandant at headquarters, supervising the batmen, drivers, clerks, etc. An aide-de-camp is designated by the letters A.D.C.

AIDIN OR **GUZEL-HISSAR**. Town of Turkey, in the vilayet of Aidin. It stands on the Smyrna-Dineir Rly., 81 m. S.E. of Smyrna. Built near the ruins of ancient Tralles, it manufactures leather and is noted for its sweetmeats, fruit, and cotton. It suffered by an earthquake in 1899. Turkish and Greek forces contended for its possession in 1919, the Turks being defeated. The vilayet has an area of 25,800 sq. m. and is very productive. Pop. of the vilayet, 211,750; town, 36,000.

AIGUES MORTES (Lat. aquae mortuae, dead waters). Town and seaport of France, in the department of Gard. It is 24 m. by rly. S. of Nîmes, and 3 m. from the Mediterranean with which it is connected by canal. Its walls and towers were built about 1280. Pop. 4,330.

AIGUILLE (Fr. needle). Name for a bare needle-shaped pinnacle of rock standing above the snow-line. Such pinnacles are formed by the action of frost causing granite or other crystalline rocks to

split. There are many examples in the Alps.

AILANTUS OR **TREE OF THE GODS**. The tree is a native of North China, whence it was introduced to Europe in 1751. In some places it is extensively planted as a shade tree. The flowers are greenish-white. The larva of the Ailanthus silk moth feeds on the plant.

AILSA, **MARQUESS OF**. Scottish title dating from 1831. It is derived from Ailsa Craig, a rocky islet in the Firth of Clyde, and is borne by the family of Kennedy. The first Lord Kennedy, ennobled in 1452, was a regent in Scotland during the minority of James III. The 3rd lord, made earl of Cassilis in 1509, was killed at Flodden. The 12th earl was made marquess of Ailsa. The family seat is Culzean Castle, Ayrshire, and the eldest son is known as the earl of Cassilis.

AIN. Department of E. France. Between the Rhône and Saône rivers, and bordered

N.E. by the Swiss cantons of Vaud and Geneva, it has an area of 2,248 sq. m. and is traversed by the river Ain. It yields bituminous limestone, from which Seyssel asphalt is made. The chief towns are Bourg, the capital, and Belley. It takes its name from a tributary of the Rhône. Pop. 317,195.

AINLEY, HENRY HINGLIFFE (b. 1879). British actor. Born at Leeds, Aug. 21, 1879, he made his first appearance in London at the Lyceum Theatre in 1900, and in 1903 toured in America. His successes included Brutus in Julius Caesar and parts in The Great Adventure and If I Were King. After service in the army he appeared in 1919 in Reparation, in 1923 in Oliver Cromwell and later in Hassan, Macbeth, and other plays. In 1929 he played in The First Mrs. Fraser.



Henry Ainley,
British actor
E. O. Hoppe

AINSWORTH, WILLIAM HARRISON (1805-82). British novelist. Born in Manchester, Feb. 4, 1805, he studied at the Inner Temple, but soon tired of the law and settled down in London as an historical novelist and magazine editor. His first success was Rookwood, 1834, and the last of his 39 novels, Stanley Brereton, was published in 1881. The Tower of London, 1840, Old St. Paul's, 1841, and The Lancashire Witches, 1848, are his best works. From 1842-53 Ainsworth edited Ainsworth's Magazine and for some years later The New Monthly Magazine. He died at Reigate, Jan. 3, 1882. Consult Ainsworth and his Friends, S. M. Ellis, 1911.



W. H. Ainsworth,
British novelist
After D. Macleay; R. A.

AINSWORTH'S MAGAZINE and for some years later The New Monthly Magazine. He died at Reigate, Jan. 3, 1882. Consult Ainsworth and his Friends, S. M. Ellis, 1911.

AINTREE. Suburb of Liverpool. It is on the L.M.S. Rly. and the Leeds and Liverpool Canal. The canal passes across the racecourse, over which the Grand National Steeplechase is run. See Grand National.

AINU OR AINO. Primitive race of Caucasian stock inhabiting the Kurile Islands, Yezo and S. Sakhalien. They number less than 20,000.

Occupying roomy reed-thatched huts, with separate storehouses on stilts, they are essentially hunters and fishers, using a detachable harpoon and cooking all animal food. Their language, clearly primitive, is richly developed, a vocabulary of 14,000 words having been compiled. Their animism includes a complex nature worship of the sun, fire, lightning, and rivers.



Ainu. Man and wife of this primitive Caucasian race

AIR OR ASBEN. Oasis and sultanate of the French Sahara, situated due north of Nigeria. Mountainous, and with a fairly temperate climate, its valleys are fertile, dates being abundant, while indigo and senna are grown. The inhabitants are chiefly Tuaregs. The

capital is Agades. Asben town is a caravan centre for N. and Central Africa.

AIR. Word used in several senses. As applied to the atmosphere we breathe, it denotes a mixture of gases extending at least 200 m. beyond the earth's surface. This is mainly nitrogen and oxygen, the former occupying nearly four-fifths of the total.

USES OF AIR. Air is used as a source of power in the air engine. Here the alternate heating and cooling of a body of air in a cylinder causes a piston to travel in and out as the air expands and contracts.

The air lift is a device for raising water or oil by means of compressed air. It comprises a large-bore air tube (B) open at its lower end and closed at its upper end, through which passes an outflow pipe of smaller diameter (C) open at its lower end and connected at its upper end to a reservoir. This apparatus is lowered into a well (A), for instance, and air is forced into the air tube from a compressor (E) when a succession of elongated bubbles, or short columns of water, is driven up into the outflow pipe (C).

An air lock is a chamber, usually constructed of steel plates, which gives admittance to, or egress from, a caisson or other chamber in which the air pressure exceeds that of the atmosphere. It is fitted with two doors, one opening outwards into the working chamber and the other opening inwards from the outside air. By means of a valve the pressure in the air lock is equalised to that of the working chamber, or to the lesser pressure of the outside air, so that persons or material can be admitted or passed out without loss of pressure in the working chamber.

AIR, LAW OF

THE. The development of flying has made necessary laws for regulating the movement of vessels in the air. These have followed largely the model of the shipping laws, and arrangements have been made for the registration of aircraft just as ships are registered. In Great Britain measures passed in 1911, 1913 and 1919 forbid aircraft to fly below certain heights, and order them to use only recognized aerodromes. Those entering the country must only land at recognized airports in order that their cargoes may be examined by officials of the customs. The secretary for air can make orders forbidding them to fly over certain areas and below a certain height, as was done in Nov., 1929.

All air vessels must be registered and their crews licensed, while those that carry passengers must be certified as airworthy. Lights, green, red and white, must be carried, and distress and landing signals have been arranged. The rule of the air is that aeroplanes must give way to airships and airships to balloons.

In 1919 an air navigation conference met to decide matters of international concern. It was laid down that each state had the sovereignty over the air above its territory. The nationality of aircraft depends upon the country of registration. Rules about marking and licensing aircraft, and also about the documents which they must carry, were made. An

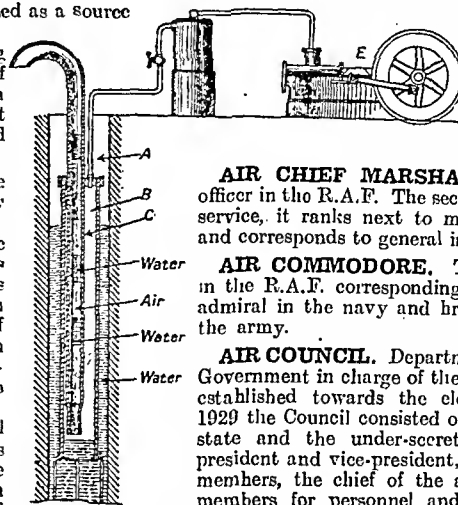
international commission for air navigation was set up in Paris, and in 1925 another conference was held.

AIR CHIEF MARSHAL. Title of an officer in the R.A.F. The second highest in the service, it ranks next to marshal of the air and corresponds to general in the army.

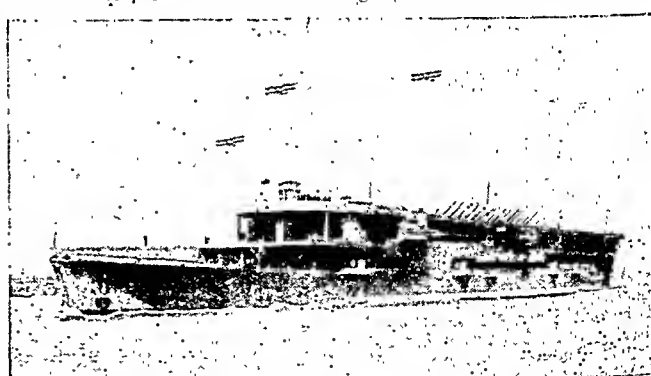
AIR COMMODORE. Title of an officer in the R.A.F. corresponding in rank to rear-admiral in the navy and brigadier-general in the army.

AIR COUNCIL. Department of the British Government in charge of the Royal Air Force, established towards the close of 1917. In 1929 the Council consisted of the secretary of state and the under-secretary of state as president and vice-president, with three other members, the chief of the air staff, and the members for personnel and for supply and research. The council has also a secretary who is a civil servant. See Air Force.

AIRCRAFT CARRIER. Term applied to a vessel made to carry seaplanes, and allow them space to take off from, with cranes or other apparatus for lifting them on deck from the water. The first British carrier was a tramp steamer, the Ark Royal, which was adapted in 1914. Other vessels were adapted for the purpose during the Great War, including the light cruiser Furious, and in 1917 the Hermes was built as a carrier. In 1924 the Washington Conference fixed limits to



Air Lift. Diagram showing method of working. See text



Aircraft Carrier. H.M.S. Furious, light cruiser adapted during the Great War to carry aircraft and reconstructed in 1925
Stephen Critch

the size and armament of the carriers, which must not exceed 27,000 tons. See Seaplane.

AIR CUSHION. Bag made of strong cloth coated with rubber which can be inflated and used as a cushion. Air cushions are useful in cases of illness or fatigue, but they are liable to crack, tear, and puncture.

AIRD SIR JOHN (1833-1911). British contractor. Born in London, Dec. 3, 1833, John Aird joined his father as contractor. Having erected the Crystal Palace in 1851, the Airds undertook the construction of railways, docks, etc., nearly all over the world. In 1898-1902 Aird constructed the great dams of Assuan and Assiut on the Nile. From 1887-1905 he was Conservative member of Parliament for North Paddington, London, and in 1901 he was made a baronet. He died Jan. 6, 1911.

AIRDRIE. Burgh and market town of Lanarkshire, Scotland. It is 11 m. E. of Glasgow, on the L.M.S. and L.N.E. Rlys., and near the Monkland Canal. The industries include coal mining, iron and brass founding, engineering, cotton and silk weaving, and paper making. The buildings include the town hall, academy, mechanics' institute, and the first free library in Scotland, opened in 1856, the present building dating from 1894. Pop. 25,093.

AIRE. River of Yorkshire, England. It rises in the Pennines, flows into Malham Tarn, and, after a short subterranean course, reappears N. of Malham village. It then flows first S. and then S.E. to join the Ouse above Goole. Above Leeds it passes through Airedale, and W. of Skipton is the Aire Gap, a passage through the Pennines into Ribblesdale.

The Aire and Calder Navigation is a system of rivers and canals linking up industrial towns of Yorkshire. Its total length is 74 miles. The chief port of the system is Goole, and its two main lines are between Goole and Leeds and between Castleford and Wakefield. See Canal.

AIREDALE. Upper valley of the river Aire, Yorkshire. It extends 35 m. from Malham Cove to Leeds.

The Airedale Terrier is a sporting dog bred originally in Airedale. There are several varieties, but two main divisions, the smooth and the rough-haired, the latter being more akin to the Scotch terrier. He is a good retriever and a faithful companion.

AIR FORCE, ROYAL. Official name of the British air service. It came into existence April 1, 1918, as an amalgamation of the Royal Naval Air Service and the Royal Flying Corps. Its fighting chief is the inspector general.

The commissioned ranks are pilot officer, flying officer or observer, flight lieutenant, squadron leader, wing commander, group captain, air commodore, air vice-marshal, air marshal, air chief marshal, and marshal of the air. Below are warrant officers, flight sergeants, sergeants, corporals, and mechanics. The uniform is light blue. The motto is *Per ardua ad astra* (through difficulties to the stars).

In 1929 the strength of the Air Force was 32,000. The cadet college is at Cranwell, in Lincolnshire, and the staff college at Andover.

AIR FORCE CROSS. Distinction awarded to officers and warrant officers of the R.A.F.

Dating from 1918 it is given for courage and devotion to duty. The ribbon is red and white.

AIR FORCE MEDAL.

Distinction awarded to N.C.O.'s and men of the R.A.F. and bestowed for acts of courage and devotion to duty. The ribbon is red and white. It was instituted in 1918.

AIR GUN. Weapon fired by means of compressed air. In the simplest form air is condensed in a chamber by a syringe in the stock. When the trigger is pulled a valve is opened between air-chamber and barrel and the bullet is discharged.

Examples of these guns are in the Imperial Service Museum, London, S.W.

AIRMAN. Official designation of N.C.O.'s and men of the Royal Air Force, not applied to commissioned officers. Colloquially it is applied to any person connected with the practice of aviation.

AIR MARSHAL. Title of an officer in the R.A.F., the third highest in the service; it corresponds in rank to vice-admiral in the navy and lieutenant-general in the army.

AIR MINISTRY. Department of the British Government responsible for maintaining and directing the R.A.F. As constituted in 1917, its head ranked as a secretary of state, but in 1918 it was placed under the Secretary for War. Since 1921 the office of secretary of state for air has been a distinct one, a salary of £3,000 a year being attached to it. He is head of the Air Ministry, a member of the Cabinet, and is assisted by an under-secretary.

AIR POCKET. Vertical current or shaft of air, or any aerial disturbance, entry into which causes aircraft to drop involuntarily. Comparatively little is known of the nature and causation of these upward and downward currents, but the rapid improvements in aircraft and in airmanship, as well as the increased power of modern machines, have combined to reduce the dangers. At slow speeds, and especially when about to land, the risks of air pockets must be guarded against.

AIRPORT.

A town where aircraft may land from abroad and passengers and goods are examined as at a seaport. It must have one or more aerodromes with landing grounds, as well as accommodation for the work of the customs and immigration officials. Croydon is the chief English airport, the station being at Waddon. Others are Lympne, Southampton, Dover, Plymouth, Liverpool, Birkenhead, Newcastle-upon-Tyne, Avonmouth, Belfast and other seaports. Of inland cities Manchester and Nottingham have been licensed as airports. Some are for goods only; others only for passengers. See Aerodrome.

AIR RAID. The Germans began their raids on England before the end of 1914. The first, by aeroplane, took place on Christmas Eve of that year, and the worst, judging by the injury to life, was an aeroplane raid by day-

light on June 13, 1917. London was naturally the chief sufferer, but many towns on the east coast, especially Hull, Ramsgate, Scarborough and Yarmouth, were repeatedly visited by Zeppelins. One destructive raid reached as far inland as Birmingham and the Black Country, while enemy airships penetrated to Manchester.

As regards air raids on England, the following figures are taken from the official return of airship and aeroplane raids over Great Britain and bombardments of the coast.

Between Dec. 24, 1914, and June 17, 1918, when the raiding ceased, there were 51 airship raids and 57 aeroplane raids. The total casualties, including those by bombardment from the sea, were: Killed, 1,570; injured, 4,041, a total of 5,611, of which the casualties due to bombardment from the sea were 791, leaving 4,820 for air raids. Tables showing the principal airship and aeroplane raids are given in page 38.

AIR RECORDS. The sporting side of aviation is governed by the Fédération Aéronautique Internationale, an affiliation of bodies similar to the Royal Aero Club of Great Britain. No record is considered valid unless this body officially verifies the performance, and no national record unless it is passed by the affiliated aero club. Some international aeroplane records are:

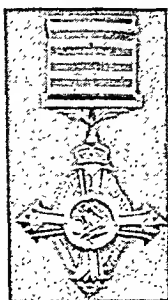
SPEED. Official record for aeroplanes: Bonnet, in a Bernard, at Istres, France (Dec. 11, 1924), 277·805 m.p.h. Official record for seaplanes: Squadron Leader Orlebar, at Calshot, in a Supermarine Rolls-Royce seaplane (Sept. 12, 1929), 357·7 m.p.h., this being the average speed of four runs over a 3 km. straight-line course. On Sept. 10 a single run over this course was taken at 368·8 m.p.h.



Airedale Terrier, Culmington Chip, a winner of many prizes



Air Force badge



Air force Cross, instituted 1918



Chart of the cities and towns in England and Scotland that suffered from air raids and naval bombardments during the Great War

AIRSHIP RAIDS, JANUARY 19, 1915, to APRIL 13, 1918

Date and Locality	Civilian Casualties		Sailors and Soldiers	
	Killed	Injured	Killed	Injured
1915.—Jan. 10-20, Norfolk	4	15	—	1
April 14-15, Northumberland	—	2	—	—
April 15-16, Essex and Suffolk .. .	—	—	—	—
April 29-30, Suffolk	—	—	—	—
May 9-10, Southend	1	1	—	1
May 16-17, Ramsgate	2	1	—	—
May 26-27, Southend	3	3	—	—
May 31-June 1, East London	7	33	—	2
June 4-5, Kent, Essex, and East Riding ..	—	8	—	—
June 6-7, Hull, Grimsby, and East Riding ..	24	33	—	2
June 15-16, Northumberland and Durham ..	18	72	—	—
Aug. 9-10, Goole, Yorks., Suffolk and Dover ..	17	18	—	3
Aug. 12-13, East Suffolk and Essex .. .	6	24	—	—
Aug. 17-18, Kent, Essex, and London .. .	10	48	—	—
Sept. 7-8, East Suffolk and London .. .	18	37	—	1
Sept. 8-9, North Riding, Norfolk, and London ..	24	92	2	2
Sept. 12-13, Essex and East Suffolk .. .	—	—	—	—
Oct. 13-14, Norfolk, Suffolk, Home Counties, and London	54	107	17	21
1916.—Jan. 31-Feb. 1, Suffolk and Midlands ..	70	112	—	1
March 5-6, Hull and East Riding, Lincolnshire, Leicestershire, Rutland, and Kent ..	18	52	—	—
March 31-April 1, Lincs., Essex, and Suffolk ..	17	9	31	55
April 1-2, County Durham and North Riding ..	22	128	—	2
April 2-3, East Suffolk, Northumberland, London, and Scotland	13	24	—	—
April 3-4, Norfolk	—	—	—	—
April 5-6, Yorkshire and County Durham ..	1	9	—	—
April 24-25, Norfolk, Lincs., Cambs., and Suffolk	1	1	—	—
April 25-26, Suffolk, Essex, Kent, and Lond. ..	—	1	—	—
May 2-3, Yorkshire, Northumberland, and Scotland	7	25	2	5
July 31-Aug. 1, Norfolk, Suffolk, Cambs., Lincs., Notts, and Kent	—	—	—	—
Aug. 2-3, Norfolk, East Suffolk, and Kent ..	—	—	—	—
Aug. 8-9, Northumberland, Durham, East Riding, North Riding, Hull, and Norfolk ..	10	15	—	1
Aug. 24-25, East Suffolk, Essex, Kent, and London	9	25	—	15
Sept. 2-3, East Riding, Lincs., Notts., Norfolk, Suffolk, Cambs., Hunts., Essex, Herts., Beds., Kent, and London	4	12	—	—
Sept. 23-24, Lincs., Notts., Norfolk, Kent, and London	40	126	—	4
Sept. 25-26, Lincs., Yorks., and Lincs. ..	43	31	—	—
Oct. 1-2, Lincs., Norfolk, Cambs., Northants, Herts., and London	—	1	1	—
Nov. 27-28, Durham, Yorks., Staffs., and Ches. ..	4	37	—	—
1917.—March 16-17, Kent and Sussex .. .	1	—	—	—
May 23-24, Essex, Norfolk, and Suffolk ..	3	14	—	2
June 16-17, Kent and Suffolk	—	1	—	—
Aug. 21-22, East Riding	—	3	—	—
Sept. 21-23, Lincolnshire and Yorkshire ..	—	3	—	—
Oct. 19-20, Midlands, Eastern Counties, and London	31	52	5	3
1918.—March 12-13, East Riding	1	—	—	—
March 13-14, Durham	8	39	—	—
April 12-13, Lincs., Lanes., and Warwickshire ..	7	20	—	—
Totals	498	1236	58	121

AEROPLANE RAIDS, DECEMBER 24, 1914, to JUNE 17, 1918

Date and Locality	Civilian Casualties		Sailors and Soldiers	
	Killed	Injured	Killed	Injured
1914.—Dec. 24, Dover	—	—	—	—
Dec. 25, Kent	—	—	—	—
1915.—Feb. 21, Essex	—	—	—	—
April 16, Kent	—	—	—	—
July 3, East Suffolk	—	—	—	—
Sept. 13, Margate	2	6	—	—
1916.—Jan. 22-23, Dover	1	6	—	—
Jan. 23, Kent	—	—	—	—
Feb. 9, Kent	—	3	—	—
Feb. 20, Kent and East Suffolk	1	1	—	—
March 1, Broadstairs and Margate	1	—	—	—
March 19, Deal, Dover, Margate, and Ramsgate ..	10	15	4	11
April 24, Dover	—	—	—	—
May 3, Deal	—	4	—	—
May 19-20, Kent and Dover	—	1	1	1
July 9, Kent (North Foreland)	—	—	—	—
July 9-10, Dover	—	—	—	—
Aug. 12, Dover	—	—	—	7
Sept. 22, Kent and Dover	—	—	—	—
Oct. 22, Sheerness	—	2	—	—
Oct. 23, Margate	—	10	—	—
Nov. 28, London	—	6	—	—
1917.—March 1, Kent	—	—	—	—
March 16, Kent and Margate	—	—	—	—
March 17, Kent	—	—	—	—
April 5, Kent and Ramsgate	1	2	—	—
May 6-7, London	77	94	18	98
May 25, Kent and Folkestone	3	8	10	20
June 5, Essex and Kent	158	425	4	7
June 13, Margate, Essex, and London	3	1	14	20
July 4, Essex and Suffolk	55	190	2	3
July 7, Margate and London	1	3	12	23
July 22, Essex and Suffolk	32	44	4	12
Aug. 12, Essex and Margate	8	13	1	—
Aug. 22, Kent	—	6	131	90
Sept. 2-3, Dover	1	59	3	12
Sept. 3-4, Kent	16	50	10	20
Sept. 4-5, Home Counties and London	11	50	1	2
Sept. 24-25, Kent, Essex, and London	8	21	1	—
Sept. 25-26, Kent and London	13	82	1	5
Sept. 28-29, Home Counties	9	33	5	—
Sept. 29-30, Kent and London	11	41	—	—
Sept. 30-Oct. 1, Kent, Essex, and London ..	—	—	—	—
Oct. 1-2, Kent, Essex, and London	8	21	2	1
Oct. 20-30, Essex	7	27	1	1
Oct. 31, Kent and Dover	14	79	—	6
Oct. 31-Nov. 1, Kent, Essex, and London ..	65	160	2	6
Dec. 6, Kent, Essex, and London	10	10	—	—
Dec. 13, Kent, Essex, and London	9	6	3	—
1918.—Jan. 28-29, Kent, Essex, and London ..	20	26	1	6
Jan. 29-30, Kent, Essex, and London	—	—	—	—
Feb. 16-17, Kent, Essex, and London	21	39	2	—
Feb. 17-18, Kent, Essex, and London	43	150	6	27
Feb. 18-19, Kent, Essex, and London	—	—	—	—
March 7-8, Kent, Essex, Herts., Beds., and London	—	—	—	—
May 19-20, Kent, Essex and London	—	—	—	—
June 17, Kent	—	—	—	—
Totals	619	1650	238	400

AIR RAIDS ON GREAT BRITAIN DURING THE GREAT WAR, DECEMBER 24, 1914, to JUNE 17, 1918. See p. 37.

MAXIMUM DISTANCE COVERED. Official record for aeroplanes: Ferrarin and del Prete, in a Savoia, on a flight from Rome to Brazil (July 3-5, 1928), 4,420 miles. Official record for seaplanes: Cornell, Rodd and Vincent, in a PN10 flying boat at San Diego, Cal. (Aug. 16, 1927), 1,568 miles.

DURATION. Official record for aeroplanes: Risticz and Zimmerman, in a Junkers W33, at Dessau (July 5-7, 1928), 65 hours 25 mins. Official record for seaplanes: Gavin and Soucek in a PN12 seaplane at Philadelphia (May 3-5, 1928), 36 hours 1 min.

ALTITUDE. Official record for aeroplanes: Lt. Champion, U.S.N., in a Wright Apache, at Washington (July 25, 1927), 38,423 ft. Official record for seaplanes: Lt. Champion,

in a Wright Apache seaplane (May 5, 1927), 37,985 ft.

Other fine performances include the following. Altitude: Neunhofer in a Junkers monoplane (May 26, 1929), 40,625 ft. British record held by Lady Heath (23,000 ft.). Non-stop flight: Costes and Bellonte, in a Breguet XIX, Le Bourget, France, to Tsitsikhar, Manchuria, a distance of 4,900 miles (Sept. 27-29, 1929). Duration: D. Jackson and F. O'Brien, at St. Louis, U.S.A., remained in the air for 420 hours, the aeroplane, St. Louis Robin, being refuelled periodically from another craft (July, 1929). Gliding flight: Nehring, at Darmstadt, made a gliding flight of 44½ miles in a straight line (April, 1929). The record is claimed by Kronfeld for a glide

of 62 miles at Riesenberg, Prussia (May, 1929). In October, 1929, a gliding record for duration was made at Rossitten, nr. Königsfeld. It lasted 14 hrs. 44 mins. See p. 39.

AIRSHIP. Aircraft depending for support on buoyancy given by gas contained within its envelope. Early airships were simply balloons or fabric bags distended by pressure of the contained gas. Many of the smaller vessels of the present day are of this type, and are therefore designated non-rigid.

Beneath an elongated, egg-shaped, gas-tight body, inflated with hydrogen or another gas, is suspended a car containing engines, fuel, and the crew. A tail with horizontal and vertical fins steadies the vessel, and hinged planes at the after edges of this provide for the steering. Forward motion is produced by one or more airscrews. To equalise internal and external pressure separate air chambers are arranged within the envelope, air pressure being diminished or increased by deflation or inflation as the vessel climbs or descends. Thus a mean internal pressure is maintained and the shape of the envelope does not change.

As an increase in envelope size means greater internal pressure of gas to keep the envelope to its correct shape, with a consequent increase of density and diminution of lifting power, there is a practical difficulty in building large non-rigid airships. Hence the

THE STEP-BY-STEP PROGRESS OF AEROPLANE AND SEAPLANE SPEEDS

Name	Aeroplane	Place	Date	Speed in m.p.h.
Wilbur Wright	Wright	Aubours	Sept. 21, 1908	27.2
Riérôt	Riérôt	Reims	Aug. 28, 1909	47.7
A. Leblanc	Riérôt	Belmont Park	Oct. 29, 1910	67.5
C. Weymann	Nieuport	Eastchurch	July 1, 1911	79.5
Vedrine	Deperdussin	Chicago	Sept. 9, 1912	105.0
M. Prevost	Deperdussin	Reims	Sept. 29, 1913	124.5
James	Gloucestershire Mars ..	Marlborough Heath ..	Dec. 19, 1921	196.6
Mauchan	Curtiss T-2	Dayton, Ohio	March 29, 1923	237.0
Bonnet	Bernard	Istres	Dec. 11, 1921	277.505
Webster	Supermarine-Napier ..	Lido	Sept. 1, 1927	283.5
Bernardi	Macchi 52 seaplane ..	Calshot	March 20, 1928	318.464
D'Arcy Greig	Supermarine-Napier ..	Calshot	Nov. 1928	319.57
Orlebar	Supermarine R.R. 56 ..	Calshot	Sept. 12, 1929	355.7

semi-rigid type, stiffened with a keel, and the rigid type, with an external framework, were devised.

In a typical modern airship of the rigid type the envelope is maintained in shape by a shell of light, stiff girders. Longitudinal ones hold together a series of polygonal rings built up of other girders. Radial steel wires tie the rings from periphery to centre, and form a series of bulkheads, in the intervals between which are separate gasbags. The outside of the skeleton is covered with a fabric envelope, fairing off the outline and leaving an insulating air space between gasbags and envelope. The lower set of longitudinal members is specially stiffened to take the weight of the ears for engines, fuel, etc. and for the crew. In the most recent types cabins and saloons for passengers are constructed within the shell of the airship.

Power plants for the airships consist of petrol motors, or of engines using heavy

THE STEP-BY-STEP PROGRESS OF ALTITUDE REACHED BY AEROPLANES

Name	Aeroplane	Place	Date	Height
H. Farman	Voisin	Issy	Nov. 13, 1903	82 ft.
H. Latham	Antoinette	Châlons	Dec. 1, 1909	1,436
H. Latham	Antoinette	Châlons	Jan. 7, 1910	3,444
Legagneux	Blériot	Pau	Dec. 9, 1910	10,165
Garros	Blériot	Dinard	Sept. 6, 1911	16,263
Garros	Morane	Tunis	Dec. 11, 1912	18,400
Legagneux	Nieuport	San Raphael	Dec. 28, 1913	20,060
Oelrich	D.F.W.	Leipzig	July 14, 1914	23,725
H. G. Hawker	Sopwith	Brooklands	April 26, 1916	23,904
McCready	Le Père	Dayton, Ohio	Sept. 28, 1921	34,184
Sadi Lecoq	Nieuport-Delage	Villesauvage	Sept. 5, 1923	35,239
Champion	Wright Apuêhe seaplane	Washington	May 5, 1927	37,955
Champion	Wright Apache aeroplane	Washington	July 25, 1927	38,423
Soucek	Wright Apache biplane	Washington	May 8, 1929	39,140
Neunhofer	Junkers monoplane	Dessau	May 26, 1929	40,625

Two giant airships (R100 and R101), built for the British Government, and completed late in 1929, have a gas capacity of about

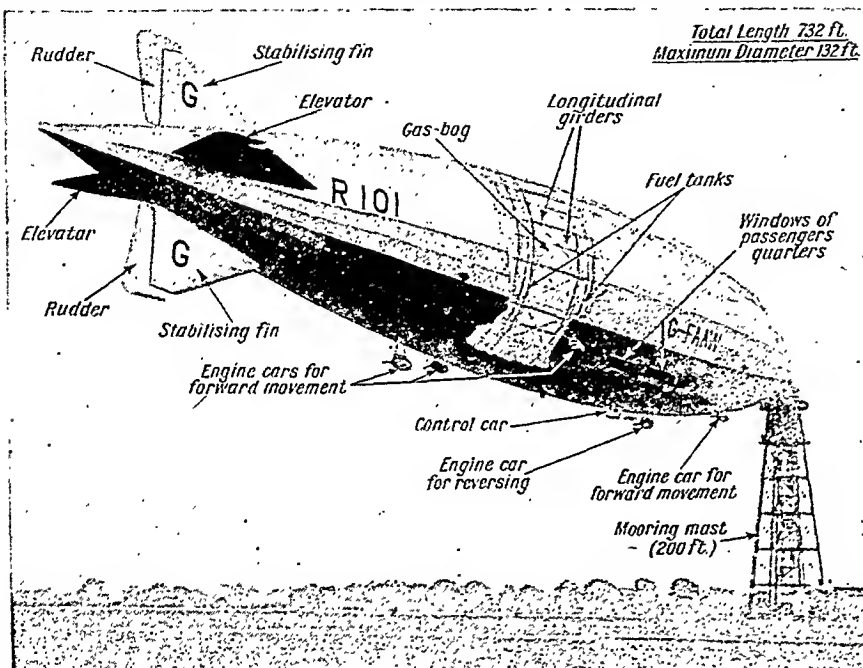
trip round the world in the summer of 1929, have a gas capacity of 3,700,000 cubic feet, a length of 772 ft., and a maximum girth of 100 ft. Early in 1930 a Zeppelin of 5,500,000 cu. ft. capacity was under construction, and a still larger airship (6,500,000 cu. ft.) was being built by the American Zeppelin Company.

In the latter part of 1929 the Z.M.C., a metal-clad airship designed for the U.S.A. navy, made successful test flights. This vessel has an outer skin of alelad, a metal sandwich consisting of a core of duralumin within layers of aluminium. This metal skin is .0095 inch thick, and is applied to the framework of the airship in narrow strips which are shaped to the required contour and riveted together. The metal hull acts as the container for the lifting gas, pressure being adjusted by means of two air-filled ballonets. Helium is the gas used, and the capacity is 202,000 feet. The hull is 145 ft. long, with a maximum girth of 52 ft. On test flights the Z.M.C. attained a speed of 47 m. per hour. The useful load is said to be 3,442 lbs. See Aeronautics; Aeroplane; Balloon; Zeppelin.

AIR VICE-MARSHAL. Title of an officer in the R.A.F. It corresponds in rank with rear-admiral in the navy and major-general in the army.

AIRY, SIR GEORGE BIDEELL (1801-92). British astronomer. Born at Alnwick, Northumb., July 27, 1801, he was educated at Cambridge, where he was senior wrangler in 1823, and became a fellow of Trinity and Plumian professor of astronomy. In 1825 he was appointed director of the Observatory at Cambridge, and in 1835 astronomer royal. He resigned in 1881, and died Jan. 2, 1892.

AISLE (Lat. ala, wing). Portion of a church on one or both sides of the choir or nave, from which it is divided by columns and arches. The transepts of large churches are furnished with aisles. The Roman basilica



Airship. Diagram of British State Airship R101 (at her mooring mast at Cardington, Beds.) with principal parts named and portion of envelope cut away to show constructional details

oil. By means of a wireless installation the airship can pick up navigational and meteorological information, and can send instructions ahead when approaching a landing station.

5,000,000 cubic feet, a length of 709 ft., and 732 ft. respectively, and a maximum girth of about 130 ft. The German airship Graf Zeppelin, which made a transatlantic voyage in October, 1928, and achieved a successful

THE STEP-BY-STEP PROGRESS OF THE DISTANCE FLOWN BY AEROPLANES (Non-stop Flights)

Name	Aeroplane	Place	Date	Distance	Duration
Orville Wright	Wright	Dayton, U.S.A.	Dec. 17, 1903	ys. 852	—
Santos Dumont	Santos Dumont	Bagatelle	Sept. 14, 1906	8-6	—
Santos Dumont	Santos Dumont	Bagatelle	Nov. 12, 1906	244-4	21 secs.
H. Farman	Voisin	Issy	Oct. 26, 1907	855-5	52 secs.
H. Farman	Voisin	Issy	March 21, 1908	miles 1-25	—
Delagrangé	Voisin	Issy	Sept. 17, 1908	41-5	—
Wilbur Wright	Wright	Auvers	Sept. 21, 1908	60-9	1 hr. 31 mins.
H. Farman	H. Farman	Mourmelon	Nov. 3, 1909	150	4 hrs. 17 mins.
Oilesagers	Blériot	Reims	July 10, 1910	245	5 hrs. 3 mins.
Tabuteau	M. Farman	Etampes	Dec. 30, 1910	362-7	—
Gobé	Nieuport	Pau	Dec. 24, 1911	460	—
Fonny	M. Farman	Etampes	Sept. 11, 1912	633	13 hrs. 17 mins.
Landmann	Albatros	Johannisthal	June 28, 1914	1,178	21 hrs. 48 mins.
Alcock and Whitten Brown	Vickers biplane	St. John's, Newfoundland to Ireland	June, 1919	1,890	15 hrs. 57 mins.
Lindbergh	Ryan monoplane	New York to Paris	May 20, 1927	3,639	33½ hrs.
Chamberlin	Columbia monoplane	New York to Eisleben	June 4, 1927	3,923	42½ hrs.
Kohl, Von Hunefeld and Fitzmaurice	Bremen monoplane	Ireland to Labrador	April 12-13, 1928	2,300	36 hrs.
Ferrarin and del Prete	Savoia monoplane	Rome to Brazil	July 3, 1928	4,420	45 hrs. 14 mins.
Jiménez and Iglesias	Breuet XIX	Seville to Bahia, Brazil	March 24, 1929	4,000	43 hrs. 48 mins.
Jones-Williams and Jenkin	Fairey monoplane	London to Karachi	April 26, 1929	4,130	50 hrs. 48 mins.
Costes and Bellonte	Breuet XIX	Paris to Tsitsikhar, Manchuria	Sept. 27, 1929	4,900	—

of the larger type was divided by columns into nave and aisles, and has served as a model for Christian churches.

AISNE. River of France. Rising in the Meuse department, it flows W. and joins the Oise near Compiègne. Connected with the Meuse and Marne by canals, it is navigable for rather more than half its length of 175 m.

Aisne is also the name of a frontier department of N.E. France. The capital is Laon, and Soissons is one of the department's chief towns. Pop. 530,226.

BATTLES OF THE AISNE. The first battle, fought Sept. 13-20, 1914, was an effort of the Allies to cross the Aisne and complete the defeat of the Germans recently driven back at the battle of the Marne. It was fought on a vast front of 100 m. from Compiègne to Tahure, E. of Reims. The British under Sir J. French attacked from S. of Soissons to Vauxcéré, and the French 9th army under Foch advanced N. near Reims, other French armies being in support. Gallant and successful attempts to bridge the river under fire were made and local successes gained by both sides, but eventually the fighting degenerated into trench warfare, as the Germans had dug themselves in. The British army was then moved to Flanders. The importance of this battle was that it inaugurated the trench system which continued on the west front practically throughout the war.

The second battle, fought April 16-May 20, 1917, was the one supreme attempt to break through the German lines in the west front, previous to 1918. Dissatisfied with the progress of the war, the French Government had replaced Joffre by Nivelle as Commander-in-Chief. He conceived the idea of making a great and final offensive which would pierce the German front, put an end to trench warfare, and by instituting a war of movement turn the enemy's flanks and so hasten the end. Nivelle attacked in great force on the Aisne, between Soissons and Reims.

To defeat notice from this offensive the British attacked at Arras. On the first day the French crossed the Aisne at Chavonne, but were beaten back, advanced W. along the Chemin des Dames, carried Bernécourt and Coucy, captured 10,000 prisoners, and penetrated the German trenches to a depth of a mile. Day after day the attack was renewed with the utmost determination, but Nivelle's plan to pierce the German front by a single great operation proved impossible, and the French Ministry ordered the abandonment of the offensive. The French losses were heavy and there followed a serious mutiny in the army, Nivelle being deposed from his command. The German losses were about 30,000 prisoners and 227 guns.

The third battle, fought May 27 to June 18, 1918, was the third of the great German offensives against the Allies in the west front in 1918. Following the methods which they had employed in their March and April attacks, the Germans forced back from the Chemin des Dames four French divisions, broke the Allied centre and streamed through to the Aisne. On May 29 they stormed Soissons, and reached the Marne on May 30. Exhaustion and Allied counter-attacks finally brought to a close the battle, which had carried the German front to a point which was only 40 m. from Paris.

AIVALIK OR AIWALYK. Seaport on the W. coast of Asia Minor. It stands on the Gulf of Adramyti, 66 m. N. of Smyrna, near the site of the ancient Heraclia Pontica, and is called Kydonia by the Greeks. It was burnt by the Turks in 1021. Aivalik exports olive oil, cereals, wood; and skins. The name means quince country. Pop. 21,000, mostly Greeks.



Aisne (N.) of Worcester Cathedral, looking to the East

AIX. City of France. It is in the department of Bouches-du-Rhône, 18 m. by rly. N. of Marseilles. The seat of an archbishop, the cathedral dates from the 11th century. The university, founded in 1409, is now incorporated with that of Marseilles. The city has a large library, technical colleges, schools, museums, law courts, a 17th century town hall, and natural fountains. The ancient Aquae Sextiae, Aix grew up round warm mineral springs. It was the former capital of Provence. Pop. 29,836.

AIX-LA-CHAPELLE. City of Germany, in the Rhine province, known also as Aachen. It is situated near the frontiers of Holland and Belgium, 45 m. by rly. W. of Cologne. Of its two most notable buildings, the cathedral and the Rathaus, the former was built in 796-804, on the site of an earlier church, by Charlemagne, who was buried here, and was added to in 983 by Otto III. Parts of this old building remain, but the choir and chapels date from the 14th and 15th centuries. With other relics the bones of Charlemagne are preserved in the cathedral treasury. The Rathaus, or town hall, occupies the site of Charlemagne's palace, and dates from the 14th century. The old city has also the Grashauss, used for the archives, two of its old gates, and many venerable churches.

Around the old town, with the Fishmarket, the Market Square, and the Cathedral Square, lies the newer town with suburbs. To the E. are the sulphur and chalybeate springs, and adjacent are the Kurhaus and the Kursaal, for which the city is famous. The Suermondt Museum has a valuable collection of paintings.

Aix-la-Chapelle owes its origin to its springs, which were known to the Romans, who called it Aquisgranum. Charlemagne made it his favourite place of residence, and it remained for 700 years the coronation place of the

German kings. In 1801 it became part of France, and in 1815 was given to Prussia.

Aix owes its prosperity to the opening of a large coalfield, while its direct rly. communication with Cologne, Brussels, Antwerp and Liège is another commercial advantage. Its manufactures include cloth and other textiles, iron goods of various kinds, chemicals, and beer. The municipality includes the suburb of Burtscheid, united with it in 1897, which has medicinal springs. Pop. 156,143.

Three treaties were signed at Aix-la-Chapelle: (1) treaty of 1668 which terminated the short War of Devolution between France and Spain; (2) treaty of 1748, added to in 1750, which ended the War of the Austrian Succession between Britain, Austria and Holland on one side and France, Prussia and Spain on the other; (3) treaty of 1818 between Great Britain, Austria, Russia and Prussia, by which it was decided that France should be evacuated.

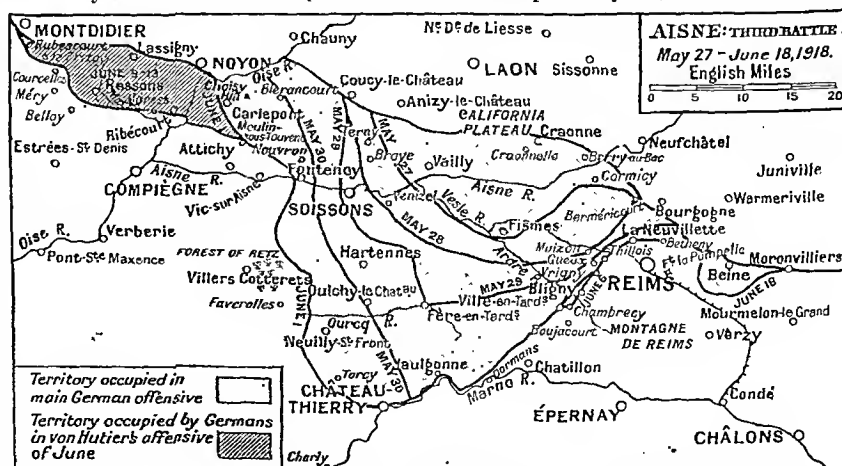
AIX-LES-BAINS. Town of S.E. France, in the department of Savoie. A favourite watering place, it is 8 m. by rly. N. of Chambéry, on the Paris-Turin line, and 823 ft. above sea level. Its warm springs are beneficial to sufferers from rheumatism and gout, the waters being used for both baths and drinking. Ruins of Roman temples, baths, and a triumphal arch remain. Pop. 8,934.

AJACCIO. City and capital of Corsica. Situated on the W. coast, on the N. shore of the Gulf of Ajaccio, it is connected by rly. with Calvi and Bastia, and by steamship with Marseilles and Nice. The seat of a bishop since the 7th century, it has a cathedral, colleges, library, museum, the house in which Napoleon I was born, and a large harbour protected by a citadel. It has a wireless station. Its mild, clear climate makes it a favourite winter resort. Pop. 22,614.

AJAIGARH. Native state in Bundelkhand, Central India, 130 m. W.S.W. of Allahabad. It is named from its 9th century hill fortress, with ruined Jain temples, at the N. base of which is Naushahr, the residence of the rajah. Its area is 800 sq. m. Pop. 87,093.

AJALON OR AJALON. Town and valley of Dan (Josh. 10). Identified with Yalo, N. of Jerusalem, the locality is memorable for the defeat of the Canaanites by the Israelites, when the sun and moon stood still at the word of Joshua "until the people had avenged themselves upon their enemies."

AJANTA OR ADJUNTA. Village and ravine in Hyderabad, India. The ravine is celebrated for its Buddhist cave temples, dating from 200 B.C. to A.D. 600, and decorated with frescoes. Consult Paintings in the Buddhist Cave Temples of Ajanta, J. Griffiths, 1896-7.



Aisne. Map of territory occupied by the Germans in the Third Battle of the Aisne

AJAX. In Greek legend, the name of two heroes who fought for the Greeks in the Trojan War. One, the son of Telamon, was accounted, next to Achilles, the mightiest warrior in the Greek host. He killed himself after the award of Achilles' armour to the rival claimant Odysseus.

Ajax the son of Oileus, though small of stature, was fleet of foot and a skilful fighter. On account of his profanation of the temple of Athena at the fall of Troy, he was shipwrecked on his way home, but took refuge upon a rock. Further defiance of the gods provoked Poseidon to shatter the rock, and Ajax was drowned.

AJMER. Capital of the British province of Ajmer Merwara, Rajputana, India. In a picturesque valley, 228 m. by rly. W. of Agra, it stands at the foot of Taragarh Hill, the fort on which was built by Akbar. It has a surrounding wall, with five gates, and contains the remains of a beautiful Jain temple, converted into a mosque, and the tomb of the 13th century Moslem saint Kwaja. Ajmer has railway workshops, exports cotton, salt, and opium, and specialises in dyeing. Pop. 113,512.

AJOWAN. Small, ribbed fruits of an Indian umbelliferous plant. Cultivated in the province of Bengal, they are much like the so-called caraway seeds, aromatic, with a thyme-like odour. Besides being used in cookery, they are employed in medicine, chiefly as a carminative.



Ajowan, Indian aromatic and medical herb

by the Arah in July 1917.

AKALKOT. Native state of India. It is in the presidency of Bombay and has an area of 498 sq. m. Agriculture and weaving are carried on. Akalkot is the chief town. Pop., state, 83,500; town, 18,750.

AKBAR (1542-1605). The greatest of the Mogul emperors in India. His empire, which during his reign expanded so as to include the whole of India N. of the Vindhya hills, had been won for him by his grandfather, Babar, who had invaded India from Afghanistan and founded the Mogul empire of Hindustan.

Akbar aimed at creating in India a united and consolidated empire. The whole land was brought under a systematic assessment, forming a lasting basis for a reasonable taxation. Akbar's officers were chosen from Hindus and Mahomedans alike. All were free to practise their religion; the Hindus were relieved from the taxes which had been imposed upon them as Hindus by all the Mahomedan lords of India. Akbar's feats of daring and endurance could be matched by few. To his friends he was royally trustful and generous, to his enemies splendidly magnanimous. He was the true founder of the great Mogul Empire. See India; also p. 33; consult Akbar, the Great Mogul, Vincent A. Smith, 1917.

AKEE. Fruit of a W African tree (*Cupania sapida*) introduced into S America and the W Indies. The fleshy fruit is three-sided and about 3 ins. long. When ripe it splits down each side, disclosing a white spongy substance (aril). This is the portion eaten, and has a pleasant sub-acid flavour.



Ajax defending his ships
From an engraved engraving on an ancient gem

AKEMAN STREET. Early English name for a Romanised road which, leaving the Fosse Way at Cirencester, skirted the Thames valley, crossed the Icknield Way at Tring, and joined Watling Street at St. Albans. It was an alternative to the Silchester road from Bath to London.

A KEMPIS, THOMAS (c. 1379-1471). Devotional writer. His family name was Hammerken, and he was born at Kempen, near Düsseldorf, of peasant parents. About 1400 he went to the Augustinian monastery of Mont S. Agnes, near Zwolle. Here in 1406 or 1407 he became a monk, and here the whole of his life was spent. The greater part of his time was occupied in writing chronicles of his monastery, biographies, books of devotion, hymns, and sermons, and copying MSS.

His fame rests on *The Imitation of Christ*, first published anonymously in 1418, completed in 1424, and since that date translated more widely than any volume except the Bible. The strength of its extensive appeal lies in the author's knowledge and experience of the unchanging needs of the human heart and the simple sincerity of his writing. The earliest printed copy of the *Imitation* was published at Augsburg in 1471 or 1472, and the first English translation in 1502.

AKENSIDE, MARK (1721-70). British poet and physician. Born at Newcastle-upon-

Tyne, he studied medicine at Edinburgh and Leyden. In 1741 he published *The Pleasures of Imagination*, a didactic poem in blank verse. For a time he practised as a physician, but achieved little success until his friend Jeremiah Dyson established him in Bloomsbury Square and made him an allowance of £300 a year. In 1759 he became principal physician at St. Thomas's Hospital, and he died in London, June 23, 1770. Akenside appeared in Smollett's *Peregrine Pickle* as the physician who provides a banquet in the style of the ancient Romans. He was the author of the pungent satiric couplets of *An Epistle to Curio*.

AKERMAN, AKKERMAN OR **AKIERMAN.** Town of Rumania. On the Dniester estuary, near the Black Sea, and 30 m. S. of Odessa, it exports wine, salt, fish, tallow, and wool. A Russo-Turkish treaty was concluded here in 1826. Pop. 40,400.

AKHENATON, IKHNATON OR **KHUEENATON.** Egyptian king of the XVIIIth dynasty, about

1375 B.C. Son of Amenhotep III and his half-Syrian queen Tiye, he began his reign as Amenhotep IV. He abandoned Ammon worship for that of the solar disk Aton and changed his name and capital accordingly. This monotheistic reform and its attendant naturalistic art, examples of which have been unearthed at Tell-el-Amarna (q.v.), were brief. See Tutankhamen.

AKHWAN (Arab. brotherhood). Name of a religious movement in Arabia. Its adherents are enjoined to spread the reformed faith by force among heretics and infidels. The movement arose in 1919 under Ibn Saud, emir of Nejd, and was a contributory cause of his dispute with the King of the Hedjaz.

AKKA. Tribe of pygmy forest-hunters in the Belgian Congo. They were found by Schweinfurth in 1870 in the Aruwimi forests between the Congo and the Albert Nyanza. Their Niam-Niam neighbours call them Tiki-Tiki. Descended from the dwarf negroid race depicted on early Egyptian monuments and traceable in palaeolithic Europe, their ape-like characters—snout-like jaw, top-heavy head, long arms, and inturned feet—betray an arrested human development. See illus. below.

AKKAD. Ancient Mesopotamian city. The Accad of Gen. 10, it is identified with the pre-Semitic Agade, the capital of Sargon I (c. 2800 B.C.). Its ruins, which were unearthed between 1917 and 1919, reveal it as a garden city, stretching for 20 m. along the left bank of the Tigris. See Samarra.

AKRON. Capital of Summit co., Ohio, U.S.A. It is on the Ohio Canal, 36 m. S.S.E. of Cleveland, in a coal mining district. Well served by railways, it is a centre of the rubber and printing industries, and the growth of these led to an enormous increase of population between 1910 and 1930. Other products are machinery, and pottery, and power for the factories is obtained from the Cuyahoga river. In 1913 a university was founded here, with Buchtel College as its centre. The town dates from 1825. Pop. 208,435.

ALABAMA. One of the southern states of the U.S.A. Its area is 51,998 sq. m., and its chief river the Alabama, 312 m. in length. The state is also drained by the Tennessee river, which traverses almost its entire breadth. Alabama consists of wide lowlands largely under cultivation, but there are also in the S. extensive pine forests, yielding valuable timber. In the N.E. the surface is hilly.

The great cotton belt, consisting of extremely rich soil, lies in the S.E. corner, and here slavery had its strongest hold. The chief industry of the state is agriculture and the population is mainly rural. Maize is the chief cereal crop. Cotton, hay, oats, potatoes, wheat, sugar, peaches, tobacco, and rice are also grown. Coal and pig iron are largely mined. The state produces 60 p.c. of the U.S.A. output of crystalline graphite, the chief district being round Ashland. The university of Alabama is the principal educational institution.

The chief cities are Birmingham, the centre of the iron and steel manufactures; Mobile, the only seaport, and Montgomery, the capital. The population in 1920 was 2,348,174, of whom 1,447,032 were whites. In 1928 the estimate was 2,573,000. Alabama was first



Thomas à Kempis, devotional writer



Akka, pygmy people of the Aruwimi forests in Central Africa

visited by Spaniards, and in 1539 by De Soto. The French settled there in 1702. It was ceded to the British in 1763 and gradually acquired by the U.S.A. Consult *History of Alabama*, and *Dictionary of Alabama Biography*. T. M. Owen, 1921.

ALABAMA QUESTION. Dispute between Great Britain and the U.S.A. On July 29, 1862, during the American Civil War, the *Alabama*, a vessel just built at Birkenhead, sailed for the Azores. There she was armed, and, hoisting the Confederate flag under Captain Semmes, did enormous damage to the shipping of the North, until sunk, June 19, 1864. The arbitrators decided unanimously that Britain was responsible for the damage done by the *Alabama*, and by a majority that she was responsible for that done by two other vessels. The final award was signed Sept. 14, 1872, the damage being assessed at 15,500,000 dol., about £3,230,000.

ALABASTER. Massive translucent form of gypsum. It is often found associated with salt deposits in the form of beds and nodular masses. It occurs in the Triassic rocks of Britain, and is used as an ornamental stone. According to Pliny, the name is derived from Alabastron, in Egypt, whence it was obtained.

ALADDIN. Hero of a story included in most English and French versions of *The Arabian Nights' Entertainments*, although not in any Arabic text of *The Thousand Nights and A Night*. The story tells how Aladdin, the son of a poor widow, meets an African magician and becomes possessed of a wonderful lamp. Helped by the genie, who appears whenever the lamp is rubbed, Aladdin provides himself with everything he desires, including the hand of the sultan of China's daughter. The magic lamp occurs in the folklore of nearly all Europe as well as that of India and China.

ALAIS. Town of France, in the department of Gard. On the river Gardon, it lies at the foot of the Cévennes, 25 m. N.N.W. of Nîmes, and is a junction on the Paris-Lyons Rly. Its buildings include the church of St. Jean, a citadel, and a school of mines. It has silk mills and a trade in cocoons and ribbons. The centre of a mineral field producing coal, iron, lead, zinc, and asphalt, it has iron works and glass, brick, tile, and cloth manufactures. It was taken from the Huguenots by Louis XIII in 1629, when the Peace of Alais was made here. Pop. 36,445.

ALANS OR ALANI. A barbarian tribe of Sarmatian race. From their home in the Caucasus they ravaged the eastern provinces of the Roman empire; in A.D. 276 they were defeated in Asia Minor by the emperor Tacitus. In the 4th century they were conquered by the Huns and divided into two main branches. One went westwards with the conquerors, sharing their fortunes; the other took up its abode in the Caucasus, where it is represented by the Ossetes.

ALARCON, PEDRO ANTONIO DE (1833-91). Spanish writer and politician. Born at Guadix in 1833, he became a political journalist. He took part in the Morocco campaign of 1857, and served as a deputy in the Cortes. Of his novels *The Three-Cornered Hat* is the most popular; it formed the theme of the ballet of the same name by Martinez Sierra, produced in London in 1919. Alarcon's short stories and sketches of Spanish life are the best of his literary productions. He died in Madrid, July 20, 1891.

ALARIC. Name of two kings of the Visigoths. On the death of the emperor Theodosius in 395 the Goths revolted under a youthful chief, afterwards Alaric I (376-410). Alaric overran Greece and Epirus, in 408 and 409 he ravaged N. Italy, and in 410 stormed and sacked Rome.

Alaric II succeeded his father Euric as eighth king in 485. Though an Arian, he permitted the Catholic synod of Agde to be held, 506. On the score of his heterodoxy he was attacked by the Frankish king, Clovis, who defeated the Goths near Poitiers, in 507. Alaric was slain in the rout after the battle. The legal code known as the *Breviary of Alaric* was compiled in his reign.

ALA-SHAN. Mt. range of China. Extending 150 m. from N.E. to S.W., it separates the Mongolian territories of Ordos and Ala-shan. Its greatest height is over 11,000 ft.

The name is also that of a territory of Mongolia. This is bordered S. by the Chinese province of Kan-su, E. by the Ala-shan range and the Hwang-ho, and W. by the Edzingsol. Called also Little Gobi, it is part of the Gobi desert and is sparsely peopled by Kalmucks.

ALASKA (Alcut, alak'shnik or al-ay'ok-sha, a great country or continent). Territory of the U.S.A. In the extreme N.W. of N. America, it was purchased from Russia by the U.S.A. in 1867 for \$7,200,000 (about £1,450,000), and constituted a territory in 1912. The total area is 590,884 sq. m. and the pop. 55,036. The country contains several of the highest summits of N. America, notably Mt. McKinley (20,300 ft.), the loftiest in the continent. About 1,600 miles of the course of the Yukon river pass through Alaska.

Reindeer are used in the South to provide food for the natives. More important commercially are the fur-bearing animals, moose, fox, beaver, mink, seal and otter. The annual catch of salmon, tinned for export, is valued at over £6,000,000. Barley, oats, rye, potatoes and cabbages are cultivated, while the national forests cover a surface of over 21 million acres. Gold, coal, quartz and platinum are mined. A railway line runs from Seward to Fairbanks, another from Skagway to White Horse.

The natives are of two stocks: the Eskimo or Innuut, and the Indian, the latter occupying the interior and the S.E. The territory has its own legislative assembly of eight senators and 16 representatives, which meet biennially at Juneau, the capital. There is a governor, appointed by the President of the U.S.A., who holds office for four years.

Bering, the Danish navigator, first explored Alaska in 1741 and three years later it became a Russian settlement. See *Alutian Islands*. Consult *Handbook of Alaska*, A. W. Greely, 1925; *Alaska, an Empire in the Making*, J. J. Underwood, new ed. 1925.

ALASSIO. Seaport and health resort on the Italian Riviera. It lies at the foot of well-wooded hills, 56 m. S.W. of Genoa, and is an important bathing resort in summer. The winter climate is equable and fairly bracing. The town is old and picturesque and attracts many English visitors. Pop. 6,453.

ALASTOR. In Greek mythology, name applied to avenging deities who pursued sinners and incited them to commit fresh crimes. It is an epithet of Zeus and the Furies, and is also used in the sense of a great sinner. Alastor, or the Spirit of Solitude, is the title of a beautiful poem by Shelley.



Alb, decorated with apparels

ALB (Lat. albus, white). Ecclesiastical vestment of white linen, with openings at the neck and foot. It has tight sleeves, and reaches to the feet. In the Roman Catholic Church it is worn under other eucharistic vestments by bishops, priests and deacons at Mass, and it is often ornamented with pieces of embroidery called apparels. Its use in the Church of England,

abandoned under Elizabeth, was revived partially in the 19th century. See *Vestments*.

ALBA LONGA. First of Latin cities and mother city of Rome. Presumably it was situated on a ridge above the Alban Lake, 15 m. S.E. of Rome. Legend ascribes its foundation to Ascanius, son of Aeneas, some 300 years before the foundation of Rome (q.v.).

ALBAN. British saint and martyr. According to tradition he was born in the 3rd century at Verulamium, now known as St. Albans, and was converted A.D. 304 by a fugitive Christian priest whom he sheltered. Martyrdom quickly followed. A later version of the legend makes him a Roman soldier converted in Rome. His veneration in England dates from the 5th century, and the abbey of St. Albans was founded on the site of his martyrdom in 793. June 22 is St. Alban's festival, but the Church of England Calendar, in which it was placed in 1662, marks it June 17. See St. Albans.

ALBAN HILLS. Group of volcanic mts. in Italy, E. of Rome. Mons Albanus, now Monte Cavo (3,115 ft.), was the scene of military parades up to the temple on the top by Roman generals who were denied a triumphal entry into Rome. On the summits of the hills are small towns, including Albano, whose ancient remains include villas of the emperors Tiberius, Caligula, and Nero, and which is now the seat of a bishop; Frascati, Genzano, and Castel Gandolfo, with a papal palace and a chateau. Lakes Alban and Nemi lie to the S.

ALBANI. Roman family, said to have come from Albania in the 16th century. Several members attained high ecclesiastical rank. Giovanni Francesco became pope in 1700 as Clement XI. His nephew Alessandro (1692-1779), a bitter opponent of the Stuarts, was made a cardinal in 1721. He built the Villa Albani, near Rome, where he formed a famous collection of antiquities, chiefly sculpture. Many of these were taken by Napoleon to Paris; they were restored in 1815. The present Albani collection contains some priceless examples of Greek sculpture. The family became extinct in 1852.

ALBANI, FRANCESCO (1578-1660). Italian painter. Born at Bologna, March 17, 1578. His most famous works are a fresco of Children in the Colonna Palace, Rome; Europa and the Bull in the Torlonia Palace, also in Rome; and the quartet of allegories representing the Four Elements, painted for Maurice cardinal of Savoy. He died Oct. 4, 1660.

ALBANI, MADAME (b. 1852). Professional name of Marie Louise Cécile Emma Lajeunesse, soprano vocalist. Born near Montreal, and educated at Albany, New York (hence the name Albani), she made her début in 1870 at Messina as Amina in *La Sonnambula*, and appeared first in London in 1872. She was for many years the leading soprano in opera and oratorio. In 1878 Mme. Albani married Ernest Gye. She was made D.B.E. in 1925. Consult *her Forty Years of Song*, 1911.



Madame Albani, soprano singer

ALBANIA. Kingdom of Europe. It is a mountainous country on the W. side of the Balkan Peninsula, with an area of about 17,374 sq. m. The population is estimated at 833,618. The country is for the most part a tangle of mountains, a continuation of the Alpine ranges of Bosnia and Dalmatia, and of high valleys watered by small swift streams.

There is little agriculture. Their flocks and herds provide the main subsistence of the people. Bitumen is exported. The great majority of the inhabitants are only half

civilized. They are divided by language into two groups: the Ghegs in the N. and the Tosks in the S. The chief towns are Tirana, the capital, Durazzo, Scutari, Koritza, Elbasan, Argyrokastru, and Avlona (Valona).

The early history of Albania is obscure. In 1478 it became a province of Turkey and remained under the Turks until, as a result of the first Balkan War, it was constituted an autonomous state by the Great Powers in 1912-13. It had previously been reduced in



the nucleus of the kingdom of Scotia, later Scotland. The word is a variant of Albion.

ALBANY. Town of W. Australia. On King George Sound, 352 m. by rly. S.E. of Perth, it is a popular health resort. Though its harbour is one of the best in W. Australia, it has been gradually superseded by Fremantle. Pop. 3,980.

ALBANY. District in the S.E. of Cape Province, S. Africa. It was first settled during the administration of Lord Charles Somerset by 3,500 immigrants, who landed at Algoa Bay in 1820. These settlers formed the first considerable body of emigrants assisted by the British Government, and were a rampart against the incursions of the Kaffir tribes. In area 1,645 sq. m., its capital is Grahamstown. Pop. 24,000.

ALBANY. City of the U.S.A., capital of New York State, and of Albany county. It stands on the W. bank of the Hudson river, 145 m. N. of New York City. An important industrial and commercial centre, with several large manufactures, Albany has excellent railway facilities and waterway communication by the Erie and Champlain canals. Its many handsome public buildings include the capitol, which was partly destroyed by fire in 1911, the city hall, two cathedrals, the state hall, state museum, colleges, and schools. Pop. 117,820.

Formerly a Dutch settlement, it was ceded to Great Britain in 1664, and named after the duke of York and Albany, afterwards James II, being granted a charter in 1686. In 1797 it became the state capital.

The Convention of Albany took place in 1754. This was a conference promoted to arrange for a closer union between the American colonies, in view of the war then imminent between Great Britain and France.

ALBANY, DUKE OF. Scottish title. The first duke was Robert, a brother of Robert III, king of Scotland. Lord Darnley, husband of Mary Queen of Scots, was created duke of Albany in 1553, and from him the title passed to James I and the succeeding Stuart kings, and was claimed by the exiled descendants of James II. Ernest Augustus, a brother of

George I, and Edward Augustus, a brother of George III, were in turn created duke of Albany, and both died without heirs, as did the next duke, Frederick, a son of George III.

In 1881 this ancient title was revived and bestowed by Queen Victoria on her youngest son, Prince Leopold (1853-84). In 1882 he married Helen Frederica Augusta, princess of Waldeck-Pyrmont, by whom he left a son and a daughter. He died at Cannes, March 28, 1884. His daughter, Alice Mary, was married in 1904 to Prince Alexander of Teck, afterwards earl of Athlone. His son, Leopold Charles, succeeded his uncle as duke of Saxe-Coburg in 1900, when he renounced his British nationality. In 1919 he was deprived of his British titles.



Prince Leopold,
Duke of Albany.
Dorsey

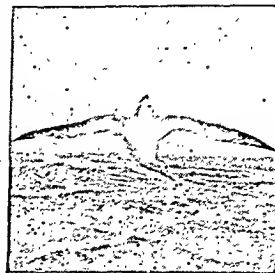
ALBANY, LOUISA, COUNTESS OF (1752-1824). Wife of Charles Edward Stuart, the Young Pretender. Louisa was the eldest daughter of Prince Gustavus Adolphus of Stohlberg-Gedern. In 1772 she married Charles Edward Stuart, who styled himself count of Albany, but in 1784 she separated from him. After travelling with the poet Alfieri, she settled at Florence, where she died Jan. 29, 1824.

The title of Count of Albany was later assumed successively by two brothers, John Sobieski Stohlberg Stuart (1797-1872) and Charles Edward Stuart (1799-1880), who claimed descent from the Young Pretender through a son alleged to have been born to his wife Louisa in 1773.

ALBANY, THE. Building on the N. side of Piccadilly, near Burlington House. Erected on the site of Sunderland House, it was known as Piccadilly House until 1770, when Lord Holland sold it to Viscount Melbourne, by whom its name was changed to Melbourne House. He exchanged it for a mansion in Whitehall with the duke of York and Albany, after whom it was renamed and let out first as chambers and more recently in flats. Byron, Lytton, and Macaulay resided in the Albany.

ALBATROSS. Name given to a genus of the zoological order tubinariae, or tube-nosed birds, which includes the petrels. All birds of this order have the nostrils produced into tubes, which lie on the upper surface of the beak. Albatrosses are the largest marine birds; when the wings are extended they often measure 12 ft. from tip to tip.

Except in the nesting season, the albatross spends all its time at sea and most of it on the wing. It is a native of the southern tropical and sub-tropical seas, but one species is sometimes found as far N. as Alaska. It nests in vast colonies on rocks and islands of the South Pacific Ocean, and Tristan da Cunha is one of its favourite places. An old superstition of sailors that ill-luck attended the killing of an albatross at sea is the theme of Coleridge's poem *The Ancient Mariner*.



Albatross. Largest sea bird,
famed for speed and endurance



Albania. Primitive urban conditions typified by draught oxen at a broken pump. Above, girls from the Macedonian border

area by the Treaty of Berlin, July, 1878, and the provisional frontiers assigned to it in 1912-13 by the London Conference indicated a further loss of territory.

On Feb. 21, 1914, an Albanian deputation offered the crown to Prince William of Wied, who arrived at Durazzo on March 7, 1914. But when Austria declared war on Serbia on July 28, with most of the members of the International Commission, left the principality to look after itself, whereupon its condition became anarchic and remained so for 2½ years.

On June 3, 1917, General Ferrero, commander of the Italian army of occupation, issued a proclamation by which Italy took Albania under her protection. Austria retaliated by announcing her protectorate of the country. Fighting took place, but in Sept. the Austrians gradually withdrew into Montenegro, and all Albania was occupied by the Italians. In 1919 their rule was challenged by an armed movement of the followers of Essad Pasha aiming at complete independence. After his murder in 1920 Albanian notables in that year established an independent government at Tirana. A new constitution was proclaimed in 1925 by which Albania became a republic. This continued until 1928, when Albania was proclaimed a kingdom with Ahmed Bey Zogu, president since 1925, as king.

Consult *L'Albanie* en 1921, J. Godart, 1922; *The Ottoman Empire and its Successors*, W. Miller, 2nd ed., 1923; *Albania*, J. Swire, 1929.

ALBAN. OR **ALBAN.** Early name for that part of Scotland N. of the Forth and Clyde. Later, about 900, it referred to a district, formerly called Pictland, between the Forth and Clyde and the Spey. This had its own kings for about a century, and was afterwards



Albania. Mountainous state on the eastern shore of the Adriatic Sea

AL-BATTANI, Latinised as **ALBATEGNUS** (c. 850-930). Arab prince and astronomer. He calculated the length of the solar year with great exactitude, and worked out tables for the movements of the planets. Astronomy owes to him the first numerical calculation of the eccentricity of the earth's path, as well as the discovery of the variation of the apses of the earth's orbit towards the signs of the Zodiac. He revised Ptolemy's *Almagest*, and rendered service to trigonometry by the introduction of the use of sines in computations.

ALBAY. Province of Luzon, Philippino Islands. It has an area of about 1,000 sq. m., and has gold and silver mines. The capital is Legaspi (formerly Albay), with a pop. of 32,372.

ALBEDO (Lat. whiteness). Scientific term for the degree of reflected light of a planet or other member of the solar system, the light being that of the sun. The light reflected by the moon from the sun is the albedo of the moon. See *Light*.

ALBEMARLE, EARL OF. British title, derived from the French town Aumale. It dates from the Norman Conquest, and has been revived at least four times. William III, by making his Dutch favourite the soldier Arnold Joust van Keppel (d. 1718) earl of Albemarle, gave the title to the family of Keppel, by whom it has been since borne. The family estates are mainly in Norfolk, where is the earl's chief seat, Quidonham Hall, near Attleborough. His eldest son is known as Viscount Bury.

ALBEMARLE, GEORGE MONK OR MONCK, 1ST DUKE OF (1603-70). English soldier and politician. Born at Great Potheridge, Devon, Dec. 6, 1603, in early life he served in campaigns against France and Spain. About 1630 he crossed over to the Netherlands, where his reputation as a soldier was made.

He was a royalist in the first stages of the Civil War, but after two years' imprisonment (1644-46) returned to Ireland as Governor of Ulster under the Parliament. He held a command at Dunbar under Cromwell (1650) and as Admiral of the Fleet defeated the Dutch at sea in 1653 and again in 1666. After Cromwell's death in 1658 he became active as a political leader and was instrumental in restoring Charles II to the throne. For this the king made him duke of Albemarle in 1660. He died Jan. 3, 1670, and was buried in Westminster Abbey. His son Christopher succeeded to the dukedom, but on his death in 1688 it became extinct. See *Civil War*.

ALBENDORF. Village of Silesia, East Germany. On the Cedron, 50 m. S.S.W. of Breslau it is famous as a place of pilgrimage. It has a beautiful 18th century church, on the model of the temple of Jerusalem, a Calvary, and an image of the Virgin. Before the Great War this little place, with less than 2,000 inhabitants, was visited yearly by about 100,000 pilgrims. It has been celebrated since about 1200.

ALBERNI. Town and port of Vancouver Island, Canada. It stands at the head of the Alberni Canal, 58 m. from Nanaimo, and is the terminus of branches of the C.P.R. and the C.N.R. to Victoria. From here steamers go to Victoria and elsewhere. Its industries are connected with lumbering, saw-mills, and fish curing. Pop. 2,054.

ALBERONI, GABRIEL (1686-1752). Italian prelate and Spanish statesman. After varied

diplomatic experiences he was in 1713 sent by the duke of Parma to Madrid. He negotiated the marriage of Philip V with Elizabeth Farnese in 1714, and in the same year became prime minister, being made a cardinal in 1717. He did much to revive Spanish commerce and to organize the Spanish army and navy, but his aggressive foreign policy resulted in 1719 in the Quadruple Alliance between England, France, Austria, and Holland. Having been banished he died at Piacenza, June 16, 1752.

ALBERT OR **ALBERT NYANZA**. Lake in East Central Africa. Since 1910 the eastern side forms part of the British protectorate of Uganda, and the western side is attached to the Belgian Congo. It is about 80 m. N.W. of the Victoria Nyanza. It is 100 m. long and 25 m. broad, with an area of 1,650 sq. m. The Victoria Nile empties into the N.E. corner and the White Nile issues from its N. extremity. The situation of the Albert Nyanza was first announced by Spoke and Grant in 1862.

ALBERT. Town of France, in the department of Somme. It stands on the Ancre, 18 m. N.E. of Amiens and 11 m. S.W. of Bapaume, and has paper, cotton, and other industries. Formerly known as Ancre, it received its present name on its presentation to Charles d'Albret, duke of Luynes, by Louis XIII.



George Monk,
1st Duke of Albemarle
From an engraving by W. T. Motte

The church of Notre Dame de Brebières became famous during the Great War for its so-called hanging Virgin, a gilded figure of the Madonna and Child, which fell into a position 15 degrees below the horizontal during the early operations and remained thus until March, 1918, when it fell. There was a popular belief among the French that the day the figure fell the war would end, and the shell that dislodged it would close the reign of the Hohenzollerns. After the Great War Albert was adopted by Birmingham.

The series of indecisive engagements fought around here between the French and the Germans, Sept. 20-30, 1914, are known as the battle of Albert. The town was occupied by the Germans from March 27, 1918, to Aug. 22, 1918, when it was recaptured by the Allies.

ALBERT, known also as **THE PRINCE CONSORT** (1819-61). Husband of Queen Victoria and father of her successor, Edward VII. He was the younger son of Ernest, duke of Saxe-Coburg-Gotha, and was born August 26, 1819, being christened Francis Charles Augustus.



Prince Albert, consort of
Queen Victoria

Albert Emanuel. He married Queen Victoria on Feb. 10, 1840.

As the prince consort, a title conferred on him in 1857, Prince Albert occupied a somewhat anomalous position, having no status in the constitution; at the same time he soon

became the queen's most intimate personal counsellor. His knowledge of continental politics was exceptionally thorough, and this greatly enhanced the value of his counsels. Under other conditions he might well have taken high rank as a statesman, but his statesmanship could only be displayed indirectly. The prince died of typhoid fever at Windsor Castle, Dec. 14, 1861.



Albert, King of the Belgians,
in the uniform of a British field-marshal
Vandyke

ALBERT (b. 1875). King of the Belgians. Born at Brussels, April 8, 1875, he was the second son of Philip, count of Flanders, a younger brother of the Belgian king, Leopold II. He was educated for the throne, to which he succeeded in Dec., 1909. Albert had married in 1900 Elizabeth, a princess of Bavaria, and their elder son, the duke of Brabant, was born in 1901. Two other children, a son and a daughter, were born in 1903 and 1906 respectively. When presented, in Aug., 1914, with Germany's ultimatum, Albert decided to maintain the neutrality of Belgium, and at once the country was invaded, Antwerp and Brussels being quickly taken. The king bore these misfortunes with a dignity that won for him the respect of Europe. His Government was removed to Le Havre, and he himself took his place as commander of his army in the field. In Sept., 1918, he took command of an Allied Army which recaptured the entire Belgian coast by Oct. 20. Consult *Albert, King of the Belgians*, E. Graham, 1929.

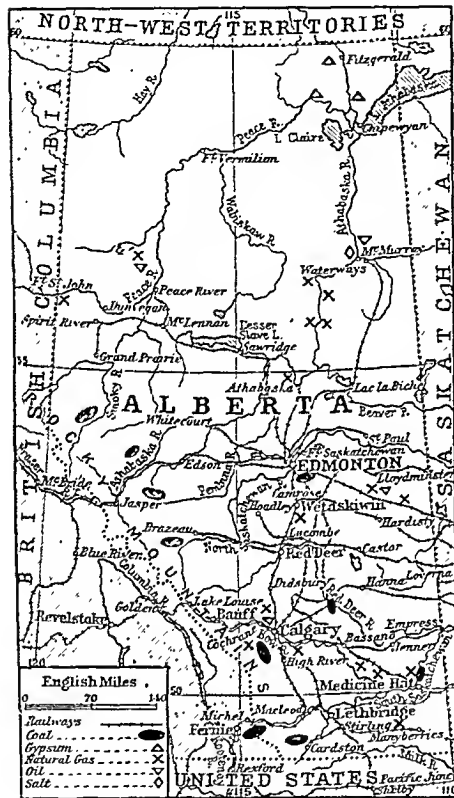
Albert, Duke of York. Second son of George V. See *York*.

ALBERT (b. 1865). Duke of Württemberg and German soldier. The son of Philip, duke of Württemberg, and the archduchess Theresa of Austria, he was born at Vienna, July 23, 1865, and entered the German army in 1883. When the Great War broke out he was commander-in-chief of the German Third Army. He advanced later to the Meuse, and, after a check at Dinant, dislodged from that river the French Fourth Army. He fought in the Battle of the Marne and the first battle of Ypres. Before the revolution of 1918 the duke was heir to the throne of Württemberg.

ALBERTA. Province of the Dominion of Canada, constituted in 1905. From N. to S. the length is 760 m., the mean breadth from E. to W. is 255 m., and the area 255,285 sq. m. The pop. is 607,600. The Rocky Mts. form a natural boundary in the S.W. Three of the great N. American river systems, the Saskatchewan, Athabaska, and Peace, with their tributaries, traverse the plain.

Down to the end of the 19th century Alberta consisted of a vast ranching country, but it has become increasingly agricultural. There are over 12 million acres of forest reserves, and it is estimated that over 100 million acres are suitable for farming, though of this area only 8 p.e. is under crops. Grain is the chief product, cattle and butter are exported, and pigs are raised for the great packing establishments. Alberta has vast coalfields, its yield being nearly 7,000,000 tons per annum.

The chief towns are Edmonton, the capital, Calgary and Lethbridge. Alberta sends six members to the Dominion Senate at Ottawa and 12 to the House of Commons. For local affairs it has an elected assembly of 48 members. The university of Alberta was opened at Edmonton in 1908. Two theological colleges are affiliated with it. See History of Alberta, J. Blue, 1924.



Alberta, one of the prairie provinces of the Dominion of Canada. It was created in 1905

ALBERT HALL. Building in South Kensington. It was completed in 1871, and, with the Albert Memorial in Kensington Gardens, was dedicated to the memory of Albert, Prince Consort. It was designed by Captain Fowke, R.E., but after his death was almost entirely re-designed by Sir Gilbert Scott. It is nearly a true ellipse in plan and exteriorly follows the Italian Renaissance style. The auditorium was designed to contain 8,000, and the orchestra, 1,200 persons. The hall is used for oratorio, concerts, public meetings, boxing contests, etc., and its organ is one of the largest in the world.

ALBERTI, CHERUBINO OR BORGREGGIANO (1533-1615). Italian painter and engraver. He was mainly occupied in executing paintings in oil and fresco for the churches and palaces of Rome, where he died. His fame rests upon his line engravings, nearly 180 in number, many after works by Michelangelo, Raphael, Andrea del Sarto, and other masters. Several fine friezes painted by Caravaggio on the façades of buildings are only known through Alberti's prints.

ALBERT MEDAL. British decoration instituted by Queen Victoria in 1866 for distinguished acts of bravery in life-saving at sea, and extended in 1877 to mark similar acts on land.



Albert Medal, for bravery

The rules of the award were amended in 1905. Each of the two classes is in two divisions. The badge is oval, in gold for the 1st class and bronze for the 2nd, with the monogram V.A.; that for sea service has an anchor interlaced with the monogram. The ribbon is crimson and white. See Medals.

ALBERT MEMORIAL. Elaborate canopied monument, erected in Kensington Gardens, London, in memory of Albert, Prince Consort. It was designed by Sir Gilbert Scott and is richly embellished with statuettes in high relief representing painters, sculptors, and musicians, the gilded statue of the prince being by J. H. Foley. The monument is 150 ft. high, and was unveiled March 9, 1876.

ALBERT PARK. National park in the Belgian Congo. It is in the district of Lake Kivu and covers 500,000 acres and adjoins a reserve of a similar kind in Uganda.

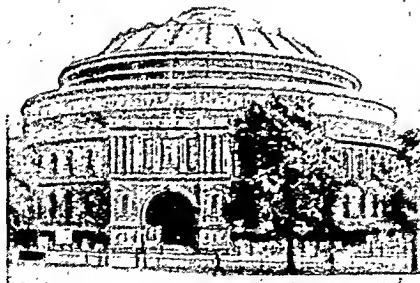
ALBERTUS MAGNUS (c. 1205-80). Scientist, philosopher, and theologian. He joined the Dominican order of friars in 1223, and in 1254 was elected provincial of the Dominicans in Germany. In 1260 he was made bishop of Ratisbon, but resigned two years later and returned to his studies at Cologne. Beatified, but not fully canonised as a saint, by Pope Gregory XV in 1622. His festival is kept on Nov. 15.

Albertus Magnus was, with the possible exception of Roger Bacon, the greatest scientist, philosopher, and theologian of his time. His works, 21 folio vols., were published in 1651 at Lyons and in Paris, 1899-1900. See Scholasticism.

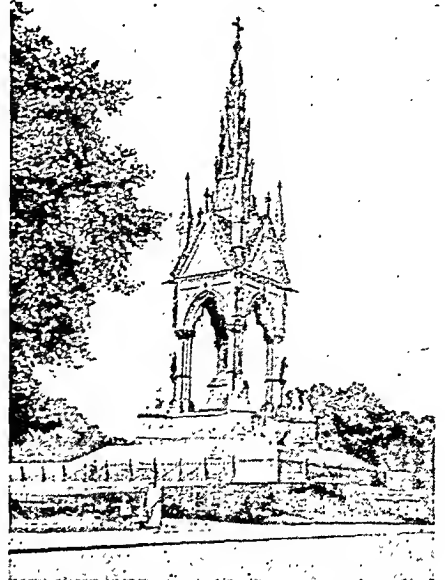
ALBERTVILLE. Settlement in the Belgian Congo, on the W. shore of Lake Tanganyika. It is the terminus of a rly. from the river Lualaba to Lako Tanganyika, and by means of this line communication by rly. and water from the mouth of the Congo, on the W. African coast, to Dar-es-Salaam, on the east side of Africa, is possible.

ALBI. City of France. The capital of Tarn department, it is on the Tarn, 44 m. by rly. N.E. of Toulouse. The seat of an archbishop, it has a cathedral dating from the 13th century and a 14th century archiepiscopal palace. It manufactures textiles and trades in wine, grain, and fruit. The city suffered much in the wars against the Albigenes, who took their name from it. Pop. 26,628.

ALBIGENSES. Name given to a religious sect which flourished in the S. of France in the 11th-13th centuries. Their beliefs were that man and matter were wholly evil, that Jesus Christ never existed save in the spirit,



Albert Hall, London, completed in 1871, from the designs of Captain Fowke, R.E., and Sir Gilbert Scott



Albert Memorial, Kensington Gardens, London, designed by Sir Gilbert Scott and unveiled in 1876

that marriage was to be depreated, and that only by abstinence and self-denial could men free themselves from the evils inherent in their bodies. On the political side the Albigenes were deliberately opposed to the whole system of the Church of Rome and to the faith and morals of Christendom.

Befriended by the people and feudal nobles, the sect was condemned and persecuted by the Church. A massacre lasting 20 years (1209-29) was begun by Simon de Montfort, and with the capture of their stronghold, Mont Ségur, in 1245, the Albigenes were finally exterminated.

ALBINISM (Lat. albus, white). Absence of the natural pigment of the skin, hair, and coating of the eye. The phenomenon occurs in the human species, more noticeably among negroes, and is found in many usually coloured animals. The hair of a true albino is white, the skin transparent, and the eyes generally appear pink, the iris being colourless and transparent, and rendering the eye abnormally sensitive to light. A kind of albinism is seen in the periodic assumption of white by animals in the northern regions in winter. Albinism has also been observed in plants.

ALBION. Ancient name of the British Isles. It is possibly of Celtic origin, and was connected by the Romans with albus, white, from the colour of the Dover cliffs.

ALBION METAL. Mechanical combination of tin and lead. It is made by laying a thin sheet of tin on a thicker sheet of lead, and rolling them together under sufficient pressure to make them adhere. It is particularly a Birmingham product, being used for the production of buttons, toys, fancy articles, handles, and even jewelry.

ALBITE (Lat. albus, white). Plagioclase felspar, sodium aluminium silicate. It occurs both as a primary and secondary constituent of igneous rocks and is prevalent in the crystalline schists.

ALBOIN (d. 572 or 573). Lombard conqueror of Italy. He became king of the Lombards in Pannonia about 565, and after helping to subdue the Ostrogoths joined forces with the Avars against the Gepidae, who were totally defeated. Alboin slew the Gepid king Cunimund and married his daughter Rosamund. In 568 he invaded Italy and subdued most of the northern part of the country. He was assassinated in 572 or 573.

ALBORNOZ, GIL ALVAREZ CARILLO (1300-67). A Spanish soldier and prelate. He was born at Cuenca, Spain, and became archbishop of Toledo. He took part in the fighting against the Moors, and for saving the life of Alphonso XI of Castile was made a knight. Created cardinal by Clement VI at Avignon, and sent as legate to Rome by Innocent VII, he died at Viterbo after being appointed papal legate at Bologna.

ALBRET. Notable French family which had extensive lands in the S. of France. John of Albret married Catherine of Foix and became king of Navarre, and their son Henry was made a duke of France in 1550. Henry married Margaret, a sister of King Francis I, and their daughter Jeanno (1528-72) was historically the most important member of this family. On her father's death she became queen of Navarre, and by her marriage with Antony of Bourbon, mother of Henry IV, to whom her kingdom passed. Jeanne, a zealous Calvinist, was a leader of the Huguenots during the civil wars of religion in France. See Bourbon.

ALBUERA, BATTLE OF. British victory in the Peninsular War. It was fought on May 16, 1811. The French, about 23,000 strong, under Marshal Soult, were marching to relieve Badajoz, then besieged by the British. Wellington ordered Beresford to raise the siege and intercept the advancing enemy at Albuera, 13 m. S.E. of Badajoz. The allied troops, numbering 30,000, were caught unexpectedly by the French, who had made a feint of attacking elsewhere, but after a fierce struggle, lasting 7 hours, the French retreated with the loss of 8,000 men.

ALBUM. General name for books of blank leaves on which can be written, drawn, or pasted autographs, verses, sketches, photographs, etc. In ancient Rome albums were whitened boards on which were inscribed public notices and lists of officials.

ALBUMEN OR **ALBUMIN** (Lat. *album*, white). Important sub-group in the class of nitrogenous constituents of both plants and animals known as proteins. To-day albumins are classed as simple proteins. The term albumen is now generally restricted to white of egg and the chemical expression albumin to its chief constituent.

Albumin is a complex carbon compound, which occurs only in living bodies and is essential to both plant and animal life. So far all attempts to prepare albumin synthetically have failed. The distinguishing chemical characteristics of the albumins are that they are soluble in water and coagulable by heat.

ALBUMINOID. Class of substances, as the name signifies, resembling albumin. The modern name for albuminoids is scleroproteins. They are derived from animal tissues and are chiefly represented by gelatin and horn.

ALBUMINURIA (Lat. *albumen*; *urina*, urine). Presence of albumin in the urine, most often a sign of disease of the kidneys, bladder, or urethra, but also occurring in fevers and other affections. Tests for albuminuria are only reliable when performed by experts.

ALBUQUERQUE. Chief city of Bernalillo county, New Mexico, U.S.A., and named after the Duke of Albuquerque, viceroy of New Spain, 1702-10. On the Rio Grande, 36 m. S.W. of Santa Fé, it is the seat of the university of New Mexico. The city contains a large wool-scouring plant and deals with the products of the many ranches of the neighbourhood. Pop. 15,157.

ALBUQUERQUE, ALFONSO D' (1453-1515). Portuguese viceroy of the Indies. In 1503 he made his first expedition to the Indies, and established the influence of Portugal in Cochín

In 1507 he was appointed to succeed Francisco d'Almeida as viceroy of the Indies, and he began at once a series of conquests. Goa



Alcázar. Interior of the arcaded Court of the Ambassadors in the Moorish palace of Seville

and Malacca and eventually Ormuz were secured. In 1515 his enemies at the Portuguese court secured his downfall. A just and capable ruler, so firmly did he establish the Portuguese power that Goa has remained in the possession of Portugal to this day. His Commentaries, translated into English by W. de G. Birch, were published by the Hakluyt Society, 1875-84. Consult Life. H. Morse Stephens, 1892.

ALBURY. Village of Surrey, England. It is 40 m. from London, Chilworth, on the Southern Rly., being the station. Here is Albury Park, bought in 1819 by Henry Drummond, the banker, which, through his daughter became the property of the dukes of Northumberland. In 1840 Drummond built the Catholic Apostolic Church here. At Albury is the Silent Pool, the modern name for Sherbourn Pond.

Another town of this name is in New South Wales, in Goulburn county, 386 m. by railway S.W. of Sydney. The district is noted for its sheep, cereals, tobacco and wine. Pop. 8,750.

ALCAEUS (c. 600 B.C.). Greek lyric poet. A native of Mitylene in Lesbos, and of noble family, he fought on several occasions in defence of the oligarchy to which he belonged, and as a result was banished and went into exile in Egypt. Returning, he took up arms against the tyrant Pittacus, was taken captive, but magnanimously forgiven. The surviving fragments of his political poems are passionate, but mainly; his love and drinking songs are characterised by sensuality. The term Alcaic metre is given to a form of lyric poetry said to have been first used by him.

ALCALDE (Arabic, *al-qadi*, the judge). Spanish official title for the president of the council of the commune. Usually he is chosen by the members of the council in the larger towns, but he may be appointed by the government. He discharges certain executive and judicial duties, his position being not unlike that of an English mayor. The title is used in parts of Spanish America.

ALCAMO. Town of Sicily, in Trapani province, 51 m. by rly. W.S.W. of Palermo. The ancient town was built by the Saracens in the 9th century on the N. slope of Mt. Bonifato, the new town at its foot after the victory over the Moors by Frederick II in 1233. Alcamo is in a rich agricultural district. Pop. 32,211.

ALCANTARA (Arabic *al-kántarah*, the bridge). Town of Spain, in Cáceres province. On the S. bank of the Tagus, 35 m. N.W. of Cáceres, it is famous for its six-arched Roman bridge, 617 ft. long, 26 ft. wide, with middle piers about 190 ft. high. Built A.D. 105, this bridge was thoroughly restored in 1860. The Gothic church of S. Maria de Almoebar dates from the 13th century. Pop. 3,650.

The town gave its name in 1217 to the order of Alcántara. As at present constituted, this order of knighthood, founded in the 12th cent. and several times suppressed, dates from 1874.

Another town bearing the name Alcántara is a seaport of Brazil, 16 m. to the N.W. of Maranhão city. The harbour is too shallow for extensive trade. Exports include coffee, cotton, hides, and salt. Pop. 16,000.

ALCAZAR (Arabic, *al qasr*, the palace). Name applied to various Moorish palaces in Spain. They were built as strongholds, but, in accordance with the Moorish love of decorative art their decorative work and arcaded courts are a distinguishing feature. Notable examples are the alcázar of Seville, built in the 14th century on the site of a Moorish citadel of 1181, and restored in 1624 and 1857; and that of Segovia, built by Alphonso VI of Castile (1072-1109), renewed 1352-S, but almost destroyed by fire in 1862.

ALCESTER. Parish and market town of Warwickshire, England. It lies at the union of the rivers Alne and Arrow, 15 m. S.W. of Warwick by the G.W.R. Market day, Fri. Pop. 2,259.

From this town, Frederick Beauchamp Paget Seymour, Baron Alcester (1821-95) took his title. He entered the navy in 1834. During the Maori War of 1860-1 he commanded the naval brigade, and was in charge of the Mediterranean Fleet at the bombardment of Alexandria in 1882. For his skill in conducting that operation he was made a baron and awarded £25,000. On his death the title became extinct.

ALCESTIS. In Greek legend, the wife of Admetus. The Fates, at the request of Apollo, had granted her husband immortality on condition that he procured another to die in his stead. His aged parents, although they had only a few more years to live, refused, but Alcestis nobly sacrificed herself. In one version Alcestis is said to have been brought back to her husband from the underworld by Hercules. The story is the subject of the drama of the same name by Euripides and of Browning's *Balaustion's Adventure*.

ALCHEMY. Alchemy is a term used for the art of chemistry as practised from ancient times to the middle of the 17th century. It first had to do with the working and colouring of metals, from which developed the search for the philosopher's stone, with which it was hoped to convert base metals into gold or silver. Dissolved in alcohol and known as

the elixir of life, the philosopher's stone was believed to produce eternal youth. Alchemists also sought for the alchemist or universal solvent, a method of creating living beings and of restoring plants from their ashes.

Of the ancient alchem-

ists the best known are Hermes Trismegistus, an Egyptian of the time of Moses, and Geber, an Arabian who flourished in the 8th or 9th century. Among the numbers who followed up their researches were Albertus Magnus and Roger Bacon in the 13th century, Paracelsus in the 16th century, who taught that the object of chemistry is not to make gold but to heal disease, and Sir Kenelm Digby (1603-65) who devised a tincture of gold as a universal remedy for disease. James Price (1752-83).

Gold	☉	Alum	○	Oil	⊙
Silver	☾	Nitre	⊖	Air	△
Copper	♀	Vitriol	⊕	Earth	▽
Iron	♂	Verdigris	⊗	Fire	△
Quick-silver	☿	Sal Ammoniac	✱	Water	▽
Lead	♄	Vinegar	⊕	Hour	⌘
Antimony	♁	Aqua Fortis	⌘	Day	☉
Sulphur	♄	Quick-lime	⌘	Retort	⊗

Alchemical signs or symbols

professed to have discovered the philosopher's stone, but committed suicide when required by the Royal Society to repeat his experiments.

The ancient chemists invented a system of alchemical signs, and down to the end of the 17th century books on chemistry employed these signs in the directions for preparing chemicals and drugs.

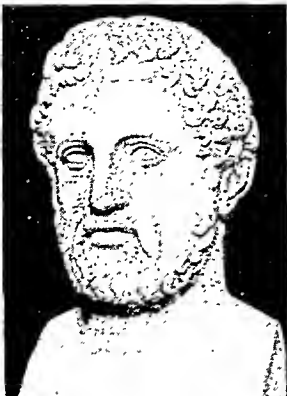
ALCIBIADES (c. 450-404 B.C.). Athenian statesman and general. The son of Cleinias, he was born at Athens during the ascendancy of his kinsman Pericles. He was among the companions, though not the imitators, of Socrates, who saved his life at the battle of Potidaea (432 B.C.), and whose life he saved in return at the battle of Delium (424).

Shortly afterwards Alcibiades plunged into politics. He stirred up the Athenians to organize the expedition against Syracuse in 415, when the war between Athens and Sparta was suspended. Alcibiades procured his own appointment to the command with two other generals, but was accused of an outrage against the sacred images called Hermac, and recalled. Thereupon he fled to Sparta and set about intriguing for a renewal of the war against Athens. Later he quarrelled with the Spartans and in 412 repaired to the court of the Persian satrap Tissaphernes, defecting the latter's alliance from Sparta to Athens, and thus bringing about his own reinstatement in the favour of his countrymen. A series of military and naval victories brought him popularity, but following two defeats he was again exiled. He met his death by assassination in Phrygia.

ALCINOUS. Legendary hero of Greece. In Homer's *Odyssey* he is represented as king of the Phaeacians and dwelling on the island of Scheria, identified by some with Corfu. During his wanderings Odysseus and some companions were shipwrecked on the island, where they were hospitably received before being sent on their homeward way. The halls and gardens of Alcinous were regarded as exceptionally splendid, and his subjects had a great reputation as skilled seamen.

ALCMAEON. In Greek legend, son of Amphiarus and Eriphyle. Bribe by the necklace of Harmonia, Eriphyle urged her husband to join the fatal expedition to Thebes. For this treachery she was killed by Alcmaeon, who was then driven mad by the Furies. King Phegeus cured him and gave him his daughter Arsinoë in marriage. He was slain by the brothers of Arsinoë while trying to obtain from her the necklace of Harmonia to give to his second wife Callirrhoe.

ALCMAEONIDAE. Noble family of ancient Athens, descendants of Alcmaeon, a Dorian immigrant from Pylos. Following a sacrilege alleged to have been committed by Megacles, one of its members, the whole family was banished from the city, c. 630 B.C. They did not return permanently to Athens until 509. They joined the popular party, and the head of the family, Cleisthenes, was responsible for the new and more democratic constitution at Athens. See Cleisthenes.



Alcibiades, Athenian statesman and general
Just in the Villa Albani, Rome

ALCMAN (c. 620 B.C.). Greek lyric poet. Born at Sardes in Lydia, he was the author of hymns, epinikia (songs of thenia (songs intended to be sung by choruses of maidens). He wrote in the Doric dialect, with an admixture of Aeolic elements.

ALCOCK, SIR JOHN (1892-1919). British airman. In 1913 he won second place in the race from London to Manchester and back again. In Aug. 1914, Alcock joined the R.N. Air Service, and served against the Turks until he was taken prisoner. There he won the D.S.C. and held the record for a long-distance homing raid. Released at the time of the armistice, Alcock returned home and with Lieutenant A. W. Brown won, June 14-15, 1919, the £10,000 prize offered by The Daily Mail for a flight across the Atlantic. A few days later both were knighted. Alcock was killed Dec. 18, 1919, when flying from London to Paris.



Sir John Alcock,
British airman

ALCOFORADO, MARIANNA (1640-1723). Portuguese nun and letter-writer. Born at Beja, she became a nun at the age of 16. In 1665 a young French officer, Noel Bouton, afterwards Marquess de Chamilly and marshal of France, visited the convent, and remained on visiting terms for two years. Marianna's five letters describe how Noel came, saw, conquered, and rode away, and reveal her agony of grief, her pride in her passion, and finally her contempt for it. They were written between Dec., 1667, and June, 1668, and were first published anonymously in Paris in a French translation in Jan., 1669. See *Letters of a Portuguese Nun*, trans. Edgar Prestage, 3rd ed., 1903.

ALCOHOL. By alcohol is generally meant ethyl alcohol, a liquid obtained from the distillation of sugary solutions, either natural sugar derived from malted grain, sugar cane or beetroot, or artificial, formed by the action of dilute mineral acids on starch obtained from the potato or other sources. Absolute alcohol may contain a small amount of water, but not more than 1 per cent by weight; rectified spirit contains 10 per cent of water by volume, and proof spirit 43 per cent by volume. Spirits are overproof when they contain less water, and underproof when they contain more water than this.

Alcohol is a transparent, colourless, inflammable liquid, with a burning taste and a pungent odour. The amount present in spirituous liquors varies from 2-5 per cent in light beer up to 70 per cent in liqueur brandy. In the United Kingdom a large revenue is raised by the duty on spirit; this is at the rate of £3 12s. 6d. per proof gallon. Three varieties employed industrially, namely, mineralised, industrial and power methylated spirit, are exempt from tax.

Alcoholometry is the term applied to methods of testing the strength of alcohol in a liquid. See Distilling; Spirits, etc.

ALCOHOLISM. Habit of taking alcoholic liquor to excess. It differs widely among different races, and it has been shown that the vice is least prevalent among nations which have known longest how to prepare drinks containing alcohol, and worst among those to whom it has been introduced recently.

The effects on the body of excessive indulgence in alcohol are serious. Delirium tremens is a form of acute alcoholic insanity, and complete mental breakdown may follow chronic alcoholism. Treatment requires much patience and perseverance. Most alcoholics require assistance by having alcohol placed

for a time beyond their reach, or by living in a home for inebriates or with friends who can control them. See Liquor Control.

ALCORNOCO. Reddish-brown bark of a Brazilian tree of the pea family, *Bowdichia virgiloides*. This tree is abundant in the campos, and is of handsome appearance, the upper branches being clad with bright blue flowers. The bark is bitter and colours the saliva yellow. It is used as a tonic.

ALCOTT, LOUISA MAY (1832-88). American authoress. Her first book, *Flower Fables*, was published in 1855, but she first attracted attention by *Hospital Sketches* (1863), the record of her experience as an army nurse in the Civil War. Her *Little Women* (1868, second series 1869; dramatised version produced in London, 1919) made her famous. Her other works include *An Old-Fashioned Girl*, 1869; *Little Men*, 1871; *Good Wives*, 1871, and *Jo's Boys*, 1886.



Louisa M. Alcott,
American authoress

ALCUIN OR **ALBINUS** (735-804). English scholar and theologian. He was born at York, and was educated at the cloister school, succeeding Ethelbert as master in 778. In 781, at the invitation of Charlemagne, he established a school in the palace at Aix-la-Chapelle. He retired in 796 to Tours, where he also founded a school. Theologian, philosopher, orator, historian, and poet, Alcuin was the foremost scholar of his time.

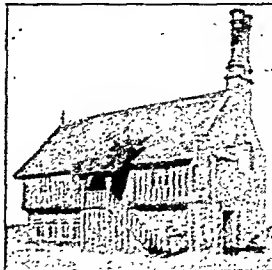
ALCYONE (Greek, kingfisher). In Greek mythology, daughter of Aeolus, the wind-god, and wife of Ceyx, son of Hecosphorus, the Morning Star. In their pride husband and wife called themselves Zeus and Hera and were changed by Zeus into sea-birds. In a variant legend Ceyx was drowned on a voyage, his body was found on the shore by his wife, and the gods, pitying her sorrow, changed both into kingfishers. For seven days during winter she hroods over the sea, while her father causes all the winds to cease, this being the origin of the phrase *halcyon days*.

ALDBOROUGH. Village in the W. Riding of Yorkshire, England. It is 1 m. E. of Boroughbridge station on the L.N.E.R. and 16 m. from York. It returned two members to Parliament from Elizabeth's time until 1832. It has many remains of Isurium, the supposed capital of the Brigantes.

ALDEBARAN. Star a Tauri, the Follower (of the Pleiades). A shade less bright than first magnitude and conspicuous for its ruddy colour, it is the chief object in the group of the Hyades, its intrinsic light being some 29 times that of the sun.

ALDEBURGH OR **ALDBOROUGH**. Mun. borough and seaside resort of Suffolk, England.

It is on the Alde estuary, 99 m. E.N.E. of London by the L.N.E.R. It has a half-timbered 16th century moot hall, and was the birthplace of the poet Crabbe. In 1832 it was disfranchised. In 1908 Mrs. Garrett Anderson was elected mayor of Aldeburgh, being the first woman in England to hold mayoral office. Pop. 2,889.



Aldeburgh. Moot Hall, a brick, flint and timber 16th cent. building

ALDEHYDE or ACETALDEHYDE. Colourless liquid with a pungent odour obtained by the oxidation of alcohol. It can be made by acting on alcohol with manganese dioxide and sulphuric acid, but is obtained on a large scale as a by-product in the distillation of spirit. It is inflammable and by the action of oxygen can be changed into acetic acid.

ALDEN, JOHN (c. 1599–1687). One of the Pilgrim Fathers. In 1620 he sailed as a cooper in the Mayflower, and settled at Duxbury, Massachusetts, where for more than forty years he served as magistrate and sometimes as acting governor. In 1623 he married Priscilla Mullins, whom he had originally courted for his friend Miles Standish—the subject of Longfellow's poem. He died at Duxbury, Sept. 12, 1687. See Pilgrim Fathers.

ALDENHAM. Village of Hertfordshire. It is 3 m. from Elstree, its railway station. It has an old church and a public school, founded in 1597, with accommodation for 240 boys. From the place the family of Gibbs takes the title of baron, conferred in 1896 upon Henry Hicks Gibbs (1819–1907), a leading London merchant, also a strong churchman and Conservative; his son, the 2nd baron, was Unionist M.P. for the city of London, 1892–1906.

ALDER (*Alnus glutinosa*). Small tree common in Europe, growing in moist ground. The leaves vary from broad oval to round with wavy and toothed margins, and when young are hairy and sticky. Flowers are produced in catkins, formed late in summer, but not reaching maturity until the following March, when they become

very conspicuous on the leafless tree. Alder wood is light and soft, red when freshly cut, pinkish when dry. If kept constantly moist it is very durable. Its charcoal is valued by gunpowder makers.

ALDER FLY (*Sialis*). Name of a family of neuropterous insects related to scorpion flies. The European alder fly (*S. lutaria*) passes its larval stage in the water, and is about an inch long. About May it leaves the water and buries itself in the ground, where it passes the pupal stage. A few weeks later it emerges as the perfect insect—known to anglers as a good bait for fly-fishing.

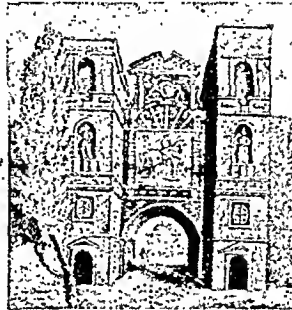
ALDERLEY EDGE. Urban district of Cheshire, England. A residential district for Manchester business people, it is 8 m. S.W. of Stockport on the L.M.S. Rly., and takes its name from a small ridge of hills producing copper and lead ores. Pop. 3,088.

ALDERMAN. Word of Anglo-Saxon origin meaning elder man. It is applied to certain members of town and county councils in England, Wales, and Ireland, and to members of municipal bodies in the U.S.A. and Canada. They are elected by the councillors. In English municipalities, except in London, the proportion is one alderman to every three councillors, the term of office being six years. For the Corporation of the City of London there are 26 aldermen chosen for life. In the London boroughs and in the counties the

proportion is one alderman to six councillors. Women may be chosen as aldermen.

ALDERNEY (Fr. *Aurigny*; Lat. *Riduna*). The most northerly of the Channel Islands. Comprising 1,962 acres, it is 4 m. long and 1½ m. wide. Off the W. coast are the perilous Casquet rocks, with three lighthouses. From precipitous cliffs W. and S., of which the highest point is 306 ft., the land slopes down N. and E. to sandy bays. St. Anne, the only town, is situated in the centre. The government is in the hands of a judge appointed by the Crown and of 18 representatives of the people. It is a British possession and a dependency of Guernsey. French is the official language, but English is spoken by half the inhabitants. The chief wealth of Alderney is in its small but excellent breed of cows. Pop. 1,598.

ALDERSGATE. Ward and street of the City of London. The street runs N. from St. Martin's-le-Grand to Goswell Road. The old gate at the S. end of the street was the N. gate of the city. Rebuilt in 1618 and damaged in the Great Fire, it was finally razed in 1761. At one time Milton lived here.



Aldersgate. Gateway that stood on the N. side of the City of London

ALDERSHOT. Urban district of Hampshire, England. On the confines of Surrey and Berkshire, 34 m. S.W. of London by the Southern Rly., it is the site of a permanent military camp erected in 1855.

The camp is divided into three sections known respectively as Marlborough Lines, Stanhope Lines and Wellington Lines. In addition to the barrack buildings, there are engineering workshops, officers and quarters for the general and staff officers, besides several churches, hospitals and other institutions and recreation grounds. There are also schools of instruction in medical and veterinary duties, ballooning, signalling, cooking and general supply work. Farnborough, where the Marlborough Lines are situated, is a depot and was the original headquarters of the Royal Air Force. Laffan's Plain and Caesar's Camp, in the vicinity, and Ash in Surrey, where musketry practice is taken, may also be included in the camp area of about 70 sq. m.

It was from Aldershot that the first division of the expeditionary force departed for France in Aug., 1914. Aldershot gives its name to a county division returning one member to Parliament. Pop. 28,764.

ALDERSON, SIR EDWARD ALFRED HERVEY (1859–1927). British soldier. After service in Egypt and South Africa, from 1903 he commanded an infantry brigade at Aldershot, and from 1908–12 the Poona Division in India. During the Great War he was commander in France of the Canadian Division, which he directed at the second battle of Ypres, and when a Canadian Corps was formed he was placed at its head. In 1916 he was made a K.C.B., being then a lieutenant-general. He died Dec. 14, 1927.

ALDGATE. Ward and street of the City of London. The street connects Fenchurch Street with Whitechapel. The old gate was the extreme E. gate of the city; in 1606 it

was taken down and rebuilt, being removed finally in 1761. Aldgate's chief existing relic is the jump; this was dried up for years, but water was laid on again in 1908.

ALDHELM (c. 640–709). English saint, bishop, and scholar. He succeeded Maildulf as abbot at Malmesbury about 676, was made bishop of Sherborne in 705, and died May 25, 709. Aldhelm was a skilful architect, and the foundation of the Saxon church of S. Lawrence at Bradford-on-Avon, Wiltshire, has been attributed to him. His writings include the famous riddles in Latin hexameters embodied in a treatise on Latin prosody, verses, and a treatise addressed to the nuns of Barking.

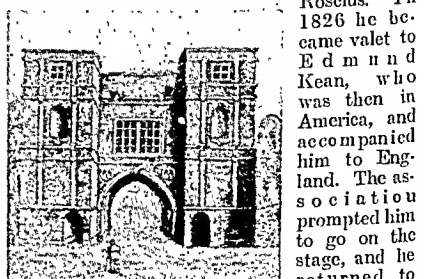
ALDIN, CECIL CHARLES WINDSOR (b. 1870). British artist. Born at Slough, April 28, 1870, he studied anatomy and painting, and began to draw for the Press in 1891. His lifelike illustrations of animals made him known, and many popular books were illustrated by him.

ALDINE EDITIONS. Small octavo or duodecimo editions of the Greek, Latin, and Italian classics printed at Venice, 1494–1597. They were issued from the press in the Campo di S. Agostino founded by the scholar-printer Mnutius Aldus, for whom Francesco of Bologna designed the type known as cursive or italic, first used in a Virgil of 1501. Aldus began a revolution in book printing, which combined cheapness, accuracy and portability with elegance of form. The Aldine trade mark, a dolphin twined round an anchor, was adopted in 1830 by William Pickering and adapted later by Bell and Daldy and their successors, George Bell and Sons. See Mnutius Aldus.

ALDRED (d. 1069). English prelate. A monk of Winchester, he was made abbot of Tavistock about 1027 and bishop of Worcester in 1044. In 1060 he was appointed to the archbishopric of York, which he held jointly with the see of Worcester until compelled to resign the latter by Pope Nicholas II. He crowned William the Conqueror in 1066.

ALDRICH, THOMAS BAILEY (1836–1907). American writer and humorist. He was editor of *The Atlantic Monthly*, 1881–90. His light verse is best represented in *The Ballad of Babe Bell*, 1856, and *Cloth of Gold and Other Poems*, 1874. His stories include *The Queen of Sheba*, 1877, and the once popular *Story of a Bad Boy*, 1870. He died March 19, 1907.

ALDRIDGE, IRA FREDERICK (c. 1804–67). American coloured actor called the African



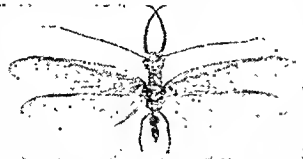
Roscus. In 1826 he became valet to Edmund Kean, who was then in America, and accompanied him to England. The association prompted him to go on the stage, and he returned to America in 1830, making his début at Baltimore. His first appearance in London was as Othello at Covent Garden in 1833. He died Aug. 7, 1867.



Aldine. First mark of the Aldine Press



Thomas B. Aldrich, American author



Alder fly. Male specimen of the giant alder fly (corydalis), Central America



Alder. Left, reddish catkins, and right, leaves and fruit



Aldwick. Craigwe House from the sea front. Here, in 1929, King George made a good convalescence

ALDWICK. Seaside village of Sussex. It is about 1½ miles to the west of Bognor, in the parish of Pagham. Here is Craigweil House, the property of Sir Arthur du Cros, Bart., where in 1929 King George spent some months in recovering from his serious illness.

ALDWYCH. Main London thoroughfare, opened by King Edward VII, Oct. 18, 1905. It is concave to the Strand, which it enters on the E. near S. Clement Danes and on the W. at the new Gaiety Theatre, and is separated from it by an island block.

The name comes from the Danish settlement of Aldwyeh, that once occupied the site and had



Aldwyeh, London. The Strand Theatre and Waldorf Hotel on the N.W. side

been perpetuated in Wyeh Street, which with the parallel Holywell Street or Booksellers' Row, was demolished in the improvement. In Aldwyeh are the Waldorf Hotel, the Strand Theatre, the Aldwyeh Theatre and Bush House. See Kingsway.

The Aldwyeh Club is a London club founded in 1911 as a social centre for advertising men. The house is 18, Exeter Street, Aldwyeh, W.C.

ALEANDER, HIERONYMUS, OR GIROLAMO ALEANDRO (1480-1542). Italian humanist and cardinal. After acting as rector of the university of Paris he was sent by Eberhard, prince-bishop of Liège, to Rome. In 1519 he became librarian of the Vatican. A strong opponent of Luther, against whom he prepared the imperial edict, he endeavoured to check the reform movement in the Netherlands. He was made archbishop of Brindisi in 1524 and a cardinal in 1536. His grand-nephew and namesake (1574-1629) was also a notable scholar.

ALECTO. In Greek mythology one of the Furies. She is represented with a flaming torch and serpents crawling about her head. See Eumenides.

ALEKHINE, ALEXANDER (b. 1892). Russian chess player. Born in Moscow, Nov. 1, 1892, his father was a public official. He

was educated in Leningrad, studied law and joined the staff of the Foreign Office. In 1917, owing to the revolution, he went to France, and, after serving with the Red Cross, made his home in Paris. Alekhine had become famous as a chess player as early as 1909, and after the War his exploits in international contests and as a blindfolded player were remarkable. In 1927, by beating Capablanca, he became champion of the world.

ALEMAN, MATEO (1547-c. 1609). Spanish novelist. Born and educated at Seville, he entered the public service in 1571, and after a somewhat troubled life migrated in 1608 to America, probably to Mexico. His fame rests on his long and popular novel, *Guzman de Alfarache*, 1599-1604. It is the story of a rogue, and although diffuse and impeded by a tendency to moralise, gives a wonderful picture of contemporary life in Spain.

ALEMBERT, JEAN LE ROND D' (1717-83). French mathematician and philosopher. He was founder and joint editor, with Diderot, of the great French encyclopedia. To this work d'Alembert contributed the introduction, in which are discussed, in the manner of Francis Bacon and Locke, the origin and classification of the sciences. His treatise on dynamics enunciated an important principle still known by his name. D'Alembert was a sceptic and relativist, who held that the nature of matter and mind is unknown and all knowledge is derived from sensation. He corresponded with Frederick the Great and Voltaire. He died Oct. 29, 1783.

Alembic (Arab. al. the; anbig, still). Apparatus of glass or metal for distilling, now superseded. See Retort.

ALENCON. Town of France. The capital of Orne department, it stands on the river Sarthe and is 67 m. by rly. S.S.E. of Caen. Its Gothic church of Notre Dame dates from the 16th century. The ramparts have been replaced by boulevards, and the remains of the castle, two 15th century towers, are used as a prison. Alençon was noted for its lace and also for its crystals and cut quartz, called Alençon diamonds, industries now decadent. It manufactures textiles, straw hats, etc. Pop. 16,249.

The town has given the title of duke to several members of the French royal family. The last was Ferdinand, a grandson of Louis Philippe.

ALEPPO (Gr. Beroea, Arab. Haleb). City of Syria. It is the capital of Aleppo vilayet

(area, 33,430 sq. m.) and lies in a fruitful valley watered by the Kuweik, 70 m. E. of the Mediterranean. on the Adana-Damascus Rly. Through its port of Alexandretta it conducts a large and very old-established foreign trade, chiefly in silk, cotton, wool, damascened and leather goods, rugs, soap, tobacco, cereals, oil, wine, and fruit. It has a medieval castle, a citadel, several fine mosques and is the centre of much and varied religious activity. The town was occupied by the British on Oct. 26, 1918, in the Palestine-Syrian campaign. Pop. 250,000. See Palestine.

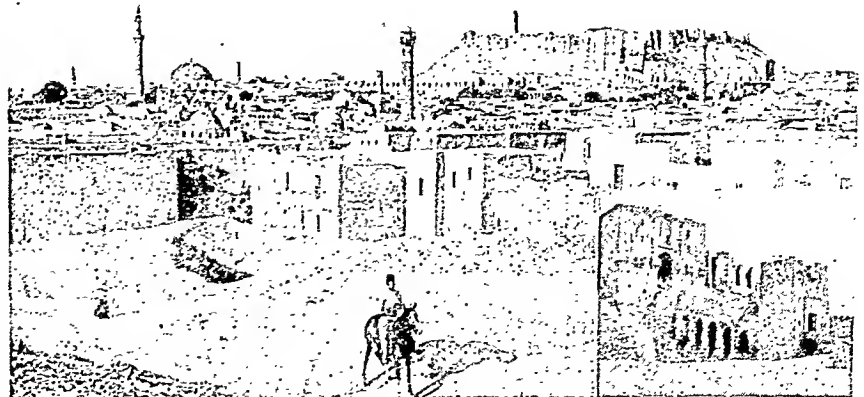
ALESSANDRIA. City of Italy. Situated on the Tanaro, 56 m. by rly. E.S.E. of Turin, it is the capital of Alessandria province and the seat of a bishop. It was founded in 1168, and named after Pope Alexander III. Its present cathedral dates from 1823 and its academy from 1562. Alessandria is an important rly. junction, and has manufactures of macaroni, linen, silk, woollen goods, and candles. Pop. 84,747. The province has an area of 1,960 sq. m. See Marengo.

ALESSIO. Town of Albania. Called Ljesh by the natives, and anciently Lissus, it is situated on the left bank of the Drin, near its mouth, about 17 m. S.E. of Scutari. It is the seat of a Roman Catholic bishop. During the first Balkan War it was captured by Serbian and Montenegrin forces on Nov. 5, 1912, and in the Great War was occupied by Austria, Jan. 26, 1916. It was occupied by the Italians Oct. 27, 1918, but at the peace was given to Albania. Pop. 3,500.

ALETSCHE. Glacier of Switzerland, the most extensive icefield in the country. Formed chiefly of the snows of the Jungfrau and the Aletschhorn, it is on the S. slope of the Bernese Alps and is nearly 13 m. long. The Aletschhorn, the second highest summit of the Bernese Alps, is 13,721 ft. high.

ALEUTIAN ISLANDS OR CATHERINE ARCHIPELAGO. Chain of about 150 islands extending in curved formation W. from the peninsula of Alaska. The islands, most of which belong to the U.S.A. territory of Alaska, are bare and rocky, and contain numerous volcanic peaks, active and dormant. The inhabitants are principally Aleuts, a branch of the Eskimo race, and belong in the main to the Greek Church.

In July, 1928, the McCracken-Stoll expedition found on the summit of a precipitous crag in one of the islands the mummified bodies of three adults and a child of the Stone Age. The bodies were in a perfect state of preservation. The clothing was intact, as were the wooden coffin and the domestic articles, hunting weapons and other paraphernalia buried with them.



Aleppo. The ancient city surrounds the fortress and is itself enclosed within a Saracenic wall, 3½ miles in circuit and containing seven gates. A view of part of the fortress is shown on the right

ALE WATER. River of Selkirkshire and Roxburghshire, Scotland. It flows 24 m. N.E. and E. to the Teviot, is a trout stream, and has falls in its upper course.

ALEWIFE. Small fish, occurring chiefly in the sea, rivers, and lakes of N. America. In length from 8 ins. to 10 ins., it is related to the shad and herring, resembling the former in colour and shape. In the U.S.A. it is used for food and is exported.

ALEXANDER. The name of eight popes, of whom three were important. Alexander III was pope 1159-81. He was conspicuous as an opponent of the emperor, Frederick I, but by the peace of Venice in 1177 Frederick was compelled to recognize him and receive his pardon. Alexander III supported the cause of Becket against Henry II, and after that prelate's murder in 1170 made the English king do penance.

Alexander VI was pope 1492-1503. By birth a Spaniard, he was known as Rodrigo Borgia. He was made archbishop of Valencia and vice-chancellor by his uncle Calixtus, and cardinal by Sixtus IV. When Innocent VIII died in 1492, Borgia was a candidate for the vacancy, and by extensive bribery was chosen.

Before this event Alexander had become the father of five children by Vannozza dei Cattani—Caesar Borgia, three other sons and Lucrezia. Caesar Borgia was even more unscrupulous than his father, and between them they worked for the destruction of their enemies, the increase of their own power, and the unity of Italy. Alexander had Savonarola

put to death, and he made use of the Inquisition for political ends, refusing to allow persecution of the Jews in Rome, and issued in 1492 the bull which divided the New World between Spain and Portugal.



Alexander VI. Pope, unscrupulous politician and patron of the arts
Fresco by Pinturicchio in the Vatican

Alexander VII was pope 1655-67. Before his elevation he was secretary to Innocent X, and his rule was distinguished by his encouragement of literature and art and by the architectural improvements carried out at Rome. He came into collision with Louis XIV, and Avignon was lost to the papacy.

ALEXANDER (1893-1920). King of Greece. Born Aug. 1, 1893, he was the second son of King Constantine and of his wife Sophia, a sister of the ex-Kaiser William II. When Constantine was compelled to abdicate, the Entente Powers signified their inability to recognize the crown prince George, and Alexander was chosen in his stead. He ascended the throne, June 13, 1917, and died Oct. 25, 1920.

ALEXANDER THE GREAT. (356-323 B.C.) King of Macedonia. This remarkable conqueror was the son of Philip II, king of Macedonia, whom he succeeded in 336 B.C., and was the third of five kings of Macedonia bearing the name of Alexander. Educated by Aristotle, he was richly endowed with natural abilities, physical strength, energy and ambition.

After his father's death he successfully quelled revolt among the Illyrians and the Greeks, and early in 334 crossed the Hellespont (Dardanelles) with an army, to carry out Philip's projected conquest of the Persian empire which, under Darius, included all western Asia and Egypt. At the river Granicus

Alexander shattered a great Persian force, and later marched against the army of Darius and completely overthrew it at Issus (333).



Alexander the Great
Capitoline Museum, Rome

Persepolis the Persian capital.

His next great undertaking was to lead his army, in the spring of 326, into India. Having conquered the Punjab, Alexander had to return to Persia, as his troops refused to go farther. In 323 he projected the rounding off of his Asiatic dominion by the subjugation of Arabia, and was on the point of starting when at Babylon he was stricken with fever and died at the age of 32. No provision had been made for a successor, and the inevitable result of Alexander's premature death was the disintegration of the new empire, which was divided up among the most powerful of his military leaders.

ALEXANDER I (1777-1825). Tsar of Russia. Son of the tsar Paul I, he succeeded to the throne on his father's murder in 1801.

Alexander made a convention with Great Britain, but sought also to act in concert with Napoleon, whom in reality he distrusted, and from whom he broke after the murder of the duc d'Enghien, 1804. His armies fought against the French, until he was forced to sign the treaty of Tilsit in 1807. His sympathies were against Napoleonic domination and in 1812-13 he took a leading part in the European struggle which ended at Elba. Alexander was prominent in organizing the Congress of Vienna for the settlement of Europe. He died Dec. 1, 1825, at Taganrog.



Alexander I,
Tsar of Russia

ALEXANDER II (1818-81). Tsar of Russia. Son of Nicholas I, whom he succeeded in 1855. In spite of his measure for the



Alexander II,
Tsar of Russia

emancipation of the Russian serfs in 1861, and his display of liberal sympathies in other ways, the despotic and arbitrary methods of Russian government remained fundamentally unchanged, and the revolt of Poland in 1863 was mercilessly crushed. The tsar's reign witnessed that expansion of Russia in Central Asia

which was regarded by the British as a menace to India. During his later years there was a great development of the revolutionary or nihilist party in Russia, culminating, after several attempts upon the tsar's life, in his murder on March 13, 1881. His only daughter married the duke of Saxe-Coburg, one of Queen Victoria's sons.

ALEXANDER III (1845-94). Tsar of Russia. A son of the tsar Alexander II, he married a daughter of Christian IX, king of Denmark, in 1866, and succeeded to the throne when his father was murdered in March, 1881. His reign was marked by the repression of all liberal ideas, persecution of the Jews, and determined attempts to force the Russian language and Russian ideas on subject peoples. On the other hand, peace was maintained. He died Nov. 1, 1894. His widow, Marie, sister of Queen Alexandra, died October 13, 1928.



Alexander III,
Tsar of Russia

ALEXANDER. Name of three kings of Scotland. Alexander I (1078-1124), son of Malcolm Canmore and Margaret, an Anglo-Saxon princess, passed some of his early years in England and became king of Scotland when his elder brother Edgar died 1107. During his reign the S. part of the kingdom was almost independent, being ruled by Alexander's young brother David, who was afterwards David I.

Alexander II (1198-1249) was the son of William the Lion, whom he succeeded in 1214. He was lord of considerable estates in England and helped the barons to procure Magna Carta from King John.

Alexander III (1241-86) was the son of Alexander II by his second wife Mary de Couci, and became king when eight years old. In 1251 he was married at York to Margaret, eldest daughter of Henry III of England. In 1263, by defeating Haakon V at Largs, he ended the Norwegian claim to the Hebrides.

ALEXANDER I (1876-1903). King of Serbia. The son of King Milan, who abdicated in 1889, he was proclaimed king under a regency, and assumed the kingship in 1893. In 1900, amid universal opposition, he married Draga Mashin, who had been one of his mother's ladies in waiting, and in March, 1903, arbitrarily suspended the constitution. A palace conspiracy was the result, and Alexander and his queen were assassinated in Belgrade June 11, 1903. See Serbia.

ALEXANDER (b. 1888) First king of Yugo-Slavia. Born at Cetinje, Dec. 17, 1888, second son of King Peter of Serbia, he took the oath as heir apparent March 27, 1909, when his elder brother George renounced his right of succession. He distinguished himself in the wars of 1912-13 against Turkey and Bulgaria, and was nominally the commander-in-chief of the Serbian Army in the Great War. Proclaimed king of Yugo-Slavia (q.v.), Aug. 19,

1921, he dismissed his parliament and set up a dictatorship in 1928. In 1922 he married Marie, a princess of Rumania.



Alexander, first
King of Yugo-Slavia

ALEXANDER (1857-93). First prince of Bulgaria. The second son of Prince Alexander of Hesse, he was elected first prince of Bulgaria, April 29, 1879. He aroused Russian and Serbian opposition in 1885 by aiding the revolt in E. Rumania and bringing about its union with Bulgaria. A skillful soldier, he defeated the Serbs in the field, but on Aug. 20, 1886, as the result of Russian intrigue, was compelled to abdicate. He died at Gratz, Styria, Nov. 17, 1893. See Bulgaria.

ALEXANDER, ALBERT VICTOR (b. 1885). British politician. Born at Weston-super-Mare, May 1, 1885, he was educated in Bristol and joined the staff of the Somerset County Council. Later he became connected

with the Co-operative movement and, having meanwhile served in France, was in 1920 made secretary to the parliamentary committee of the Co-operative Congress. This led to a seat in Parliament and in 1922 he was elected for the Hillsborough Division of Sheffield. In the Labour Government of 1924 Alexander was secretary to the Board of Trade, and in 1929 he was appointed First Lord of the Admiralty.



A. V. Alexander,
British politician

ALEXANDER, SIR GEORGE (1858-1918). British actor. In 1880 he joined Irving's Lyceum company, and during the greater part of the next eight years played under that great actor. In 1889 he took a theatre of his own, the Avenue, and two years later removed to the St. James's, where he remained for the rest of his life. In 1911 he was knighted. As an actor Sir George was best in fashionable modern comedy. Among his most successful productions were *The Second Mrs. Tanager*, *His House in Order*, *Lady Windermere's Fan*, *The Importance of Being Earnest*, and *Old Heidelberg*.



Sir G. Alexander,
British actor
Elliot & Fry

Earnest, and Old Heidelberg.

ALEXANDER, JOHN WHITE (1856-1915). American painter. He applied himself chiefly to portraiture, and his men sitters included Walt Whitman, Auguste Rodin, Oliver Wendell Holmes, and Robert Louis Stevenson. He was keenly interested in decorative design, and by such great mural paintings as *The Crowning of Labour*, in the entrance hall of the Carnegie Institute, Pittsburgh, and *The Evolution of the Book*, in the Congressional Library, Washington, gained a foremost place among American artists.

ALEXANDER, WILLIAM (1824-1911). Irish divine. He held various livings in Ulster until 1867, when he was made bishop of Derry, and in 1896 archbishop of Armagh and primate of All Ireland. He remained archbishop almost until his death at Torquay, Sept. 12, 1911. Chiefly distinguished for his earnestness and eloquence as a preacher, Alexander was the author of devotional works and a great number of poems. His wife, Cecil Frances (d. 1895), was a writer of hymns, including *There is a Green Hill Far Away*.

ALEXANDER NEVSKI (1220-63). Russian saint and warrior. Second son of Prince Yaroslav of Novgorod, he led the Russian forces against the Germans, Poles, Danes, and Swedes, and derived his surname from the defeat he inflicted on the Swedes on the Neva in 1240. He spent much of his life in seeking to improve the condition of the poor, and after his death was canonised by the Orthodox Church. A great monastery and the order of S. Alexander Nevski were founded in his honour by Peter the Great.



Alexanders, celery-like wild flower

ALEXANDERS (*Smyrnium olusatrum*). Biennial herb of the order Umbelliferae. It was used as a potherb from ancient times until the more extended cultivation of celery, which has supplanted it. It is a native of the Mediterranean region, but is now wild in many parts of Europe, including Britain, especially near the coast. It bears numerous minute yellow flowers in round-topped umbels.

ALEXANDER SEVERUS (205-235). Roman emperor from 222 to 235. The son of Julia Mammæa, he was adopted by a cousin, the emperor Elagabalus, and placed on the throne when Elagabalus was murdered. In 232 he defeated the Persian king Artaxerxes, who had attempted to encroach upon the eastern boundaries of the empire. While on a campaign to repel a German invasion of Gaul, he was murdered by Maximinus, who succeeded him. Just and tolerant, Alexander Severus was distinguished for his love of learning and virtuous life.

ALEXANDRA (1844-1925). Queen Consort of King Edward VII. Born at Copenhagen, Dec. 1, 1844, she was the eldest daughter of Prince Christian of Schleswig-Holstein-Sonderburg-Glücksburg. Her mother was Louise, daughter of the landgrave of



Alexandra, Queen Consort of Edward VII. This was one of the last photographs taken before her death
Vandyk

Hesse-Cassel. Alexandra was brought up in Copenhagen amid exceptionally simple surroundings. She first met King Edward, then Prince of Wales, in 1861, but it was not until March 10, 1863, that they were married in St. George's Chapel, Windsor, and settled down at Marlborough House and Sandringham, their two chief residences for nearly forty years.

The princess of Wales gave birth to her first child, Albert Victor, at Frogmore, on Jan. 8, 1864. Two sons and three daughters followed. The second son was the future King George V. The three daughters were the princess royal, afterwards Duchess of Fife, the princess Victoria, her mother's constant companion, and the princess Maud, afterwards Queen of Norway. The third son died when an infant. The early years of her married life had been taken up with domestic matters, but after 1871 she fulfilled with remarkable success the social duties of her high station. Her gracious manner and her real interest in the people made her popular everywhere.

In Jan., 1901, the prince succeeded to the throne, and Alexandra was crowned in Westminster Abbey as queen consort by the archbishop of York, Aug. 9, 1902. When in 1910 Edward VII died, Alexandra, known officially as the queen-mother, returned to Marlborough House and received an annual income of £70,000. She died Nov. 20, 1925.

Over £230,000 was raised as a national memorial to Queen Alexandra. This sum was devoted to forming a fund for developing district nursing, to provide pensions for

Queen's nurses, and to erect a group in bronze, Faith, Hope and Charity, near Marlborough House, London.



Alexander Severus,
Roman emperor

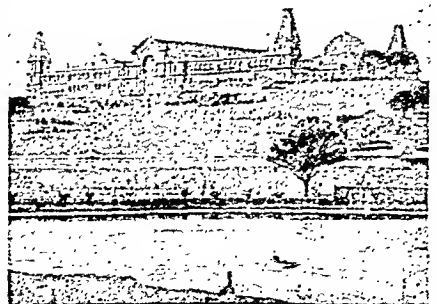
Alexandra Day, so called because it was inaugurated to celebrate the 50th year of her residence in England, is observed in June. Artificial wild roses, made by the blind and crippled, are sold in the streets, the profits being distributed among convalescent houses and kindred institutions. Consult *Life*, Sarah A. Tooley, 1902.

ALEXANDRA PALACE. London place of amusement. Situated in Alexandra Park, Muswell Hill, N., the present structure, the second of its name, was opened in 1901. It occupies about seven acres. The Grand Hall seats 12,000 persons and the orchestra 2,000, while the concert hall, which has a fine organ, can accommodate 3,500 and the theatre 3,000. The park, in which is a racecourse, covers 480 acres. See illus. below.

ALEXANDRETTA. Seaport of N. Syria. It is known also as Skanderoon, from its Turkish name of Iskanderun, and lies on the E. shore of the gulf of the same name, about 70 m. N.W. of Aleppo. Anciently called Alexandria ad Issum, it was founded by Alexander the Great to commemorate his victory at the Issus, 333 B.C. In the Great War it was occupied by British and French troops, Nov. 9, 1918. It is the port for Aleppo, has a fair harbour, and is a busy commercial centre. Pop. 15,000. The independence of the Alexandretta region as a separate state was proclaimed in March, 1926.

ALEXANDRIA. The Arabic Iskanderia, Alexandria is the second city of Egypt and also its chief port. Founded by Alexander the Great, 332 B.C., it lies on a narrow and sandy spit between the sea and Lake Mariout or Mareotis, its native quarter extending seawards along an artificial piece of land which marks the site of the ancient Heptastadium, a great viaduct seven stadia, or 1,400 yds., long, built by the Greeks to connect the shore with the island of Pharos.

Under Alexander's successors, Ptolemy Soter, Philadelphus, and Euergetes, Alexandria rapidly rose to be the most famous centre of art, science, and learning in the world. The great library, housing about 700,000 papyrus rolls, the museum, the temple of Serapis, and the royal palaces were among its famous buildings, but all of them have disappeared except the so-called Pompey's Pillar, really a landmark for sailors, in the centre of the Serapeum, erected in A.D. 302. The two



Alexandra Palace at Muswell Hill, N. London. It was opened free to the public May 18, 1901

obelisks, now known as Cleopatra's needles, stood in the E. part of the city, and were removed to London and New York in the years 1878 and 1889 respectively.

In the first period of Alexandria's greatness her intellectual leaders included Euclid, who founded a mathematical school, with Archimedes as one of his pupils, and the poets Theocritus and Callimachus. After the Roman conquest in 30 B.C. arose the schools of philosophy of the Neo-Platonists, and the next period was marked by fierce controversies between the heathen philosophers, Jews and

ALEXANDROPOL. Town of Armenia, formerly called Gumri by the Turks, and now known as Leninakan. In the government of Erivan, it is 80 m. S. of Tiflis. Fortified by Russia in 1837, it was used as a military base in the war against Turkey in 1877. During the Great War it was defended against the Turks by the Armenians, who fought with desperate bravery, but were defeated in the spring of 1918. Pop. 48,940.

ALEXANDROVSK. Town of Ukrania. It is 50 m. S. of Ekaterinoslav and on the Lozovaya-Sevastopol Rly. It has brick works, foundries, and flour and saw mills, and exports grain and timber. In the neighbourhood are

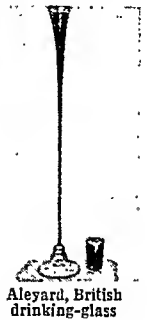
the Volunteer Army to fight the Bolsheviks. On Sept. 23, 1918, he died of pneumonia.

ALEXIUS. Name of five East Roman emperors, 1081-1204, belonging to the Paphlagonian family of the Comneni. The only one of any importance was Alexius I (1048-1118), who was raised to the throne in 1081 by a military revolution.

Knowing the desire of Rome for a reconciliation with Constantinople, Alexius appealed to Pope Urban II for aid against the common enemy, Islau. The result was the first crusade and French victories over the Turks in Asia. Later he recovered the western half of Asia Minor for the empire. A most capable ruler, by his military successes and skilful, if shifty, diplomacy, he postponed, but could not avert, the fall of the empire.

ALEYARD OR YARD OF ALE. Ancient

English drinking glass, a yard or so long, holding about a pint. It was usually trumpet-shaped, not unlike the horn carried by the guard of a coach. Sometimes it ended in a hollow ball; when the air reached the inside of the bulb the liquor spurted over the drinker. Drinking a yard of ale at one draught was a popular feat.



Aleyard, British drinking-glass

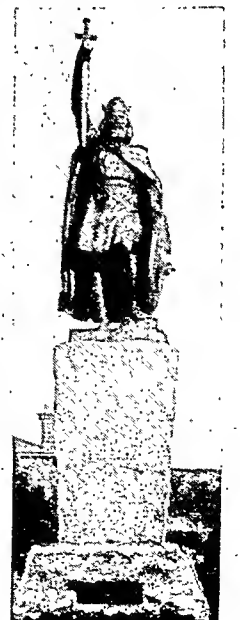
ALFIERI, COUNT

VITTORIO (1749-1803).

Italian poet. Born at Asti, Piedmont, Jan. 17, 1749, at the age of fourteen Alfieri became practically his own master, with ample means, and as a youth showed little inclination for serious studies. He entered the army, and for some years led a life of dissipation and intrigue, varied with travel in France, Spain, Holland, and England. At the age of 26 he turned to literature and wrote a play on the subject of Cleopatra. The reception of this at Turin fired him with ambition to write Italian poetry.

Alfieri wrote six comedies, twenty-one tragedies, an opera, an epic, some lyrical poems, and an autobiography. In 1777 he met at Florence the countess of Albany, wife of Prince Charles Edward, the Young Pretender. She left her husband some years later, and lived happily with Alfieri until his death on Oct. 8, 1803.

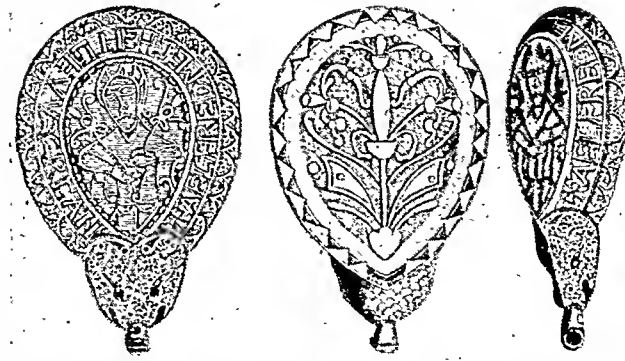
ALFOLD. Plains of Hungary. The Little Alföld lies across the Danube east of Pozsony (Pressburg), and the Great Alföld occupies the whole area



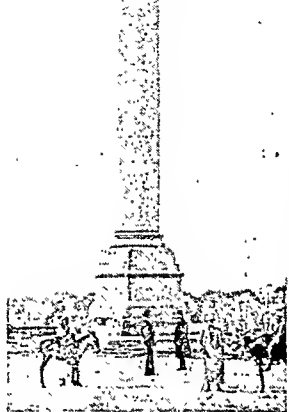
numerous kurgans, ancient (probably Scythian) grave mounds. Opposite Alexandrovsk is the island of Khoritsa, once a famous Cossack settlement. Pop. 51,605.

Two towns in Soviet Russia bear this name. One lies on the left bank of the Neva, 5½ m. E. of Leningrad, and has manufactures of glass, porcelain and woven products. The other, also known as Port Catherine, is a seaport in the government of Archangel.

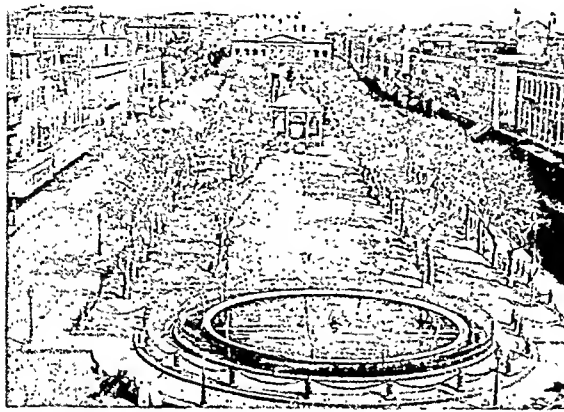
ALEXEIEFF, MICHAEL VASSILIEVITCH (1855-1918). Russian soldier. During the Russo-Japanese war, 1904-5, he became chief of staff to the Russian Third Army after the battle of Mukden. At the beginning of the Great War Alexeieff was chief of staff to General Ivanoff, who then commanded the Russian armies on the south-west of the eastern front. In 1915 he became the real generalissimo. After the Revolution he lost favour with the Soviets and was replaced by General Brussiloff in June. In Sept. he was again commander-in-chief, but after Lenin and Trotsky seized the Government in Nov. he retired to the Kuban with Korniloff and other generals and with them organized



Alfred the Great. Left, three aspects of the Alfred Jewel, found in Somerset in 1693. It is now in the Ashmolean Museum, Oxford. Right, the colossal statue at Winchester by Hamo Thornycroft, R.A. See p. 53



Alexandria. Left, Pompey's Pillar, erected in 302 as a landmark for sailors. It is nearly 100 ft. high and is of red granite. Right, the Place des Consuls, a splendid thoroughfare of the modern city



Christians. Alexandria came under Mahomedan rule in 640 and thereafter declined, especially after being taken by the Turks in 1517, until in the 19th century prosperity revived under Mehemet Ali. The town was taken by Napoleon in 1798, but surrendered to the British in 1801, five months after the battle of Alexandria, at which British troops under Sir Ralph Abercromby checked the French advance into Egypt. In 1882 it was bombarded by the British during the rebellion of Arabi Pasha, whose followers then sacked the town.

To-day Alexandria is Egypt's most important trading centre and forms the summer headquarters of the Egyptian government. Its principal buildings are the museum, municipal palace, the barracks and the arsenal. In Nov., 1929, a stadium covering 70,000 sq. yds. was opened here. Pop. 573,063.

ALEXANDRIA. Town of Dumbartonshire, Scotland. On the Leven, 3 m. N. of Dumbarton by the L.M.S. and L.N.E. Rlys., its importance is due to cotton printing, bleaching, and dye works. Pop. 5,699.

Another town of this name is a suburb of Sydney, New South Wales. Wool-scouring and glass bottle making are important local industries. Pop. 9,491.

ALEXANDRINE VERSE. Rhymed iambic hexameter verses with the caesura properly between the sixth and seventh syllables. First used in the French metrical romance of Alexander the Great, from which, or from one of whose authors, Alexandre de Bernay, its name is probably derived, it became the standard form of French heroic verse. The most generally familiar instance of the verse is furnished by Pope's disapproving description of it as a needless line "That like a wounded snake drags its slow length along."

ALEXANDRITE. Name of a dark green variety of chrysoberyl. It is found in the Ural Mountains and is prized as a gem-stone on account of the light transmitted in a certain direction being red.

between the Danube and the-Bibar mountains on the edge of Transylvania.

The Alföld is sometimes referred to as the puszta or steppe; it is a typical treeless grassland which has become one of the granaries of Central Europe, and great efforts have been made to increase the total crop yield. The towns of the Alföld are characteristic; they are "garden cities" built round an open space for a fair or market at the cross roads. The houses are set each in its own plot, and the people, mostly Magyars, live in the towns or villages and not on the farms.

ALFRED THE GREAT (849-901). English king. A younger son of Ethelwulf, king of Wessex. Kent. and Essex, and overlord of the other English kingdoms, and his first wife, Osburga, he was born at Wantage, in Berkshire. In 868 a Danish army attacked Mercia, but Ethelred and his young brother led an army to the help of the Mercians. In 871 the Danes invaded Wessex in force, and were defeated at Ashdown, mainly by the skill and valour of Alfred; but two months later the Danes more than held their own in another great fight at Merton. A few days after the battle of Merton Ethelred died and Alfred succeeded.

Until 875 Alfred was left in peace. He used the time in organizing the English for war and in laying the foundations of a fleet. In 876 the Danes invaded Wessex once more, and at the beginning of 878 Alfred, with only a few followers, was driven into retreat in the isle of Athelney, in Somersetshire. Yet in May the English forces had been again so re-organized that Alfred was able to lead them to a decisive victory at Ebandune. Danish irruptions in 884 and 892 resulted again in victory for Alfred, so that from 896 until his death on Oct. 28, 901, he was unmolested.

Alfred's genius as a military organizer, even more than brilliant leadership, rescued half England from Danish conquest. He was no less great as an administrator. He modified and co-ordinated the varying laws and customs of his kingdom into the code known as the dooms of King Alfred, which may be regarded as the real foundation of the common law of England. Hardly less remarkable were his efforts and achievements in the direction of education.

An enamelled gold oval jewel found near Athelney Abbey, Somersetshire, in 1693, is known as the Alfred Jewel. Evincing indirect Byzantine influence, it bears a portrait, presumably of the king, surrounded by the words *Aelfred meo heht gew[e]rean*, or Alfred had me wrought. It proves the existence of goldsmiths in Alfred's time. See illus. p. 52.

ALFRETON. Urban district and market town of Derbyshire, England. It is 14 m. from Derby, on the L.M.S., and the centre of a busy industrial district, with potteries, stone quarries, collieries, ironworks, and hosiery manufactories. The name is supposed to come from that of its founder, Alfred the Great. Market days, Fri., Sat. Pop. 20,472.

ALGAE (Lat. seaweeds). In botany, the most lowly organized of the green plants, in which the individual is built up entirely of simple cells with little or no differentiation. The familiar olive seaweeds—wracks and tangles—of British rocky shores may be taken as examples of the higher algae: simpler forms will be found in the bright green hair-like "crowns" of streams. All parts of the thallus, or plant-body, surface absorb nutriment from the water or air, there being no roots to draw it from the earth.

In geology, algae are fossil seaweeds, especially those having calcareous or siliceous coats. They enter largely into the composition of certain rocks.

ALGECIRAS. Seaport and winter resort of S. Spain, in Cadiz province. It stands on the W. side of the bay of Algeceiras, 6 m. W. of Gibraltar. Oranges, charecoal, and leather are exported. The old town was founded by the Moors in 713: the modern town dates from the 18th century. In the bay, on July 6, 1801, Sir James Saumarez was defeated by a Franco-Spanish fleet, which, on July 12, he completely vanquished. Pop. 19,417.

The Convention of Algeceiras was an international agreement signed in 1906 regulating the privileged position of France with regard to Morocco. See Morocco.

ALGERIA (Fr. Algérie). French dependency on the N. African coast. It is not regarded as a colony, but is politically a portion of the French Republic itself, which is represented by the governor-general in Algiers.

Algeria has an area of 343,500 sq. m., and is divided into two parts, Northern and Southern, the former consisting of three departments, Algiers, Oran, and Constantine, and the latter of four territories, Ain Sefra, Ghardaia, Touggourt, and the Saharan oases.

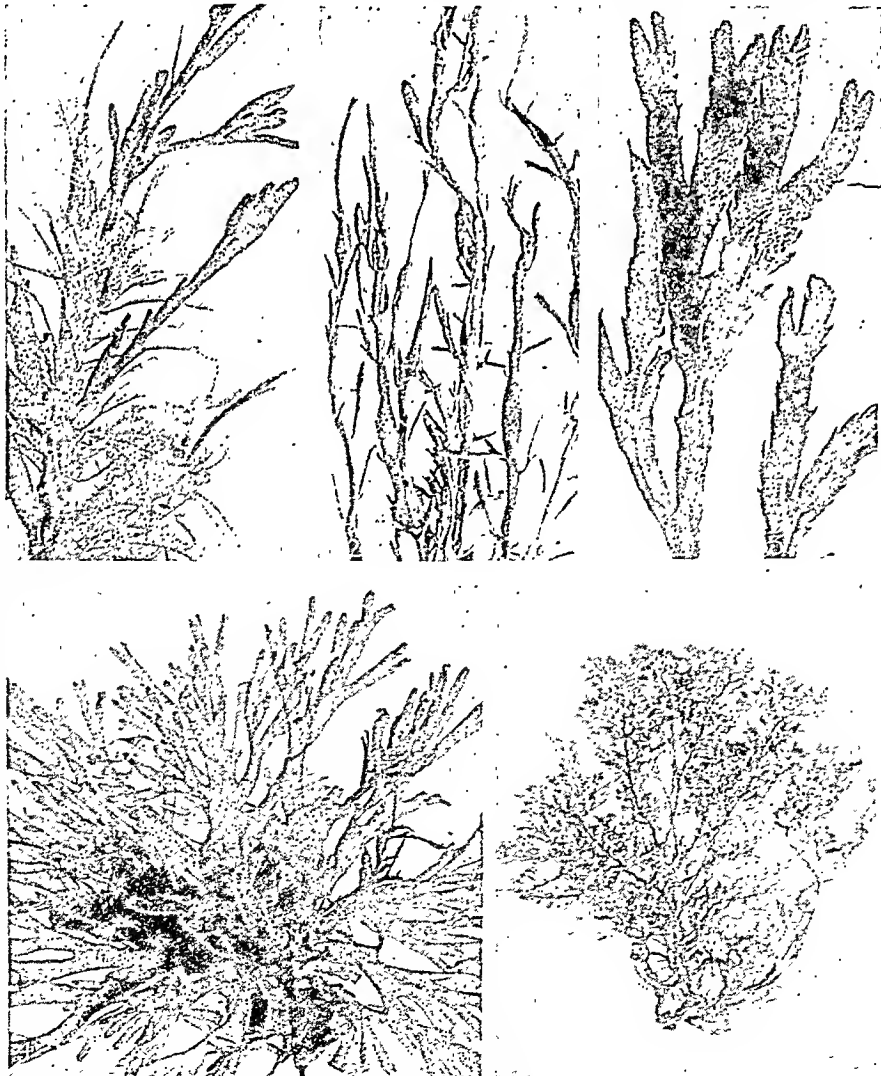
The Atlas Mts., running roughly parallel with the coast, consist of two series of chains.

the Little, or Tell, Atlas to the N., and the Great, or Saharan, Atlas to the S., and form a broad belt of highlands, tablelands, and ravines, their highest summit never attaining 8,000 ft., and separate the coastal region of undulating cultivated land known as the Tell from the desert region of the Algerian Sahara. The Algerian rivers are short and are useless for navigation.

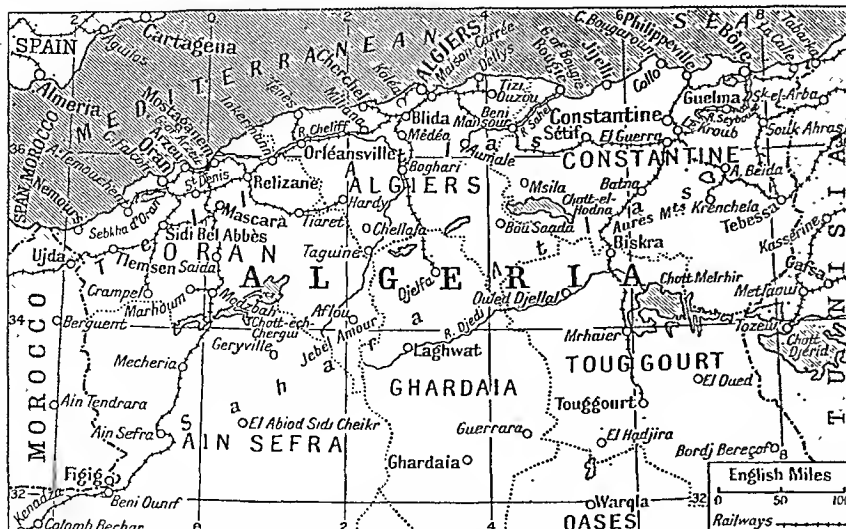
The climate is of the Mediterranean type, but is subject to considerable fluctuation. The flora, which comprises about 3,000 species, is closely related to that of S. Europe. In the Sahara the date-palm is characteristic.

The country is rich in minerals. Of these, iron ore is the most important. Antimony ore is yielded, and large quantities of phosphates are obtained near Constantine. Good marbles and building stones are quarried. Agriculture, which provides employment for nearly three-fourths of the entire population, has been greatly developed by the sinking of artesian wells, especially in the Sahara. About 8,000,000 acres are under cultivation. Vegetables and fruits (oranges, figs, almonds, bananas, grapes, dates, etc.) are grown on an extensive scale. Wine, sheep, wheat, barley, fruit, esparto grass, iron and zinc ore, tobacco, and phosphates are exported, and cottons, machinery and metal goods, clothing, sugar, coffee, and furniture are imported.

The population of Algeria is very mixed.



Algae: characteristic examples of seaweed. 1. *Halidrys siliquosa*, with the finer growth of *sertularia*, or sea-fir. 2. *Fucus vesiculosus*. 3. *Fucus serratus*. 4. *Dictyota dichotoma*. 5. *Plocamium coccineum*.



Algeria. Map of the land on the northern coast of Africa which was the last stronghold of piracy in Mediterranean waters. In 1830 it was brought into submission and taken over by France

Of the 6,064,865 inhabitants the majority, 5,147,872, are natives. The French number 549,146, and the Spaniards, 135,032. The natives are Mahomedans, and consist of Arabs and Berbers.

Under the governor-general there is a prefect for each of the three departments, and also a council for each. Each department is represented in the National Assembly in Paris



Algeria. Dancing girl performing in the street to the accompaniment of native musicians
Crète

The 19th Army Corps is permanently stationed in Algeria. The chief towns are Algiers, Bougie, Sidi-bel-Abbes, Mostaganem, Mascara, Blida, Setif, Constantine, Philippeville, Bône, Oransville, Tlemcen, and Oran, all connected by railway.

Algeria was conquered in turn by the Romans, Vandals and Mahomedans. In the 11th century came the Arabs and, later, Moors expelled from Spain. In the 17th century Algerian pirates overran the Mediterranean, and although temporarily suppressed by a British and Dutch squadron in 1816, it was not until 1830, when a French army landed and occupied the forts, that the country was brought into submission.

Consult Algeria from Within, R. V. C. Bodley, 1927. Histoire d'Algérie, S. Gsell, G. Marçais and G. Yver, 1927; Desert Winds: Travels in Algeria Hafsa, 1928.

ALGERS (Fr Alger; Arabic Al-jeza'ir, the islands). Capital of Algeria, distant about 500 m. from Marseilles, with which it has regular steamboat communication in 26 hours, the modern commercial town is European in appearance and contains the govern-

ment offices, wharves, and business buildings, and several mosques. The new town contrasts strangely with the old, or Arab, town, wherein is congregated a motley throng of Arabs, Moors, Jews, and Europeans. The heights around the town are strongly fortified and armed with modern guns. Public buildings include the palaces of the governor-general and the archbishop, the Grand Mosque, probably the oldest in the city, a Roman Catholic cathedral, and a library, college, and museum.

Algiers is one of the principal coaling stations on the Mediterranean and has a spacious port with an inner and an outer harbour. It has an important foreign trade, chiefly with France. The city is rich in vestiges of Roman, Christian, and Moorish civilization, and their preservation and study are fostered by the French authorities. Pop. 226,218.

ALGIN. Substance resembling gum arabic. It is prepared from red seaweed, or laminaria, in the Stanford process of making iodine. When dissolved in water very viscous liquids are produced. By the action of mineral acids, algin or alginate acid is obtained. Both algin and alginate acid could be employed as dressings for fabrics and as an article of food.

ALGOA BAY. Wide roadstead on the E. extremity of the coast of S. Africa. Port Elizabeth lies in the S.W. angle of the bay, which has fairly well-sheltered anchorage.

ALGOL (Arabic al-ghul, the demon). Remarkable double star which is charted as β Persci. It was called by the ancient astronomers The Demon Star because of the malevolence of its winking eye, a phenomenon of varying brightness now ascribed to the

revolution of a dark star about a bright one. Algol gives its name to a small class of variable stars. See Stars.

ALGOMA. District in the S. of Ontario, Canada. Occupying an area of over 71,378 sq. m., it extends from Lake Nipissing in the E. to the Lake of the Woods in the W. It is a rich mining region, where iron, copper, silver, nickel, platinum, etc., are found, and is served by the C.P.R. and other railways. The town of Algoma lies on Lake Huron.

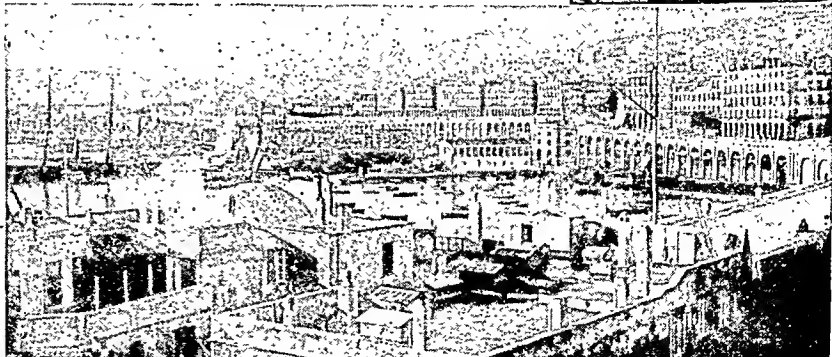
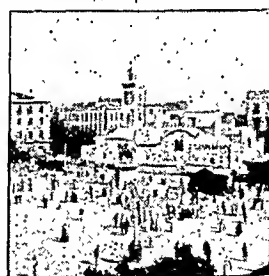
ALGONKIAN. Systematic name applied to those pre-Cambrian rocks of North America which are of sedimentary origin, such as sandstones. It is used in contradistinction to the pre-Cambrian rocks of igneous nature, such as gneisses, which are designated Archean. The name is that of a tribe of American Indians, the Algonquins, and means at the fish-spearer place.

ALGORISM. Term employed to denote the Arabic or decimal system of numeration. The numbers of algorism are the Arabic or Indian numerals. The word is corrupted from the territorial name of the Arab mathematician, Abu Ja'far Mohammed Ben Musa Al Khwarizmi, the translation of whose work on algebra made known the Arabic numerals in Europe.

AL-HAKIM (d. 976). Caliph of Cordova. Son of Abd-er-Rahman III, whom he succeeded in 961, he was an able administrator and a patron of learning. He founded the great library of Cordova and enlarged the famous mosque, subsequently a cathedral.

ALHAMBRA (Arabial, the : hamra, red). Famous Moresco-Spanish palace. It stands on a spur of the hills on which Granada is built, and overlooks the river Darro. The building was begun by Mahomed I (1232-72), the ruler of the kingdom of Granada, and completed during the reign of Yusuf I (1333-54). The palace stands in a park of English elms—a present from the Duke of Wellington, in return for an estate bestowed upon him.

The Alhambra is both a palace and a fortress. The outside walls are of great thickness, and are further strengthened by defensive towers. The most splendid of the remaining parts of the palace are the Court of the Lions, so called from the twelve marble lions grouped around a centre fountain; the Court of the Fishpond, which has a length of 150 ft., the whole filled by a marble bath; and the fine Hall of Ambassadors, a square of 37 ft.,



Algiers. General view taken from the lighthouse and showing the government offices and modern business premises that extend along the sea front. Above, old mosque in Government Square

roofed with a dome the centre of which is 60 ft. from the ground.

The outstanding features of the palace, the needle-like columns, richly carved capitals and decorated arches, gorgeous mosaics, and the tracery, boundless in its variety, of wall, ceilings and windows, do not deviate from the characteristics of Mahomedan architecture. The stupendous scale on which these details were carried out is distinctive.

The Alhambra in Leicester Square, London, was long famous as a music hall and then as a variety theatre. In 1929 it was leased as a talking picture house.

ALI (c. 600-661). Fourth caliph. Son of Abu Talib and cousin of Mahomet, whose daughter Fatima he married. He succeeded Othman as caliph in 656. He was vigorously opposed by Mahomet's widow Ayesha, whom he captured near Basra. He was assassinated at his capital Kufa, and his shrine at Nejef, known as Meshed Ali, became a famous place of pilgrimage. His followers form the Shiite sect of Mahomedans. The Fatimite dynasty claimed descent from Fatima and Ali.

ALIAS. Latin word meaning otherwise. It is most generally employed for a name which is not the lawful one of the person using it. An alias may be quite legitimate, e.g. in the case of the pseudonym of a writer or actor. Its modern use is derived from a legal form formerly put down in indictments. To make certain the identity of a person charged with crime, his indictment would run thus: Henry Jekyll alias Edward Hyde.

ALI BABA. Hero of one of the tales in The Arabian Nights' Entertainments, known as that of Ali Baba and the Forty Thieves. Ali Baba is a poor man who happens on the knowledge of a robbers' hoard and of the secret words, Open Sesame, which gain admission to it. The thieves seek to discover who has learnt their secret, and are successively killed in the attempt, thanks to the quick-wittedness and courage of Ali's slave Morgiana.

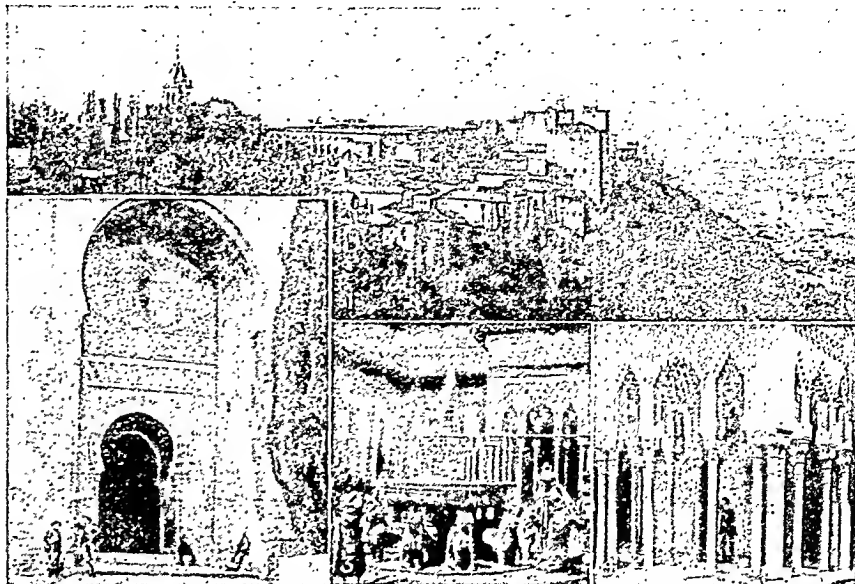
ALIBI (Lat. elsewhere). A name given to a plea by an alleged criminal that he was somewhere else at the time. False alibis are very common, because nothing is more easy than for witnesses to be called to state that the prisoner was in their company at the time of the crime.

ALICANTE. Seaport and winter resort of Spain. Anciently known as Lucentum, it lies on the Mediterranean, is the capital of Alicante province, and has rly. communication with Madrid and Murcia. It enjoys an equable climate, has a modern cathedral and a good harbour, exports wine, fruit, esparto, and minerals, and manufactures cigars and textiles. Pop. 68,411.

ALICE (1843-78). Grand-duchess of Hesse-Darmstadt, and the second daughter of Queen Victoria. She was born at Buckingham Palace, April 25, 1843, and was named Alice Maud Mary. In 1862 she married Prince Louis of Hesse. She died Dec. 14, 1878, of diphtheria, caught in nursing her husband and children.

ALICE SPRINGS. Telegraph and post station of Northern Territory, Australia. It is situated 1,120 m. N.W. of Adelaide, on the transcontinental line to Darwin, and since 1927 has been the capital of the territory of Central Australia.

ALIEN (Lat. alienus, foreign). Person who does not belong to the country in which he lives. In English law the word alien includes all persons born out of the British dominions, except the children of natural-born British subjects born abroad, and the grandchildren to the second generation on the father's side. In 1870 aliens were given the right to hold every kind of property except a British ship. An alien cannot vote at elections, nor be elected to Parliament. A person born in British dominions, but the child of an alien, or



Alhambra. 1. General view, with Granada on the right. 2. Gate of Justice, the main entrance. 3. Court of the Lions, so called from the central marble group. 4. Part of the beautiful porch of the Hall of Justice.

the child, born abroad, of a British father, may on attaining the age of 21, make a declaration of alienage.

ALIEN IMMIGRATION. Most countries have laws to prevent the free entry of aliens into their lands. The United States fixes each year the number and nationality of the immigrants, and there, as in Canada and Australia, there are special provisions with regard to the immigration of Orientals. In some countries they pay a poll tax.

Into the United Kingdom free entry was allowed practically to all aliens until 1905, when, as the result of a continued agitation, an Act was passed restricting the admission of all aliens. Under this act steerage passengers could only land at certain ports, where immigration officers rejected the undesirable. The Act allowed the entry of fugitives from religious or political persecution.

Under the Aliens Order, 1920, all resident aliens must register and report themselves at stated periods to the authorities; also, they can be deported by order of the Home Secretary on the grounds of undesirability, after a recommendation to that effect by a magistrate.

The Great War led to a distinction between aliens and enemy aliens. Many of the latter were interned, and two Acts were passed making it very difficult for aliens to enter the country. In 1921 this special legislation ceased to operate.

Alienation. English legal term meaning the transfer of the ownership of property.

Alienism. Term in pathology meaning the study and treatment of mental diseases. See Insanity.

ALIF. First letter of the Arabic alphabet. Used as a symbol for Allah, the Mahomedan name for the Deity, it is often set at the head of Arabic documents.

ALIGARH. District and town of India. The district, the southernmost in the Meerut division of the United Provinces, has an area of 1,946 sq. m. The town is situated 55 m. N. of Agra. The fort, which gives its name to the place, was captured from the Mahrattas by Lord Lake in 1803. Aligarh College, founded by Sir Syed Ahmad in 1875, is a Mahomedan centre of learning and is usually regarded as the nucleus of a future Mahomedan university. The town trades in cotton, grain, and indigo. Forty per cent. of the population of the town are Mahomedans, although the district contains only 14 p.c. Pop. of town 66,963.

ALIMONY (Lat. alere, to nourish). Legal term used for an allowance in money paid by husband or wife, generally the former, to a spouse from whom he or she is separated. While divorce proceedings are pending, the court usually orders alimony to be paid by the husband to the wife, generally at the rate of one-fifth of the husband's income. After a decree of judicial separation, the court usually orders the husband to pay such a sum as will make up his wife's income to one-third of their joint income.

In Scots law the term aliment is used in this connexion, and refers to allowances made not only to husband or wife, but to children, grandchildren, parents, and even to grandparents.

ALINE. Sea-loch of Argyllshire, Scotland. Forming an arm of the Sound of Mull, it is $2\frac{1}{2}$ m. long and $\frac{1}{2}$ m. wide. Near are the ruins of Kinlochaline Castle.

ALINGTON, CYRIL ARGENTINE (b. 1872). British schoolmaster. He was the son of a Lincolnshire clergyman, was educated at Marlborough and Trinity College, Oxford, and became a fellow of All Souls in 1895. After holding masterhips at Marlborough and Eton, he took holy orders and was appointed headmaster of Shrewsbury in 1908. In 1916 he succeeded Dr. Edward Lyttelton as headmaster of Eton. A writer on widely varying subjects, his books include A Schoolmaster's Apology, 1914; Eton Fables, 1921; Mr. Evans: a Cricketo-Detective Story, 1922; and Elementary Christianity, 1927. In 1929 appeared a volume of dialogues entitled Doubts and Difficulties.



C. A. Alington, Headmaster of Eton Elliott & Fry

ALI PASHA (1741-1822). Albanian ruler, known as the Lion of Janina. As a Turkish vassal, he was appointed pasha of Trikala in Thessaly for his services in the war of 1787, and in 1788 became pasha of Janina. During the Napoleonic wars he took the side of the French and the British alternately, with a view to securing a firm foothold on the Adriatic. Parga in Albania was granted to him by the British, but in 1822 he was defeated and put to death by order of the sultan, Mahmud II. Byron, who met him, refers to him in Child Harold.

ALIPUR. Southern suburb of Calcutta, India. It contains public offices, Belvedere House, the residence of the lieutenant-governor of Bengal, a large gaol, and cantonments for native troops. Here are also the Zoological Gardens and the Horticultural Society's Gardens.

ALIPURA. Minor native state of Central India, in the Bundelkhand agency. It has an area of 73 sq. m., and produces grain. The town of Alipura is a station on a branch of the G.I.P. Rly. Pop. of the state, 16,146.

ALI-RAJPUR. Native state of Central India, in the Bhopavar agency. About 20 m. N. of the river Narbada, in the old prov. of Malwa, it is mountainous and has an area of 836 sq. m. The ruler is called the rana. Pop. 72,454, mostly members of jungle tribes, for example, the Bhils.

ALISON, SIR ARCHIBALD, BART. (1792-1867). British historian. Eldest son of the Rev. Archibald Alison (1757-1839), who was author of *Essays on the Nature and Principles of Taste*, he became an advocate, and in 1834 was made sheriff of Lanarkshire. In 1832-3 he published *Principles of the Criminal Law of Scotland*, for long a standard work; in 1833-42 the *History of Europe from 1789 to 1815*, and in 1852-9 its sequel, the *History of Europe from Waterloo to the Accession of Louis Napoleon*. Alison was made a baronet in 1852, and died May 23, 1867.

His eldest son, Sir Archibald Alison (1826-1907), fought in the Crimean War and also the Indian Mutiny. After holding commands at home, he served in the Ashanti War of 1873-4, led the Highland brigade at Tel-el-Kebir, and, gazetted general 1888, succeeded Wolseley as commander-in-chief in Egypt. For five years he held the Aldershot command.

ALIWAL. Village of the Punjab, India. It is on the Sutlej, 9 m. W. of Ludhiana, and was the scene of a battle fought Jan. 28, 1846, between the British and the Sikhs, by which Britain obtained the territory E. of the Sutlej.

ALIWAL NORTH. A town and district of Cape Province, S. Africa. The town, on the Orange river, 280 m. by rly. and about 170 m. direct N.N.W. of East London, was captured from the Boers March 11, 1900. The Aliwal sulphur springs are near the town. The district has an area of 1,330 sq. m. Pop., district, 16,425; town, 5,557.

Aliwal South was the old name of the S. African port Mossel Bay (q.v.).

ALIZARIN (Arab, al, the; asarah, plant-juice). The chief colouring matter contained in madder, *rubia tinctoria*, a dye used for obtaining the colour known as Turkey-red.

Perkin, the discoverer of the first aniline dye, turned his attention to the artificial production of alizarin, and in 1868 prepared it commercially from anthracene. The manufacture is now successfully carried on by the British Alizarin Company. See Dyes.

ALKALI (Arab, al, the; qali, ashes of salt-wort). Name originally applied to soda-ash, but now to a class of basic compounds. The best known alkalis are soda, potash, and ammonia. They neutralise acids when mixed with them, and if the alkaline carbonates are employed there is effervescence. Alkalis turn the colour of red litmus to blue and that of yellow turmeric to brown. All alkalis are soluble in water. Lime, baryta, and strontia are known as alkaline earths, while potassium, sodium, lithium, caesium, and rubidium are called alkaline metals.

The alkaline industry embraces the production of alkalis and also of those chemicals manufactured in connexion with them, such as, for example, hydrochloric acid, nitric acid, sulphuric acid, chlorine, and bleaching powder, usually referred to as "heavy" chemicals.

The alkali made in Great Britain is soda, including both carbonate of soda, Na_2CO_3 , and caustic soda, NaHO . In the Leblanc method common salt (sodium chloride) is



Alkali. Solid block of alkali dug from the bed of Lake Magadi in British East Africa

the starting point of the manufacture. The details of this method, an important one for making carbonate of soda, include three stages, the salt-enke process, the black-ash process and lixiviation.

The Leblanc process has been replaced to a great extent by the ammonia-soda process, which depends upon the circumstance that when a strong solution of salt is mixed with carbonate of ammonia, bicarbonate of soda is produced. Soda is obtained from natural beds which occur near Lake Magadi, in East Africa. Caustic soda is also manufactured by an electrolytic process.

Owing to damage to vegetation in the neighbourhood of the works legislative action was taken to compel alkali makers to condense the acid gases. The Alkali, etc., Works Regulation Act, 1906, consolidated previous Acts of 1863, 1874, 1881, and 1892.

Alkali deposits is the name given to deposits from which salts of soda and potash can be extracted.

Alkali or alkaline rocks form a class of igneous rocks containing a high percentage of soda and potash. They include such minerals as nepheline, melilite, hauyne, sodalite, analcite, leucite, soda-pyroxenes and soda-amphiboles, orthoclase and anorthoclase.

Some of the most important alkaline rocks are the nepheline-syenites, phonolites, and leucite-basanites.

Alkaline earths was the name given by the old chemists to certain earthy minerals which they found to be insoluble in water, such as carbonates, sulphates, or oxides of various metals.

ALKALOID. Class of nitrogenous organic compounds possessing basic properties. They are found in plants and animals, the vegetable alkaloids used in medicine being the more important.

Alkaloids are extracted from plants by grinding the plants to fine powder, moistening with 95 p.c. of alcohol and treating the mass with alcohol in a percolator. Several of the alkaloids are violent poisons, but in appropriate doses form valuable medicines. Most of them are solids, but a few are liquids. Among alkaloids obtained from the vegetable kingdom are aconitine, atropine, quinine, caffeine, morphine, and strychnine.

ALKANET. Name of certain plants of the order Boraginaceae, such as *Anchusa officinalis* and *A. tinctoria*; also of a colouring material obtained from the root of the latter species, which plant is a native of S. Europe. It is an herbaceous perennial with oblong, bristly leaves and bright blue funnel-shaped flowers.

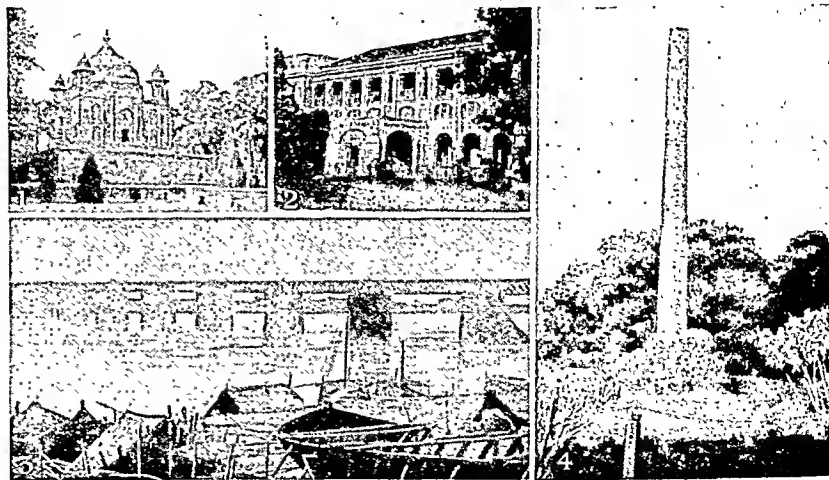


Alkanet, *Anchusa officinalis*

ALKMAAR. Town of Holland. On the N. Holland Canal, 4 m. from the sea and 20 m. by rly. N.W. of Amsterdam it is the chief market for cheese in Holland. Its architectural features include the 15th century church of S. Laurence, called usually the Great Church and containing some old tombs. There is a town hall and a weigh house dating from 1582. The town walls have been pulled down. The town withstood a siege by the duke of Alva in 1573. Pop. 27,509.

ALLAH (Arab, al, the; ilāh, God). Name adopted by Mahomet for the Most High God and used as such by Arabic-speaking Jews and Christians, as well as by Mahomedans. The Moslem creed is expressed in the words: There is no God but God and Mahomet is the prophet of God.

ALLAHABAD. Division, district, and city of India. Allahabad city, the capital of the United Provinces, stands on the left bank of the Jumna, at its confluence with the Ganges,



Allahabad. 1. Cenotaph of Mir Jehan. 2. Post Office. 3. East Indian Railway Bridge across the river Jumna. 4. Asoka's Pillar, nearly 50 ft. in height and made of highly polished stone. It was originally set up about 250 B.C. by the Buddhist emperor Asoka, who inscribed upon it his famous edicts

565 m. N.N.W. of Calcutta. A holy place from a very early period, it was not until the construction of the fort by Akbar, in 1575, that the city acquired political importance. In 1801 it was ceded to the English, and was the scene of a massacre during the Mutiny in 1857.

Its industries include an iron foundry, indigo factories, and printing presses. It has a wireless station, and among its principal buildings are the Government House, the government offices, the Mayo Memorial Hall, the Thoruhill and Mayne Memorial, with a public library and museum, the Anglican and the Roman Catholic cathedrals, the University, which is an examining and inspecting body only, and the Muir College. The fort contains an underground temple and the Pillar of Asoka, on which is inscribed an edict by that emperor (3rd century B.C.). Outside the fort are the mausoleum and gardens of Khusrū. The Jumma Masjid, or Great Mosque, was pulled down in 1157. The district has an area of 2,858 sq. m. and produces grain, cotton, oil-seeds, sugar, and ghi. Pop., city, 157,220.

ALLAMANDA. Genus of S. American climbing shrubs of the order Apocynaceae. They have evergreen leaves and golden-yellow flowers, except *Allamanda violacea*, which has reddish-violet flowers. An infusion of the leaves of *A. cathartica* in moderate doses is a valuable medicine in painter's colic, though in stronger doses it is violently emetic and purgative. It is so called from the Swiss scientist Allamand (1713-87).



Allamanda, American climbing shrub

ALLAN, SIR HUGH (1810-82). Canadian ship-owner. Born at Salcoats, Ayrshire, Sept. 29, 1810, Allan went in early life to Canada, where he became partner in a shipping firm. About 1852 he founded the Allan line of steamers and was one of the promoters of the C.P.R. Since 1860 the Allan line has maintained a regular weekly service between Liverpool and Montreal or Portland, Maine, and since 1872 between Glasgow and the same ports. Allan's donation to the party funds in Canada in 1873 was denounced as corruption and largely brought about the Conservative defeat at the ensuing general election. Knighted in 1871, he died in Edinburgh, Dec. 9, 1882. His son, Sir H. M. Allan (b. 1860), was knighted in 1904.

ALLAN, MAUD (b. 1879). Professional name of Maud Allan Durrant, British dancer. Born at Toronto of English parents, and educated at San Francisco, she studied music at Berlin and in that city first appeared as a professional dancer in 1901. She later achieved success as a dancer in London and in the U.S.A., and is remembered for her performance of *Salome* in 1908. Subsequently she made several successful world tours.

ALLAN, SIR WILLIAM (1782-1850). Scottish painter. Born and educated in Edinburgh, he was apprenticed to a coach painter before studying art in London. In 1814 he took to genre and history painting, finding subjects in *The Waverley Novels*. His *Regent Moray Shot by Hamilton* secured his election as A.R.A., and in 1834 he became R.A. Four years later he was elected president of the Royal Scottish Academy, and in 1841 succeeded Sir David Wilkie as limner to the queen in Scotland. In 1843 he exhibited his *Waterloo*, which was purchased by the duke of Wellington. Allan died Feb. 22, 1850.



Sir William Allan, Scottish painter

ALLAN, SIR WILLIAM (1837-1903). British politician and engineer. Born at Dundee, he worked as an engineer and served as such in the Navy. In 1866 he settled in Sunderland, where he built up an engineering business, which was amalgamated with Richardson, Westgarth & Co. From 1893 until his death Allan was Liberal M.P. for Gateshead. Knighted in 1902, he died Dec. 28, 1903.



Sir William Allan, British politician

ALLANTOIN. A tasteless crystalline substance. It can be made by boiling uric acid with lead oxide and water and filtering, allantoin and uric acid being obtained on evaporation. It has been isolated from the comfrey (*Symphytum officinale*), a decoction of which has been used since Saxon times for healing wounds. From this observation allantoin came to be used in medicine to promote the healing of wounds.

ALLBUTT, SIR THOMAS CLIFFORD (1836-1925). British physician. Born July 20, 1836, he went to St. Peter's School, York, and Caius College, Cambridge, of which he was elected fellow. In 1892 he was appointed regius professor of physics at Cambridge. In 1907 he was knighted and in 1914-16 was vice-president of the Royal Society. He is the author of *Science and Medieval Thought*. He died Feb. 21, 1925.

ALLEGATION (Lat. *allegare*, to bring forward). English legal term. It means a statement as yet unproved, but which those responsible for it believe to be true. Thus a phrase such as an alleged criminal is often applied to a person accused of crime before the charge has been substantiated in a court of law. The use of the word alleged helps to protect newspapers from actions for libel; they cannot say a man is a criminal or that any statement is a libel or slander without incurring penalties, but they can safely refer to an alleged libel or slander. See *Libel*.

ALLEGHENY OR ALLEGHANY. River of U.S.A. Rising in the N. part of Pennsylvania, it passes into New York and curves again into Pennsylvania, where it follows a S.W. course to Pittsburg and unites with the Monongahela to form the Ohio. Its length is about 300 m., and it is navigable by small vessels for nearly 200 m.

Allegheny is also the name of a former city of Pennsylvania, now an industrial suburb of Pittsburg, on the right bank of the Ohio river. It has several important educational institutions, a public library, observatory, and state penitentiary, engages in the manufacture of pickles and preserves, and has rolling mills, foundries, breweries, etc.

The Allegheny Mountains is a name sometimes applied to the Appalachian Mts., U.S.A., but more correctly to a W. division of that system. See *Appalachians*.

ALLEGIANCE (Lat. *ad*, to; *ligare*, to bind). Tie of obedience which binds a subject to the sovereign. A born subject of the Crown is said to owe natural allegiance to the King, and his Majesty is called his "natural liege lord." Some writers speak of "acquired" and "local" allegiance, meaning the obedience owed by naturalised subjects and denizens in the one case and mere residents in the other. Only by making a declaration of alienage can a British-born subject get rid of his allegiance, and such cannot be made when the country is at war. See *Alien*; *Sovereignty*.

ALLEGORY (Greek *allos*, other; *agoreucin*, to speak). Presentation or description of one thing under the image of another. It is a figure most frequently employed in literary composition, but also used in painting, as by

Holman Hunt in *The Light of the World*, and Burne-Jones in *Love Leading the Pilgrim*.

In literature allegory is a persistent form, owing to its convenience in permitting the presentation of abstract ideas in concrete forms. Early English literature is rich in allegory; Langland's *Vision of Piers Plowman* and Chaucer's *Romaunt of the Rose* being examples. It was one of the principal agents in the miracle plays and moralities, such as *Everyman*, which preluded the rise of the drama, and it merged into the drama itself, in the stamping of characters with names showing them to be personifications of qualities.

ALLEN. Lough or lake of Ireland. About 5 m. long by 3 m. broad, with an area of 8,900 acres, it is on the upper course of the Shannon, in counties Leitrim and Roscommon.

The bog of Allen is a tract of bogland in the province of Leinster, Ireland. It extends into the counties of Kildare, Leix, Ossory and Westmeath, and its area is about 240,000 acres. It is not quite a continuous bog, strips of arable being found here and there. The peat goes down on the average for about 25 ft., and its nature varies from surface moss to lignite, while oak stumps and pine trunks are also found.

ALLEN, CHARLES GRANT BLAIRFINDIE (1848-99). British author, better known as Grant Allen.



Grant Allen, British author
London Stereoscopic Co.

Born at Kingston, Canada, he was educated at King Edward's School, Birmingham, and Merton College, Oxford, and was professor and principal at Spanish Town, Jamaica, 1873-7. Allen was both a popular scientist and a popular novelist. His scientific attainments were considerable, and he was a luminous and entertaining writer on evolution and biological and botanical subjects. His many novels include *The Woman Who Did*, 1895, which provoked much discussion. He died in London, Oct. 25, 1899. Consult *Life*, E. Clodd, 1900.

ALLEN, SIR JAMES (b. 1855). New Zealand politician. Born in S. Australia, and educated at Clifton and St. John's College, Cambridge, he became a mining engineer. Settling in New Zealand, he entered the legislature in 1887, and in 1912 was made minister of finance, education, and defence. He had much to do with sending New Zealand troops to the Great War, and in 1917 was made a K.C.B. In 1919 he was made Minister for External Affairs. He was High Commissioner for N. Zealand, in London, 1920-26, and in 1927 became a member of the New Zealand legislative council.



Sir James Allen, N.Z. politician

ALLEN, JAMES LANE (1849-1925). American novelist. He was a teacher at Kentucky University, afterwards acting as professor of Latin at Bethany College, West Virginia. His novels, poetically conceived and delicately written transcripts of life in his native state, include *A Kentucky Cardinal*, 1895; *Aftermath*, 1896; *A Summer in Arcady*, 1896; *The Choir Invisible*, 1897; *The Reign of Law*, 1900; *The Sword of Youth*, 1915; and *A Cathedral Singer*, 1916. His short stories are in a volume entitled *The Blue Grass Region and Other Sketches of Kentucky*. He died Feb. 18, 1925.

ALLEN, WILLIAM (1532-94). English cardinal. He left England soon after the accession of Elizabeth, and was largely responsible for the foundation in 1568 of the

college for English priests established at Douai and afterwards transferred to Reims. He began the translation of the Douai Bible, but the main aim of Allen's life was to restore Roman Catholicism in England. At first he worked quietly, but about 1582 his activities became definitely political. He supported Philip II and worked with the pope, Mary Queen of Scots, Guise, and certain of the Jesuits against Elizabeth. He signed, if he did not write, An Admonition to the Nobility and People of England (1588), which urged them to depose Elizabeth. In 1587 he was made cardinal. He resided at Rome from 1588 until his death, Oct. 16, 1594.



William Allen,
English cardinal

ALLENBY, EDMUND HENRY HYNMAN ALLENBY, 1ST VISCOUNT (b. 1861). British soldier. Born April 23, 1861, he was educated at Haileybury and entered the Inniskilling Dragoons in 1879. He served in Bechuanaaland in 1884-5, in Zululand in 1888 and throughout the South African War.

In 1914, when the Great War broke out, Allenby was inspector-general of cavalry at Aldershot. He took out the cavalry division to France, was with it at Mons, and later, when it became a corps, was given command of it. In 1915, being then a K.C.B., he succeeded Sir Herbert Plumer in command of the 5th Corps, and when the battle of the Somme

during the struggle around Tannenberg. Pop. 34,731. See Prussia, East; Tannenberg.

ALLENTOWN. City of Pennsylvania, U.S.A. The county seat of Lehigh Co., it is on the Lehigh river. It is 60 m. by rly. N. by W. of Philadelphia, on the Philadelphia and Reading and other rlys. It manufactures furniture, silk, and cement, and has large iron-works, rolling mills, and forges. During the Great War it had a medical training camp for officers. Pop. 73,502.

ALLERTON. WILLIAM LAWIES JACKSON, 1ST BARON (1840-1917). British politician and merchant. He became a tanner and built up a large and profitable leather business. In 1880, although a Conservative, he won a seat in Parliament for the Liberal stronghold of Leeds, and from then until 1892 was one of its members. In 1895 he was made financial secretary to the treasury, and in 1891 became chief secretary for Ireland. When his party went out of power in 1892 he was made Lord Allerton. For over twenty years he was chairman of the G.N.R., and he presided over the royal commission on Britain's coal resources and the committee that inquired into the Jameson Raid. He died April 4, 1917, leaving two sons. The elder succeeded to the title, but died in 1925, when it passed to his son; the other is the cricketer. Hon. F. S. Jackson (q.v.).

ALLEYN, EDWARD (1566-1626). English actor and founder of The College of God's Gift, at Dulwich. With Philip Henslowe (q.v.), whose stepdaughter, Joan Woodward (d. 1623), he married, he was a partner in the earl of Nottingham's, or, as it was also called, the Lord Admiral's, company.

In 1600 the two partners built the Fortune Theatre in Golden Lane, Cripplegate. Between 1605-14 Alleyn purchased from Sir Francis Carlton the manor of Dulwich for £10,000, and in 1613 began building the college, with chapel and almshouses, obtaining a royal charter for incorporating and endowing the charity in 1619. He died Nov. 25, 1626, and was buried in Dulwich College Chapel.

ALL FOOLS' DAY or **APRIL FOOLS' DAY.** The popular names for April 1, derived from the custom of playing practical jokes on that day, usually until noon. The origin of the custom, apparently unknown in Great Britain until the 18th century, is obscure. It may have arisen in Europe as a travesty of New Year gifts and visits, when the reformed calendar transferred the beginning of the year from April 1 to Jan. 1. In France an April fool is called a poisson d'avril (April fish), possibly because a young spring fish is easy to catch. An April fool is known in Scotland as a gowk (cuckoo), and April fooling as hunting the gowk.

ALL-FOURS. An American card game, possibly the oldest. The name is derived from the four chances or points, called respectively High, Low, Jack, and Game.

ALLIA or **ALIA, BATTLE OF THE.** Fought July 16, 390 B.C., between the Romans and invading Gauls under their leader Brennus, on the banks of a small stream of that name, a tributary of the Tiber. The Romans were defeated, and the Gauls advanced and sacked Rome. The date of this defeat was afterwards known as dies Alliensis (day of Allia).

ALLIANCE (Lat. ad, to; ligare, to bind). Term applied generally to any compact between two or more states in regard to their common action or inaction in relation to other states. Of such historic compacts the majority have had no specific title.

The more important alliances down to the 17th century are generally called leagues. The most powerful of all alliances were those formed to carry on the Great War in 1914.

ALLIBONE, SAMUEL AUSTIN (1816-89). American bibliographer. He was born at Philadelphia. His chief work was A Critical Dictionary of English Literature and British and American Authors, 3 vols., 1859-71, which contained notices of 46,499 authors. To the third volume Allibone affixed a brief Valdictory to be reproduced in all editions of the work, and a series of forty indexes of over 75,000 names classified under different branches of literature. In 1891 a two-volume Supplement to Allibone's Dictionary was published; it was prepared by John Foster Kirk and had entries concerning 37,000 additional authors.

ALLIER. River of central France. Rising in Lozère and flowing N.N.W. through Haute-Loire, Puy-de-Dôme and Allier departments, it joins the Loire about 4 m. below Nevers. Of its 356 m., 140 m. are navigable.

The department of Allier covers 2,848 sq. m. and includes some of the richest land in France, both in agriculture and minerals. In it are the mineral springs of Vichy. Pop. 370,562.



Edward Alleyn, English actor and
founder of Dulwich College
From original at Dulwich

ALLIGATION (Lat. ad, to; ligare, to bind). Term used of two metals closely associated with each other in a natural state. For instance, tin and tungsten, or, in a more restricted sense, uranium and the various radioactive metals are in alligation. The term is also used in arithmetic for a method of dealing with problems relating to mixtures.

ALLIGATOR (Span. el lagarto, the lizard). Genus of the crocodile family. Of the two living species the Chinese alligator is comparatively small. The Mississippi alligator, which attains 16 ft. in length, lives in the rivers. The eggs, which may amount to 100 from one female, are laid among the bushes on the banks and covered with decaying vegetable matter. The heat of the



Alligator of the rivers of the southern states of N. America, a reptile which attains a length of 16 ft.
Gambler Bolton, F.Z.S.

sun hatches them, and the female watches her nest and conducts the young to the water. Alligator farms have been started in Florida to supply the market with "crocodile leather" for fancy goods.



Field-Marshal Viscount Allenby,
British soldier
Lafayette

the Turks from Palestine and recovered Jerusalem for the Christians. In 1917 he was made a full general, and in 1918 received the G.C.B. In October, 1919, he was appointed High Commissioner for Egypt and the Sudan, retiring in 1925. In July, 1919, Allenby was made a field-marshal, and in August was voted a sum of £50,000 and created a viscount, adopting the title of Viscount Allenby of Megiddo and of Felixstowe in the county of Suffolk. His only son, Michael, an artillery subaltern, died of wounds in France, July 28, 1917. See Palestine.

ALLENDALE. District of Northumberland. It is the valley of the little river Allen, a tributary of the Tyne, and in it are lead mines. The village of Allendale, with a station on the L.N.E. Rly., is 13 m. from Hexham. From this place the old family of Beaumont takes the title of viscount. In 1906 Wentworth Beaumont was made a baron, in 1911 a viscount. His son became the 2nd viscount in 1923.

ALLENSTEIN. Town of E. Prussia. On the Allo, near Poland, it is 64 m. direct and 82 m. by rly. S. of Königsberg. It has breweries, saw-mills, iron foundries, and machine shops, and manufactures stoves, barrels, and matches. In Aug., 1914, it was taken by the Russians, but they evacuated it

ALLIGATOR PEAR. Fruit of *Persea gratissima*, a tree of tropical America and the West Indies, belonging to the order Lauraceae. It is also known as Avocado pear. It is a pear shaped berry, externally brownish or purple, and filled with an oily pulp-like butter or marrow, which is highly esteemed when eaten with lime-juice, spice, or pepper and salt. Valuable oil may be expressed from the pulp, and the seeds yield a black stain.

Alligator wood is the name given to timber of *Guarea grandifolia*, a tall evergreen tree of tropical America. It belongs to the order Meliaceae.

ALLINGHAM, WILLIAM (1824-89). British poet. Born at Ballyshannon, Ireland, in 1824 he became editor of *Fraser's Magazine*.

He was intimate with the pre-Raphaelite group, and his second volume of poems, *The Music Master*, 1855, a revised edition of *Day and Night Songs*, 1854, was illustrated by woodcuts from designs by Rossetti, Millais, and Arthur Hughes. Of his other poems, *Laurence Bloomfield in Ireland*, 1864, and *Irish Songs and Poems*, 1887, are notable. He married Helen Paterson, who as Mrs. William Allingham was a well-known water colour painter. Consult *Diary*, ed. H. Allingham and D. Radford, 1907.

ALLITERATION (Lat. *ad*, to, *litera*, letter). Repetition of the same initial letter in words in close juxtaposition. Alliteration was a structural part of the versification of the Anglo-Saxon, Old English, and Gothic languages generally, a regular characteristic of Icelandic verse, and was employed by several of the Oriental nations.

In classical poetry alliteration makes only a slight appearance, but after the revival of literature it found its way into the humorous Latin verse of the 16th century. In English prose, alliteration was brought to the highest point of mechanical perfection by John Lyly. Subsequent abuse led to its disappearance, but it was revived by Dryden and later used with supreme skill and subtle effect by such masters of technique as Tennyson and Swinburne. See *Poetry*.

ALLOA. Municipal and police burgh and seaport of Clackmannanshire, Scotland. Situated on the N. bank of the Forth, 32 m. W.N.W. of Edinburgh, it is on the L.M.S. and L.N.E. Rlys. Its buildings include a town hall, county and municipal offices, and several churches, and it has yarn, hewing, distilling, glass, and shipbuilding industries. A new bridge across the Forth is projected. Close by are the earl of Mar and Kellie's seat, Alloa House, and Alloa Tower (98 ft high), the ancient residence of the earls of Mar. Market day, Sat. Pop. 12,415.

ALLOCATION (Lat. *ad*, to; *loqui*, to speak). Term used by the Vatican for any important pronouncement by the Pope to the cardinals assembled in a consistory. These allocations are afterwards usually affixed to the doors of St. Peter's. The address read by a candidate on his admission to the French academy is also called an allocation.

ALLOPATHY (Greek *allos*, other; *pathos*, feeling). Medical term for the method of treating diseases by creating a condition different from the symptoms of the disease

to be cured, the converse of homoeopathy. The word was first used in the early 19th century by the homoeopaths, the adherents of the new school of medicine invented by Hahnemann, to denote the traditional school.

ALLORI, ANGELO (1502-72). Florentine painter and poet. Born at Monticelli, he assisted Jacopo Carucci da Pontorno in the decoration of the church of San Lorenzo in Florence. He painted in fresco and oils, forming his style to some extent on that of Michelangelo. He painted the portraits of Dante, Petrarca, and Boccaccio. He was known, owing to the colour of his complexion, as *Il Bronzino*, or the sun-burnt. His nephew, Alessandro Allori (1535-1607), and his grand-nephew, Cristoforo Allori (1577-1621), were also painters, the latter's Judith with the Head of Holofernes being well known.

ALLOTMENT. Small plot of land, usually not exceeding a quarter of an acre in extent, chiefly used for the cultivation of vegetables. In order to prevent egress from agricultural districts and to give the rural population a direct interest in the land, various Acts have been passed from time to time.

In urban districts applicants may apply to the urban district council to hire land or purchase it. In the event of refusal the applicant has the right of appeal to the county council, under the Allotment Act of 1890.

In 1914 there were about 500,000 allotments in England and Wales, but efforts to increase the country's food supply during the Great War led to a considerable addition. 'Security of tenure was given to the holders, and the Ministry of Agriculture took power to obtain land for them. In 1928 there were 1,024,000.

An allotment of shares is made when a limited liability company offers shares to the public. By law this can only be done if a certain number are applied for. See *Company*.

ALLOTROPY (Gr. *allos*, other *tropos*, turn). Term given to the property, possessed by certain chemical elements, of existing in two or more distinct forms. Each form has characteristics peculiar to itself and often differing very widely in the two forms. The classical example is provided by the element carbon, which is found in three very diverse forms, in the diamond, in graphite or black-lead, and in charcoal.

ALLOWANCE. English law term used in several senses. (1) In many cases people

are liable at law for allowing things to be done. For example, the surveyor of highways must not allow an obstruction to remain on a highway. A fortiori he must know of it, because a man cannot allow a thing of which he has no knowledge. (2) In actions for the redemption of mortgages, the mortgagee is



Alloa. The Parish church
Valentine

entitled to be paid, under the head of just allowances, all he has spent on or in connexion with mortgaged property, provided that the money has been reasonably or necessarily spent. (3) The term just allowances is used in many other Chancery suits where accounts have to be taken.

Allowances of still another kind are those given by the state to the wives and other dependents of soldiers, sailors, and airmen on active service.

ALLOWAY. Village of Ayrshire, Scotland. On the N. bank of the Doon, 2½ m. S. of Ayr, it contains the cottage, now a museum, in which Robert Burns was born. The Auld Brig and a new bridge cross the Doon, and a monument stands near the ruined "haunted kirk," the scene of *The Witches' Dance* in *Tam O'Shanter*. See Burns, Robert.

ALLOXAN or **MESOXALYLUREA.** Substance in the form of white crystals prepared by oxidising uric acid with nitric acid. A study of the condensation products of alloxan and uric acid first showed the relationship between uric acid and the alkaloids of coffee and tea.

Alloxantin. Crystalline substance prepared by the action of dilute nitric acid on uric acid. It is used as a test for uric acid.

ALLOY. Term derived from the Latin *ad*, to, and *ligare* to bind, applied (1) to the artificial compound formed by the mixing of two or more metals, usually in a state of fusion; and (2) to a base or inferior metal when mixed with a more valuable one.

The alloys of metals are numerous, and of great industrial importance and scientific interest. Iron, in the cast form, contains an appreciable percentage of carbon. Steel is iron containing a definite proportion of carbon, and in certain cases small proportions of metals, e.g. nickel, manganese, chromium, vanadium, silicon, tungsten, tellurium, and so on. Bronze, one of the earliest forms of metal used by prehistoric man, is an alloy.

For practical purposes an alloy may be regarded as a new metal. Its physical properties may differ widely in degree from those of the metals composing it. Where lead, tin, or zinc are among the principal constituents, those metals will impart to the alloy their physical properties in proportion to their relative amounts.

The principal alloys of industry are those formed with the metals copper, zinc, tin, lead, and antimony. Thus copper and zinc form the extensive and important series of brass alloys, comprising brass, yellow metal, Muntz metal, and alhata. Copper and tin form the bronzes; tin and lead form pewter; tin and antimony, Britannia metal; and lead and antimony, type metal. Fusible metals are alloys of lead, tin, and bismuth. Another important series of alloys are known as solders. Where another metal is combined with mercury the product is not called an alloy but an amalgam. See *Metallurgy*.

ALL SAINTS' DAY. Festival of the Christian Church celebrated on Nov. 1 and known formerly in Great Britain as All Hallows. It originated in A.D. 608, when the Pantheon at Rome was converted to Christian uses, as the Church of the Blessed Virgin and All Martyrs, by Pope Boniface IV, but was not formally instituted until 835. It is a day of obligation for Roman Catholics, and is ordered to be observed in the Church of England. Many superstitions, dating from the pagan festival of Nov. 1, are connected in Scotland with Hallow E'en, the vigil of All Saints'. In the Greek Church the festival is observed on the Sunday after Easter.

ALLSOPP. Name of a family of Burton brewers. The founder of the business of Samuel Allsopp & Sons was Samuel Allsopp (d. 1838). His son Henry made it one of the greatest concerns of the kind in England. M.P. for Worcestershire from 1874 to 1880, Henry Allsopp was made a baronet in 1880, and in 1886 a peer as Baron Hindlip, a title taken from the Worcestershire village where his country house was situated. He died April 3, 1887.

ALL SOULS' DAY. In the Roman Catholic Church, day set apart as one of prayer for the souls of all the faithful departed. It is observed on Nov. 2, and originated in the abbey of Cluny, A.D. 998. Omitted from the English Prayer Book at the Refor-



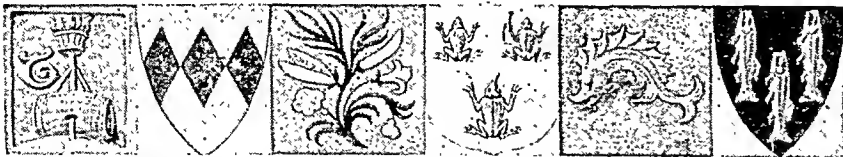
All Souls College, Oxford. The north quadrangle with twin towers designed by Hawksmoor

mation, its restoration was asked for in 1919 by the lower house of Convocation. In France and Italy the day is known as Day of the Dead.

All Souls College at Oxford was founded in 1437 by Henry Chichele, archbishop of Canterbury. It is unique in that it has no undergraduates. The head is the warden.

ALLSPICE. Pea-like berries of *Pimenta officinalis*, a tropical American shrub of the order Myrtaceae. It is cultivated in the W. Indies and Jamaica. The name allspice is due to its fragrant and taste being supposed to combine those of cinnamon, cloves, and nutmeg. It is also known as Jamaica pepper. Unripe berries are picked and dried in the sun.

ALLSTON, WASHINGTON (1779-1843). American painter and author. In 1814 his big canvas, *The Dead Man Revived by Touching Elisha's Bones*, was awarded a premium of 200 gs. by the British Institution. His powers were well displayed in *Spalatro's Vision of the Bloody Hand*, *Saul and the Witch of Endor*, and the unfinished *Belshazzar's Feast*. He was elected an A.R.A. in 1818, and returned to America the same year. He was also the author of *The Sylphs of the Seasons* with *Other Poems*, 1813, and a romance of Italian life called *Monaldi*, 1841.



Allusive Arms. Left to right: Thomas Beckington, T, with fire beacon in tun; Montacute, sharp mountain peaks; Plantagenet, broom plant (*Planca genista*); Botrenx, Cornish family, a botru in Cornish dialect meaning a toad; Dauphin (dolphin), medieval; De Lacy, three lances (pike)

ALLUSIVE ARMS. In heraldry arms, known as *armes parlantes*, canting arms and punning arms, having charges with names suggesting, or alluding to, the name or title and sometimes the office or profession of the bearer. Numerous celebrated examples are connected with territorial insignia, e.g. the ox crossing a ford on the shield of the city of Oxford. Among personal arms are the old shields of the Troutbecks, adorned with a wreath of trout; and those of the Lucys, displaying three pikes (once known as luecs).

ALLUVIUM. Matter derived from the natural waste of rocks. It is carried by running water and deposited where the flow becomes insufficient to support the load.

ALMA. River of Russia, in the Crimea. Its length is about 45 m., and it enters the Black Sea 18 m. N. of Sevastopol.

The battle of Alma was the first pitched battle of the Crimean War, fought Sept. 20, 1854. On one side were 35,000 Russians under Prince Menshikoff, and on the other 30,000 French under Marshal St. Arnaud, 25,000 British under Lord Raglan, and a few thousand Turks.

The allies landed on the Crimean Peninsula and set out for Sevastopol. To bar their way the Russian army was established on and behind the hills across the little river Alma. A flank attack by the French, coupled with an advance by the British against the Russian front, led to desperate fighting before the Russians were forced to withdraw, leaving the allies in possession of the heights.

ALMACK'S. Name of a Whig gaming club in Pall Mall, and of assembly rooms in King Street, St. James's, London, W. Opened in 1764, the founder is said to have been Almack or McCall (d. 1781), sometime valet to the 7th duke of Hamilton, and keeper of the Thatched House tavern in St. James's Street. Later known as Goosetree's and then as Brooke's, it removed in 1778 to No. 60, St. James's Street. In 1908 a social club called Almack's was founded at 20, Berkeley St., but was closed in 1928. A new Almack's was opened in 1929 at 19, Upper Grosvenor St.

Almack's Assembly Rooms, built in King Street for Almack by R. Mylne, were opened Feb. 20, 1765. The rooms quickly became an exclusive centre of fashion, and so remained until about 1863. The rooms were later known as Willis's Rooms, and then for a time as Willis's Restaurant.

ALMAGEST (Arab. *nl*, the; Gr. *megistē*, greatest) Arabic name given to Ptolemy's great work on astronomy. It was written about A.D. 140 and translated into Arabic about A.D. 800. This comprehensive treatise covered the whole subject of astronomy, and its authority was unchallenged until the 16th century, when Copernicus put forward his heliocentric theory. It included a catalogue of stars which was a revision of the older catalogue of Hipparchus.

ALMAGRO, DIEGO D' (c. 1475-1538). Spanish leader in the conquest of S. America. Born at Aldea del Rey, New Castile, he was associated with Pizarro in the conquest of Peru, but quarrelled with him about the spoil. Almagro's army was defeated in 1538, and he was strangled in prison by Pizarro's order.

Clog or log almanacs were oblong sticks of wood, brass, bone, or horn, with notches for the days of three months of the year on each of the four edges. They were flanked left and right with symbols indicating the lunar cycle, saints' days, etc., and made to hang on wall or mantelpiece or carry in the pocket. They are occasionally seen to-day.



Almanac, old clog forms

The *Almanach de Gotha* is an international book of reference issued in French and German. Established in 1763, it is published by the firm of Justus Perthes at Gotha, hence the name. In the John Rylands library, Manchester, there is a complete set of the German edition of the *Almanach* from 1764. It includes two copies for 1808, one suppressed by Napoleon and the other revised according to his directions. The 18th century issues were illustrated with scenes from popular plays and novels.

ALMANDINE. Deep-red variety of the garnet, often having a violet tinge. Formerly known as the caruncle, it is now called the precious or noble garnet. Good almandines closely resemble rubies, but are less hard, have a higher specific gravity (4.1 to 4.3), exhibit single refraction and no dichroism, and show the same colour in whatever light they are viewed. The stones are found chiefly in Ceylon, Brazil, Tirol, the U.S.A., and Greenland. The word comes from Alabanda, a city of Asia Minor. See Garnet.

ALMANSA OR ALMANZA. Town of Spain, in Albacete province. It is 60 m. N.W. of Alicante by rly. from that town to Madrid, and has a ruined castle and an obelisk marking the site of the battle. Pop. 11,887.

The battle of Almansa was fought during the war of the Spanish Succession, April 25, 1707, between the English, with their German, Portuguese and Dutch allies on one side, and the French and Spaniards on the other. The English were commanded by Ravigny, earl of Galway, and their enemies by the duke of Berwick. After an initial success over the Spaniards the English and their allies were beaten by the French and compelled to retreat. They had about 4,000 killed and wounded, and lost 3,000 prisoners.

ALMANSUR (c. 710-75). The surname, meaning the Victorious, of the second Abbaside caliph. He succeeded his brother, Abdul Abbas, in 754, and his reign was marked by the loss of Spain and Africa and by the oppression of Christians in Syria and Egypt. For security he left his old residence near Kufa and built (763-6) a new capital on the site of the old town of Bagdad. He died while on pilgrimage to Mecca.

ALMA-TADEMA, SIR LAWRENCE (1836-1912). Anglo-Dutch painter. He was born at Dronrijp, Friesland, Jan. 8, 1836.

In 1863 the Grosvenor Gallery organized a representative exhibition of his work; in 1870 he made his home in England, and in 1873 he was naturalised. Elected A.R.A. in 1873 and R.A. in 1879, he was knighted in 1899 and received the Order of Merit in 1905. He died at Wiesbaden, June 25, 1912. Alma-Tadema devoted special study to the life and



Sir Lawrence Alma-Tadema, painter
n. Haines

customs of the Greeks and Romans He painted several successful portraits. Notable examples of his work are *An Audience at Agrippa's*, 1876; *A Sculptor's Model*, 1878; *Pomona Festival*, 1879; *The Roses of Helio-gabalus*, 1888; *The Colosseum*, 1896; and *The Conversion of Paula*, 1898.

ALMEH OR **ALMAH** (Arab. alama, to know) Name given in Egypt to a member of a superior class of professional women musicians, in allusion to the fact that they have spent years in rigorous training and know their duties. Almehs are usually singers only but sometimes also instrumentalists.

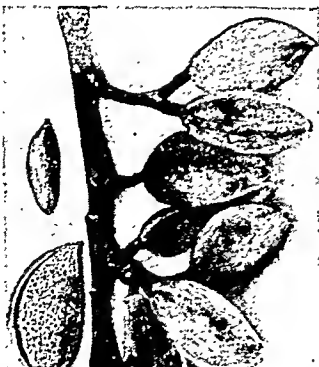
ALMEIDA-GARRETT, JOAO BAPTISTA DA SILVA LEITAO, VISCOUNT DE (1799-1854). Portuguese dramatist and statesman. Born at Oporto, his attachment to Liberal principles forced him to spend some years in exile. When Dom Pedro returned from Brazil in 1832 and drove Dom Miguel from the throne, Garrett was appointed minister of the interior. He carried through many reforms in the Cortes, represented his country at Brussels, and was minister for foreign affairs. He contributed to the foundation of a national theatre and wrote prose dramas. He died Dec 9, 1854.

ALMERIA. City and seaport of Spain. The capital of Almeria province and one of the chief Mediterranean ports, it is 60 m. S.E. of Granada, on the rly. to Madrid, and has a wireless station. Beautifully situated on the Gulf of Almeria, it is a winter health resort, with a fine harbour, a Moorish castle, and a Gothic cathedral. It exports the noted Almeria white grapes and other fruits, esparto and iron ore. Founded by the Phoenicians, the Moors lost it in 1489. Pop. 51,000.

ALMOHADES. Mahomedan sect and dynasty of the 12th and 13th centuries. Its founder was a Berber who preached a stricter form of the Mahomedan faith. He died in 1128, but his disciple Ahd-el-Mumin conquered a considerable part of N. Africa and in 1149 made himself ruler of Morocco. Later he crossed to Europe and subdued part of Spain, making Seville his capital. In 1212, after Mahomed III had been defeated by the Christian kings of Spain, their possessions in Spain were quickly lost, and soon afterwards those in Africa. Their last representative, Idris IV, was murdered in 1269.

ALMON, JOHN (1737-1805). English writer and bookseller, friend of John Wilkes (q.v.). Born in Liverpool, he was apprenticed to a printer and bookseller, and became a working printer in London. From his bookshop in Piccadilly Almon issued numerous productions, and in 1774 began to issue a monthly record of the proceedings of Parliament in *The Parliamentary Register*. Ten years later he became the owner and editor of *The General Advertiser*. In 1786 he was tried for libel, and this, added to money troubles, forced him to live for a time in France. He died Dec. 12, 1805.

ALMOND (Gr. amygdale). Fruit of a small tree of the order Rosaceae, and a native of the Mediterranean region. It is largely cultivated in S. Europe and the Levant on account of its fruit, and in cooler parts for the sake of its flowers, which appear in advance of the leaves. Closely related to the peach, the fruit of the almond tree lacks the succulent flesh of the former, and the seed (the almond of commerce) is the only edible



Almond. The fruit of the Jordan almond as it grows; and (on the left) a nut without the leathery husk, and a kernel.

portion. The almonds sold in the shops—the sweet, the bitter, and the thin-shelled Jordan—are cultivated varieties of the same species. The almond was introduced into Britain about the middle of the 16th century, and is cultivated as a beautiful spring flowering tree or shrub, varying from 3 ft. to 12 ft. in height. The flowers are white, pink, and red. Almond oil is obtained from the seeds of the bitter and sweet almonds. It is extensively used in medicine. Sweet almonds yield 40 to 54 p.c. of oil, bitter almonds 35 to 38 p.c. Peach kernels are also used for obtaining essential oil of almonds, the product being identical with that yielded by bitter almonds.

Almond. River of Perthshire, Scotland. It flows 30 m. S.E. to join the Tay some 2 m. above Perth. See Glenalmond.

ALMONER (Gr. eleemosynē, alms) Official almsgiver. Originally the title of the member of a monastery appointed to dispense the alms, the term came to be applied to a similar functionary in the households of princes and ecclesiastics.

The British royal household has an almonry, comprising the hereditary grand almoner, the marquess of Exeter, the lord high almoner, and the sub-almoner. The lord high almoner dispenses the royal alms on Maundy Thursday. The chaplain of an institution is sometimes called the almoner.

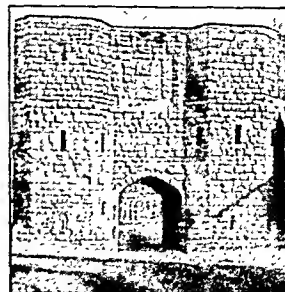
ALMORAVIDES. Mahomedan sect and dynasty of the 11th and 12th centuries. Converted to Mahomedanism, a tribe from the Sahara made war successfully upon its neighbours and in the 11th century conquered Morocco. They called themselves the Murabit or hermits, a name altered in time to Almoraides. Abu Bekr was their early leader, but it was under his kinsman, Yusuf-ihnn-Tashfin, that they attained the height of their power. He founded the city of Marrakesh, Morocco, and in 1086 crossed over to Spain and there brought the various Moorish kingdoms under his authority. When he died in 1107, his empire included all Spain and Portugal from the Ebro to the Tagus, considerable territory in N. Africa, and the Balearic Islands. Under his successors much of the European possessions passed to the Almohades, by whom their power in Marrakesh was destroyed in 1147. See Morocco.

ALMSHOUSES. Homes provided in England by individual philanthropists, city companies and trades for the aged poor. Usually they consist of separate tenements.

London has many almshouses, notably the Charterhouse, founded in 1611, and they are also found in almost every city and old town in England. Near Winchester is the Hospital of S. Cross, founded in 1132; at Warwick is the Leicester Hospital, dating from 1571, and at Hereford the Coningsby Hospital, founded 1610. In the U.S.A. the term almshouse is used for buildings similar to the English workhouse, and in many cases connected with farms on which work is found for able-bodied paupers. Many almshouses are endowed and their funds are supervised by the Charity Commissioners.

ALMUCANTAR OR **ALMACANTAR** (Arab. sundial). Circles of the celestial sphere. They are parallel to the horizontal plane and cut the meridian at equal distances. They are, therefore, parallels of altitude. The horizon is the first almucantar.

ALNWICK. Urban district, market town, and the county town of Northumberland, England. On the Aln, 38 m. N. of Newcastle by the L. N.E. Rly., it has breweries and a trade in corn, cattle, and fishing tackle. It retains vestiges of its old walls and one gate, the Bondgate, has an old church, S. Mary and S. Michael; and S. Leonard's



Alnwick. Ancient gateway known as Hotspur's Tower.

hospital. Market day, Mon. Pop. 6,991.

The castle is a residence of the duke of Northumberland. Standing on a hill on the south side of the river Aln, it was first built in the 12th century and passed to the Percy family early in the 14th. Of the old castle little remains save a gateway and a Norman arch; the building was restored in the 18th century and added to in the 19th. Its picture gallery is famous. The castle is surrounded by a fine park which contains the ruins of two abbeys and two memorial towers. The remains of Hulne Priory, a Carmelite foundation of the 13th century, are within the castle's domain.

ALODIAL OR **ALLODIAL** (Lat. allodium). The name given to a form of land tenure found in England in Anglo-Saxon times and common in Scandinavia. Alodial land is practically the same as freehold and opposed to feudal. In Norway and Sweden this tenure, called odol, was common in the Middle Ages, and such land could not be alienated. See Feudalism.

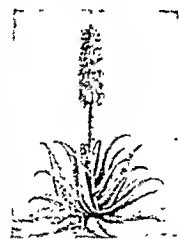
ALOE. Extensive genus of the order Liliaceae. It consists of succulent shrubs (rarely trees) with thick, fleshy leaves margined with prickles or teeth. It grows in hot, dry countries, particularly S. Africa. Several species of the plant are of economic importance.

The drug aloe is the dried resinous juice from the leaves of *Aloe vera* and *Aloe socotrina*, that from the former being known as Barbados aloe and the latter as Socotrine aloe. Its most important constituent is a crystalline principle called aloin. Combined with nuxvomica and ferrous sulphate, aloe is often useful in simple anaemia. It is an excellent intestinal purgative in cases of chronic constipation, and is most frequently administered in the form of a pill.

ALOE WOOD, **EAGLE WOOD**, OR **LIGN ALOES**. Wood of a large tree, a native of Assam, India. This yields an abundance of resin and uggur oil, the latter esteemed as a perfume and burnt in Eastern temples to scent the air. For this purpose the wood is broken up and distilled. The oil is also used in gout and rheumatic affections.

ALOST. Town of Belgium, in E. Flanders, also called Aalst. It stands on the Dender, 19 m. by rly. W.N.W. of Brussels, and has a magnificent church, S. Martin's, a 13th century town hall, and a Jesuit college. It has bleaching works and manufactures textiles, leather, beer, and spirits. It was occupied by the Germans from Aug., 1914, to Oct., 1918. Pop. 35,275.

ALOYSIUS (1568-91). An Italian saint. Luigi Guozaga was the son of Ferdinand, marquis of Castiglione, and was born March 9,



Aloe. A typical specimen, *Aloe ferox*.

1568. In 1585 he joined the Society of Jesus, taking the name of Aloysius, and died while ministering to the sick during a plague epidemic in Rome, June 21, 1591. He was beatified in 1621, and canonised in 1726. He is a patron saint of schoolboys.

ALPACA. Domesticated breed of the guanaco, a South American animal of the camel family. In its wild state it is found in flocks, ranging from 100 to 500 head, among the mts. of Peru and Ecuador, and as far S. as Tierra del Fuego. Domesticated by the Peruvians in early days, it is bred for its fine and long wool. These domesticated herds feed on the lusher lands of Bolivia and S. Peru, and are brought down in the shearing season.

The hair of the alpaca is some 7 ins. to 15 ins. in length, brown, grey, and black in colour, with a small percentage of white. The material is soft to the touch and of fair lustre.

The British trade in alpaca wool dates from 1836, and owes its development to Sir Titus Salt, who manufactured the wool into cloth in his mills at Saltaire, just outside Bradford.

ALPENHORN OR ALPHORN. The long, curved, wooden bugle used by the Swiss peasants and cowherds to communicate with each other from a distance. It has a conical bore with a mouthpiece of cup shape. Some of these horns are as much as 8 ft. long, but their size, shape, and curvature differ.

Alpenstock. A long ash pole with a spike at the end used in mountaineering. It has been partly superseded by the ice axe.

ALPHA. First letter of the Greek alphabet, the last being omega. In Fev. 1, 21 and 22 they symbolise the unity and perfection of God. Combined with Christ's monogram, or with the cross, they were inscribed on early Christian tombs.

Alpha is used to signify the first in several connexions, marking examination papers for instance, and many stars are named alpha because they possess a high degree of brightness. Alpha centauri, a double star, is one of the nearest to the solar system. Alpha crucis, a triple star, is the brightest in the Southern Cross. Alpha cygni is one of the four brightest stars in the stellar universe.

ALPHABET. The word alphabet is formed from alpha and beta, the names of the first two letters of the Greek system.

The remarkable variety of alphabets is not confined to the formation of letters, but

extends, though in less degree, to the number of letters employed. In the latter case the difference is due to a different development, through climatic or other causes, of the organs of speech. There are distinctions of sound in Arabic, for instance, which it is impossible for most Europeans to reproduce, and these are represented by different letters. Accordingly, certain letters in Hebrew may correspond to two letters or sounds in Arabic.

We find, for example, that to suit their alphabets to the sound of their language, while the Hebrews and the Italians use 22 letters and the English 26, Arabic employs 28 and Russian 36. Of other European alphabets, Polish contains 45 letters; French, 25; German, 26; Danish and Norwegian, 27; Spanish, 29; Hungarian, 38; Albanian, 33.

Sanskrit possessed an alphabet of 49 letters; Hindustani, 35; Persian, 32; Turkish, 31; Armenian, 38; Ethiopic, 26. Telugu has 35 consonants and 13 vowels, with various combinations Tibetan, 35; and Japanese, 73.

In 1891, Messrs. Gilbert & Rivington printed the Lord's Prayer in 300 languages. Some of the alphabets used are similar, and many more which are known to exist or to have existed are not represented. But this fact gives some indication of the vastness of the field covered by the history of the alphabet.

It is no longer possible to regard the Phoenicians, or North Semites, as the inventors of the alphabet. Modern discoveries show that they adapted systems already in use. The discovery of an ancient pre-Hellenic culture has suggested to some that even the

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NORTH SEMITIC										SOUTH SEMITIC 200 B.C.									
		West Semitic						East Semitic											
		Semitic Values		Semitic Values		Semitic Values		Semitic Values		Semitic Values		Semitic Values		Semitic Values		Semitic Values		Semitic Values	
		Byblus 1250 B.C.		Samaritan 750 B.C.		Samaritan Modern		Aramaic 400 B.C.		Hebrew		Syriac 500 A.D.		Final medial Initial		Ethiopic Names		Early 7th Cent. B.C.	
		Semitic Values		Semitic Values		Semitic Values		Semitic Values		Semitic Values		Semitic Values		Semitic Values		Semitic Values		Semitic Values	
		Hebrew Names		Hebrew Names		Hebrew Names		Hebrew Names		Hebrew Names		Hebrew Names		Hebrew Names		Hebrew Names		Hebrew Names	
		Meanings		Meanings		Meanings		Meanings		Meanings		Meanings		Meanings		Meanings		Meanings	
		Aramaic 400 B.C.		Hebrew		Syriac 500 A.D.		Final medial Initial		Ethiopic Names		Early 7th Cent. B.C.		East 500 B.C.		West 500 B.C.		Values	
		Alf		Bêth		Goml		Dant		Hâi		Wâwî		Zai		Häut		Horm	
		Teth		Yod		Kaph		Lamed		Mim		Nun		Samekh		'Ayin		Pe	
		Maath		Qoph		Resh		Shin		Taw		Ba		'a		la		t	
		One of Six repetitions from Sinai																	
		</																	

Greek alphabet may not owe much to the Phoenicians. Sir Arthur Evans, as a result of the Minoan discoveries, holds that the Phoenician alphabet itself is one of the fruits of Mycenaean culture; that the Cretan and Aegean forms are the more original, and were borrowed by the Phoenicians; and that the so-called Semitic names are partly Aegean names and partly translations of the latter.

The Phoenician alphabet can hardly have come into use on Syrian soil earlier than about 1000 B.C., for the available evidence goes to show that the Babylonian cuneiform script was officially employed throughout Syria for some time after 1400 B.C. Since records in cuneiform, Egyptian hieroglyphics, and possibly in Cretan script date back thousands of years before 1000 B.C., it must have been derived from or modelled upon one of the scripts of the older Mediterranean or Mesopotamian civilizations. Lenormant suggested that the Phoenician alphabet was directly borrowed from the Egyptian hieroglyphs, and Alan Gardiner strongly supports this view of its source.

The Greek alphabet was derived from the Phoenician, but from a form of it which is earlier than that of the most ancient gems and the Moabite Stone. The Latin alphabet is derived from the form of the Greek used at Chalcis in Euboea, an island of the Aegean. It was taken to southern Italy by Greek colonists about the 8th century B.C. The Irish script, usually called the Irish uncial or semi-uncial, seems to have been introduced by S. Patrick from the south of France some time in the 5th century. It was evolved from the local 5th century cursive, whereas the Roman uncial was derived in the main from the capitals.

THE ENGLISH ALPHABET. The English alphabet is a member of the Latin family of alphabets, and English printed letters are still called Roman type. They resemble the Latin forms used by the Italian printers of the 15th century, which in their turn were imitations of the forms used in the minuscule MSS. of the 10th and 11th centuries. These minuscule letters were so called from their small size. They are cursive forms of the larger and earlier uncial letters, which again were derived from the Roman letters of the Augustan age. These Roman letters correspond loosely to the capitals now used by printers.

Naturally the Latin letters had to be adapted to some extent to suit English sounds. The Latin I was converted into I and J, the Latin VV or UV into U=W. In Phoenician and Hebrew Y is the tenth letter and Z the seventh. The position of Y and Z at the end of the English alphabet seems to be due to the fact that they were a late introduction into the Latin alphabet from the Greek, and were used only in Greek loan-words. It has been pointed out that Q and X were not of much service to the Romans, and are of small service in English. Almost equally useless is the letter C in the English alphabet as an addition to K. See Armenia.

ALPHEGE or **ALPHAGE** (954-1012). English saint and martyr. After having been a monk at Deerhurst and at Bath, he was made bishop of Winchester in 984 and archbishop of Canterbury in 1006. Captured by the Danes at Canterbury in 1011, he was martyred April 19, 1012, and was buried in S. Paul's Cathedral. His body was removed in 1023 to Canterbury. He is commemorated in the dedication of several churches in England; that in London Wall, rebuilt in 1777, was partly demolished in 1919.

ALPHEUS. Chief river of Peloponnesus, Greece. Its modern name is Ruphia, and it flows from Arcadia into the Ionian Sea. Alpheus is also the name of a river god who

surprised the nymph Arethusa when she was bathing. See Arethusa.

ALPHONSO. The name of several Spanish and Portuguese kings, also called Alfonso. Alphonso the Great, the last king of the Asturias, abdicated after a long reign just before his death about 914. Alphonso (d. 1109), king of Leon and Castile, called the Brave, and Alphonso (d. 1134), king of Aragon and Navarre, called the Fighter, both won fame by warring against the Moors. A later Alphonso (1385-1488) was king of Aragon and Sicily. Alphonso X (1221-84), king of Castile and Leon, was called the Wise. He encouraged the work of historians and lawyers, and was responsible for the tables of planetary motions, called after him the Alfonsine Tables.

The first Alphonso of all Spain was Alphonso XII. A son of Isabella II, he became king in 1874, four years after his mother's abdication. His time was mainly occupied in fighting the Carlists, and he died Nov. 25, 1885. Alphonso XIII was his posthumous son by his second wife, Maria Christina, an Austrian archduchess, who died in 1929.

ALPHONSO XIII (b. 1886). King of Spain. The son of Alphonso XII, Alphonso

was born after his father's death, and was consequently a king from the day of his birth, May 17, 1886. Until 1906, when he was declared of age, his mother acted as regent. In 1906 he was married to Victoria Eugénie (Ena) daughter of Princess Henry of Battenberg and cousin of George V. Their family consists of four sons and two daughters, the heir being Alphonso, prince of Asturias (b. 1907).



Alphonso XIII, King of Spain

ALPINE CLUB. British club founded in London in 1857. Its membership is confined to those who are interested in mountaineering, especially in connexion with the Alps. It has issued since 1864 *The Alpine Journal*, and its headquarters are at 23, Savile Row, London, W.1. There are many other Alpine clubs in Europe and several in other parts of the world, especially in the U.S.A., Canada, and South Africa. See Mountaineering.

ALPINI. Italian soldiers recruited mainly in the Alps and trained for special work. They are selected men formed into special regiments, with transport suitable for fighting in mountainous districts. In the Great War the Alpini were described in Italy as "the cream of the army," and one of their exploits was the capture of the Adamello Glacier in April, 1916.

ALPNACH or **ALPNACHT.** Village of Switzerland, in the canton of Unterwalden. It stands on the slopes of Mt. Pilatus, 8 m. S.S.W. of Lucerne, and is a starting point for the ascent. It has a station on the Lucerne-Brünig-Brienzen rly.

ALPS. Term used to denote the ranges and groups of lofty mountains in the S. of central Europe, bounded, roughly speaking, on the S. by the Italian plains, on the W. by the Rhône valley, stretching E. almost to the plains of Hungary, and on the N. descending to the less elevated but still hilly country of N. Switzerland, Bavaria, and Upper Austria.

They are usually treated as divided into three main sections, the W., Central, and E. Alps. The W. Alps include the Maritime, Cottian, Dauphiné, and Graian Alps; the Central Alps include the Bernese Oberland on the N. and the Pennine Alps on the S. of the upper Rhône valley, the Lepontine, and Adula Alps, Tödi range, N.E. Swiss and the Bernina Alps, and Rhaetian Alps; the E. Alps extend through E. Tirol and Styria and the N. of Venetia and end in the Carinthian, Carnic and Julian Alps.

The region of these Alps is from about 5,000 ft. to 7,000 ft. or more above the sea level; the high mountain peaks rise above them to a height of from 10,000 ft. to 15,000 ft. The few over 14,000 ft. occur only in the group of Mont Blanc, of the central Pennines in the Zermatt region, and one, the Finsteraarhorn, in the Bernese Oberland. The highest peaks of the Alps, further E., viz. the Ortler Spitze, the Gross Glockner, the Gross Venediger, and the Wildspitze, range between 11,000 ft. and 13,000 ft. While only two summits in the whole region are over 15,000 ft. high, there are dozens over 12,000 ft., from Monte Viso in the far W., on the border of Dauphiné and Piedmont, to the Gross Glockner in the E., and many scores over 10,000 ft., in both the main chain and outlying groups.

A marked feature of the Alpine region is its greater steepness on the S. side; the plain of Lombardy is only a few feet above the sea, whereas the Lake of Constance, which is much farther from the great central ranges, is 1,300 ft. above the sea level. The rivers on the S. side descend with fairly straight course to the Po, while on the N. side the Rhine flows in its rapid upper course N.E. by E. and then N., and, after passing through the great lake, nearly due W., until it turns again N. at Basel.

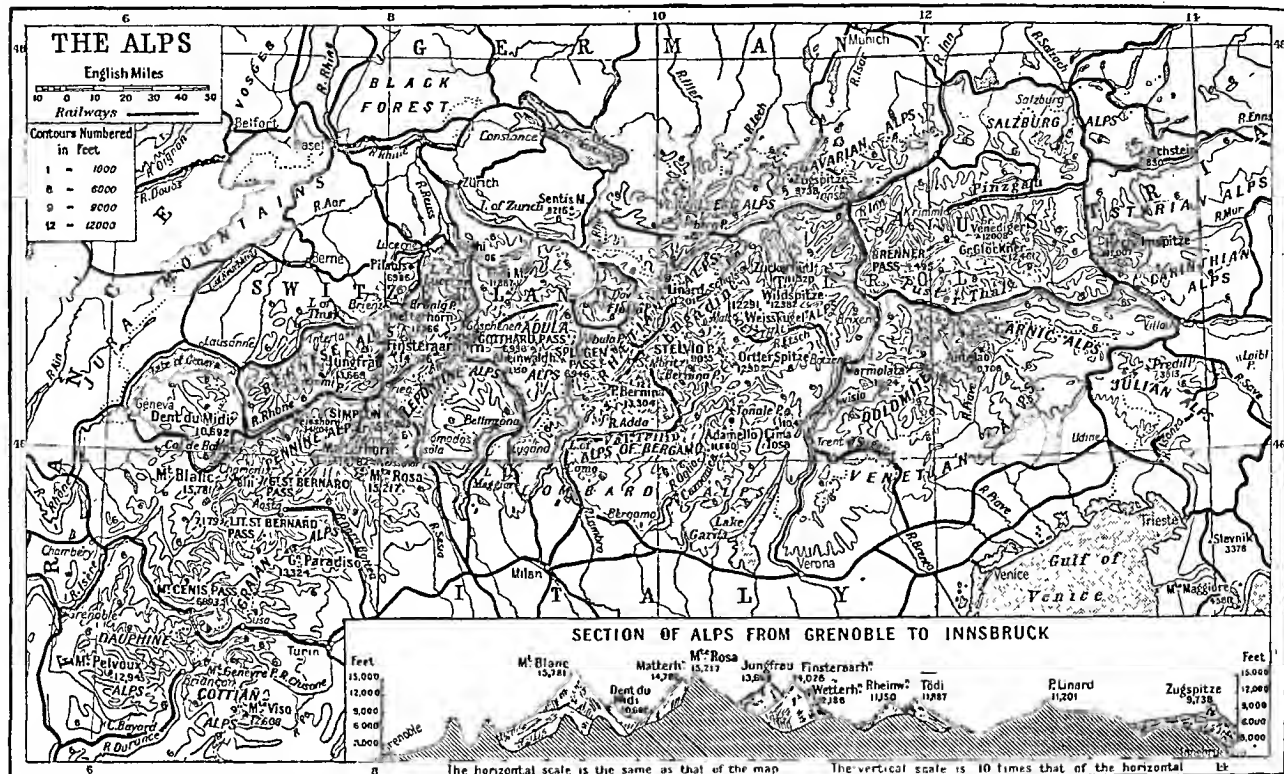
On the south side of the Alps the great lakes which fill the deepest depressions in the folds of the mountains, Maggiore, Como and Garda, lie at right angles to the main chain; whereas the general direction of those on the north side, Lucerne, Zurich and Constance, is parallel to it. No water from the Alps goes to the Baltic; the greater part of it is carried away by the Danube.

Historically the Alps have formed a barrier between N. Europe and Italy, impassable except by certain well-known routes, and then as a rule only in summer. The lowest important pass across the main chain is the Brenner (4,500 ft.), dividing the mountains of E. and W. Tirol. It was known to the Romans and used by the barbarian invaders. By this pass the first railway route from Germany to Italy crossed the Alps. It was opened in 1867, and the main ranges have since been pierced by railways near Mont Cenis in the W. in 1871, in the centre by the St. Gotthard tunnel in 1882, and between the Rhône Valley and Lake Maggiore by the Simplon in 1906.

Alpine climbing, as a sport exercising body and mind, may be taken to date from the middle of the 19th century. Prior to that time some of the higher Alps had been ascended, notably Mont Blanc, the summit of which was first reached by two guides from Chamonix in 1786, at the instance of De Saussure, and by De Saussure himself the following year. Other peaks were conquered, especially in the Oberland, early in the 19th century.

In 1854 came the ascent of the Wetterhorn by Alfred Wills, in 1855 of Monte Rosa by G. and C. Smyth and others of an English party; in 1861 of the Weisshorn by Tyndall, and in 1865 of the Matterhorn by Edward Whymper with a party of eight, four of whom lost their lives in a terrible accident when descending. Since that time almost every peak in the whole Alpine region has been repeatedly ascended.

No corner of this great mountain region now remains unexplored. Each of the greater peaks is the subject of a regular tariff of fees



Alps. Although Switzerland is generally regarded as the Alpine country of Europe, the mountainous system to which is given the comprehensive title of the Alps extends west into France, east into Bavaria and Austria, and south into Italy. The highest peak, Mont Blanc, is in French territory.

for guides, who often take even inexperienced tourists to places once deemed inaccessible. Consult *The Alps*, A. H. M. Lunn, 1914; *The Alps from End to End*, Sir M. Conway, 1917.

ALSACE (Ger. *Elsass*) District between the Rhine and the Vosges Mts., with Lorraine to the N. and Switzerland to the S. It covers about 3,200 sq. m., has a population of 1,216,625, and its capital is Strasbourg, other important towns being Colmar and Mulhouse. Its chief river is the Ill and geographically it is divided into two parts, a mountainous region in the W. and a plain in the E. Well-timbered and fertile, its people are largely engaged in agriculture. Wine is produced, and the manufactures include leather, glass, chemicals, and cotton and woollen goods.

For nearly 500 years Alsace was part of the Roman empire. Later it became part of the kingdom of the Franks; in 870, by virtue of a treaty, it became German, and for some time was part of the German duchy of Swabia. It remained German until after the Thirty Years' War, when, in 1684, it became part of France, and so remained until 1871.

CAMPAIGNS IN ALSACE. In 1914 there was fighting between the French and Germans in Alsace. Early in August the French entered Mulhouse and other places, but a German force, after a fight at Cernay, drove them out of the land. A second invasion ended in the same way. A German defeat at Dornach was followed by French reverses at Morhange and Sarrebourg, after which the French fell back to the line of Vosges, but retained the small town of Thann. In December they again moved forward and there was fighting near Thann. A little later an attack was made on Altkirch, but no decided result was reached and the course of the war elsewhere put an end to serious operations in Alsace.

ALSACE-LORRAINE. District consisting of most of Alsace and a considerable portion of Lorraine, taken by Germany from France in 1871 and restored to France in 1919. Its area is 5,605 sq. m., and under the Germans

it was divided into three districts—Upper Alsace, Lower Alsace, and Lorraine. It now forms the French departments of Haut-Rhin, Bas-Rhin and Moselle. Pop. 1,795,000.

By the Germans this district was made a Reichsland, or imperial land, and as such was governed by officials appointed by the emperor. This arrangement lasted for three years, when a new system was set up. By this a statthalter or governor was appointed by the emperor; to assist him were



four ministers and a council of state. In addition, the people were allowed to choose 30 representatives, who formed a local parliament; their powers, however, were very slight. In 1877 this parliament was given more power, and in 1879 there was a larger change in the constitution. By this the Reichsland was allowed to send fifteen members to the Reichstag at Berlin, elected in the usual way. It had also two in the Bundesrat, nominated by the emperor.

The next constitutional change took place in 1911. The district was allowed another, a third, representative in the Bundesrat, and its local legislature was quite altered. It was

made a parliament of two houses. The lower house consisted of 60 members elected by the people for five years. The head of the organization was still the statthalter. This constitution remained in being until France took over the district. The Germans made great efforts, some of them of an arbitrary nature, to make this district a German land. After a time this repressive policy was partially abandoned, but they had succeeded in their main aim as, in 1910, 1,643,260 of the inhabitants, i.e. nearly 90 p.c., spoke German, and only 204,262 spoke French. See map p. 65; Consult *Alsace-Lorraine*, A. W. Holland, 1915; *Alsace-Lorraine*, G. W. Edwards, 1919.

ALSATIA. Name given to a sanctuary, or refuge for malefactors, in the Whitefriars district of London, between Fleet Street and the Thames. Alsace, or Alsatia, was debatable land between France and Germany, hence the application of the term. The sanctuary had a rude but flourishing existence during the 17th century, and was suppressed in 1697.

ALSEN. Island of Denmark, in the Little Belt. Separated from the mainland by Alsen Sound, which narrows down from 2½ m. to 300 yds., its area is 124 sq. m. Deeply indented on the W., it is picturesque and fertile and has fine orchards. Sonderburg, its chief town, has a good harbour. A railway line runs from the capital to Norburg. As part of Slesvig, Alsen was German from 1864 to 1920, when it was returned to Denmark. Pop. 26,600.

ALSTER. River of Slesvig-Holstein. A tributary of the Elbe, which it joins at Hamburg, it is 32 m. long, and navigable. At Hamburg it forms a large lake, the Outer Alster, about 430 acres in area, and a smaller lake, the Inner Alster.

ALTAI MOUNTAINS. Great system of mts. in W. Siberia and Mongolia. The Mongolian name is Altai-nula, meaning golden mountains. They hem in the Central Asian plateau on the S. and S.W., and comprise the Russian Altai, extending N. from the river



Alsace-Lorraine. Typical wearers of national costume

Irtysk to the Siberian Rly., and the Mongolian or Great Altai, running E. into the desert of Gobi. The Russian Altai contain the highest summit, Mt. Bieluka, estimated at 14,800 ft. The scenery for the most part is romantic. The region is rich in minerals, including coal, iron, gold, silver, lead, zinc, and copper, and porphyry, aquamarine, and jasper are found. Agriculture is pursued in the valleys.

The branch of the human race which developed in Central Asia is called altaic. It includes the Mongol, Tungus, and Turkish stocks.

ALTAMIRA. Palaeolithic cave, 308 yds. long, in Santander province, Spain. Herein, in 1879, mural paintings and engravings of the Magdalenian period were discovered. They include polychrome roof frescoes of animal subjects, mostly hisons—a masterpiece of prehistoric art. See Art.

ALTAR (Lat. altare, high place). Originally a structure on which victims were sacrificed or offerings of various kinds made to a divinity; in Christian churches, a table or stone on which the Holy Eucharist is offered. In prehistoric times altars were mounds, the high places of the Bible (2 Kings 23), or structures there set up, on which sacrifices or oblations were offered, and where the gods worshipped were supposed to dwell.

Among the Greeks and Romans altars were originally heaps of earth or turf: later, as

were Oriental and Hebrew altars, they were round, oblong, or square structures of stone. Altars, which from early times were places of sanctuary (Ex. 21; 1 Kings 1 and 2), were also set up in the streets to the special divinity of the neighbourhood, in camps, and in private houses for the household gods.

Early Christians used tombs of martyrs in the catacombs as altars—hence stone or marble altars in Roman Catholic churches enclose relics of saints; then portable wooden tables came into use.

The first English Prayer Book employs the word altar and God's Board: in the second Prayer Book, the words Table, Holy Table, or Lord's Table were substituted, though altar was retained in the coronation service Ecclesiastical courts have ruled that in the English Church altars must be of wood and movable.

An altar-piece is a painting, sculpture, or other work of art placed behind or over the altar in many Christian churches. See Reredos.

ALTAZIMUTH (Lat. altus, high; Arab. as-samut, ways or paths). Instrument used in astronomy to deter-

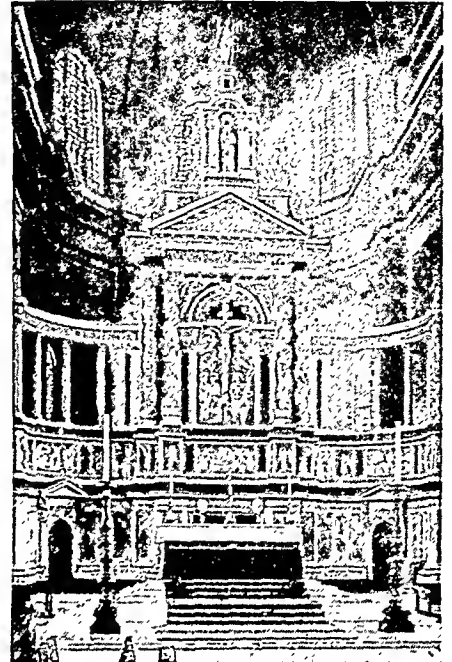
mine the exact apparent position of a star in the heavens at any instant. The star is observed through a telescope, which is in contact with a graduated vertical circle, the telescope being free to turn about a horizontal axis through the centre of the circle and perpendicular to its plane.

The whole apparatus is so mounted that it can be rotated about a vertical axis, and the angle of rotation is shown by means of a graduated horizontal circle. A large altazimuth is in Greenwich Observatory. See Telescope.

ALTDORF or **ALTORF**. Capital of Uri canton, Switzerland. A station on the S. Gotthard rly. it is the legendary scene of William Tell's shooting the apple from his son's head, a tradition commemorated by a bronze statue erected in 1895. In the immediate neighbourhood is Bürglen, the traditional birthplace of Tell. Pop. 3,837.

ALTDORFER, **ALBRECHT** (c 1480-1538). German painter and engraver. After spending his early years at Amberg he returned in 1505 to his birthplace, Ratishon (Regensburg), where he was engaged upon a picture for the church of S. Peter. He designed the city ramparts against a Turkish invasion. Of his paintings, the

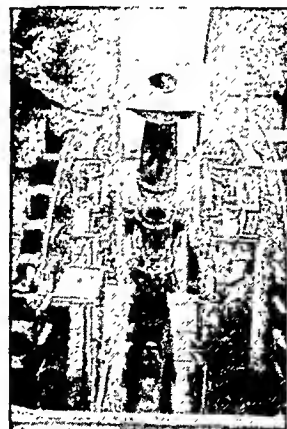
Battle of Arbela and S. George and the Dragon (Munich) and a Nativity (Bremen) are notable. His talent as an engraver on



Altar of S. Paul's Cathedral, London, showing the white marble reredos completed in 1888

both copper and wood gives him a place with the Little Masters. Consult Altdorfer, T. S. Moore, 1900.

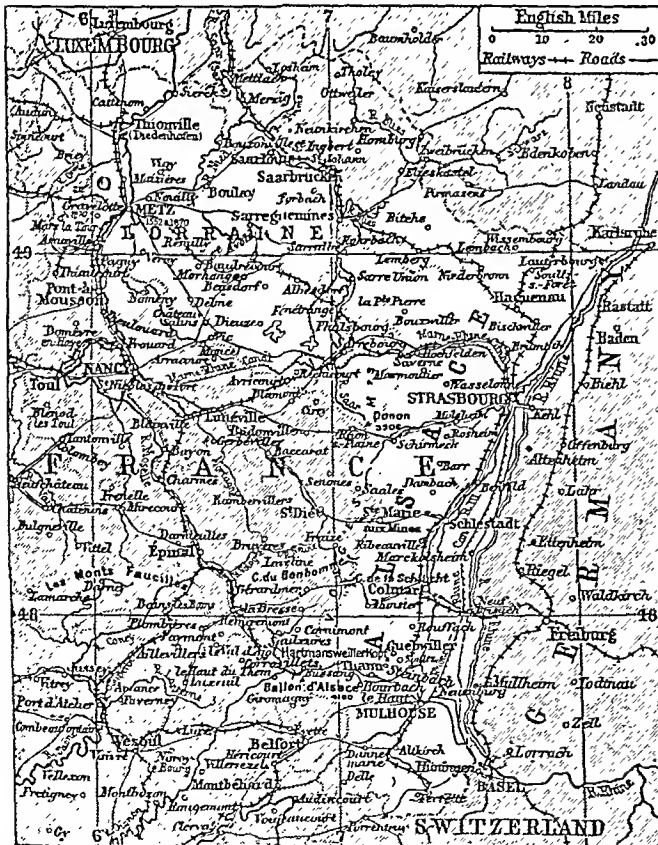
ALTENBURG. Town of Thuringia, Germany, formerly the capital of the little duchy of Saxe-Altenburg.



Altazimnith. Astronomer taking a reading of the heavens with one of these wonderful instruments wood, etc., and some manufacturing industries, such as bricks, woollens, etc. Pop. 41,315.

ALTERNATOR. Type of dynamo which generates alternating electric current. Alternators differ from ordinary dynamos in that no commutator or rectifying arrangement is employed, and two simple collecting rings make connexion with the external circuit. They are generally multi-polar machines, the field magnets being excited by continuous current. By arranging the rings of the electromagnets and armature coils in different ways a single two-phase, or poly-phase, current may be produced. There are several different types of alternator. See Dynamo.

ALTHING. Name of the parliament of Iceland. Meaning assembly of the elders, it dates from the 10th century, but its present form only from 1874, when the king of



Alsace-Lorraine. The two countries which were taken by Germany from France as a result of the war of 1870-71, and restored to France by the treaty of peace following the Great War of 1914-18. See page 64

Denmark gave a constitution to Iceland. It consists of 42 members, elected by all men and women over 25 years old. These sit in two houses, 14 in one and 28 in the other.

ALTHORN. A brass musical instrument of tenor pitch, the E flat or F saxhorn. The name is also sometimes applied to the baritone saxhorn in B flat.

ALTHORP. Seat of Earl Spencer. It is 5 m. N.W. of Northampton and 1 m. from the station of Althorp Park on the L.M.S. Rly. The estate has belonged to the Spencers since the time of Henry VII. The mansion dates from the Tudor period, but has been largely altered, in part by the 1st countess of Sunderland, Waller's Saccharissa. The house contains some fine pictures. Earl Spencer's eldest son is called Viscount Althorp.

The Althorp library, a collection of more than 40,000 volumes, is now in the John Rylands Library at Manchester. It was begun by Charles Spencer, 3rd earl of Sunderland, and added to by John, 1st Earl Spencer, who bought the library of Dr. George, headmaster of Eton; but it owed most to the bookish tastes of the 2nd Earl Spencer. It was sold in 1892 for £250,000 by the 5th Earl Spencer to Mrs. Rylands, and formed the nucleus of the library she endowed in Manchester as a memorial to her husband.

ALTISCOPE (Lat. altus, high; Gr. skopein, to look at). Instrument for enabling an observer to sight a distant object which is obscured by an obstacle in the normal line of vision. It comprises a combination of lenses and reflecting mirrors, or of reflecting mirrors only, housed in a telescopic tube. The view is received upon an upper mirror placed at an angle of 45°, and is reflected down the tube to a lower mirror, also at 45°, where the image can be seen by the observer, either directly or through an eyepiece. Magnification of the image may be produced by lenses between the mirrors. See Periscope.

ALTITUDE. In astronomy, the angular height in degrees of a star above the astronomical horizon.

An altitude meter is an instrument on the principle of the aneroid barometer, for indicating the height of an aerial vessel above sea level. The reading of the instrument is only approximately accurate.

ALTMUHL (Ger., old mill). River of Bavaria. Rising 7 m. N. of Rothenburg, after a course of about 105 m. it joins the Danube at Kelheim. With the Regnitz and the Ludwigskanal it is part of the waterways linking the Rhine and Danube.

ALTON. An urban district and market town of Hampshire, England. On the Southern Rly., 46 m. S.W. from London, it is the centre of a hop-growing and agricultural district and is celebrated for its ale. The Perpendicular church of S. Lawrence was restored in 1867. The assembly hall was presented to the town in March, 1919. A local institution is the Lord Mayor Treloar Cripples Hospital. Market day, Tues. Pop. 5,580.

ALTONA. City and seaport of Germany. It is on the right bank of the Elbe, adjacent to Hamburg, the two being united for several purposes. The buildings, which include churches, schools, museums, libraries, theatres, etc., are mainly new. The industries include fishing, shipbuilding, flour milling and brewing, the manufacture of cigars, carpets and margarine and the preserving of fish. There are ample docks for the shipping. In 1890 Altona, which had long been an important fishing centre, was enlarged to take in neighbouring places. Pop. 186,000.

ALTON TOWERS. Seat of the earls of Shrewsbury. It is at Alton, Staffordshire, England, about 4 m. E.S.E. of Cheadle on the L.M.S. Rly. The Norman castle here was destroyed during the Civil War, but some ruins remain. Built early in the 19th century, the interior contains an armoury, picture gallery, and other fine rooms. The chief attraction, however, is the gardens, which were laid out by "Capability" Brown. Terrace below terrace, they stretch to the river Churnet and abound in temples, grottoes, fountains, falls, statues, and greenhouses.

ALTOONA. City of Blair co., Pennsylvania, U.S.A. It lies at the base of the Allegheny Mountains, 115 m. E. of Pittsburg, on the Pennsylvania Railroad, and here are works belonging to the Pennsylvania Railroad Co. Pop. 60,330.

Another Altoona, sometimes called Allatoona, is a pass in Georgia, where on Oct. 5, 1864, a battle of the Civil War was fought.

ALTO RELIEVO (Ital. alto-rilievo, high relief). In art, a term signifying high relief as distinguished from low and middle, according to the degree of elevation from the flat. The term is mainly used of sculpture and carving, but may be applied to other branches of art. In high relief the figures or other parts of the design stand out conspicuously. See Sculpture.

ALTRANSTADT. Village of Saxony. It stands between Merseburg and Leipzig. Here, on Sept. 24, 1706, peace was made between the victorious Charles XII of Sweden and Augustus II of Saxony and Poland.

ALTRINCHAM. Urban district and market town of Cheshire, England. Situate on the Bridgewater Canal, it is 8 m. S.W. of Manchester by the Cheshire Lines Rly. Its market gardens supply Manchester with vegetables, fruit, and flowers. The aerodrome in Woodlands Park is licensed by the Air Ministry. Altrincham gives its name to a county division returning one member to Parliament. Market day, Tues. Pop. 20,461.

ALTRUISM (Lat. alter, another). All action which in the normal course of things benefits others instead of benefiting self. It is the opposite of egoism. The term originated with Auguste Comte, who considered altruism to be the indispensable condition of all culture and morality. See Egoism.



Aludel. Series of three of these earthenware vessels used by old-time alchemists

ALUDEL (Arab. utensil). Vessel of earthenware or glass formerly used for condensation. Externally its shape is similar to that of an Indian club. Its purpose is to condense, on the inside, metallic fumes produced in the process of distilling the more volatile metals out of their ores. It is used in series, as shown above, between 500 and 600 vessels being connected with one furnace. See Mercury.

ALUM (Lat. alumen). White transparent mineral salt consisting of the double sulphate of aluminium and potassium with water of crystallisation. This is the typical alum, but the term is extended to a series of double sulphates of the same general formula. There are, for instance, alums similar to potash alum, except that the potassium is replaced by ammonia, soda, or silver, these being known as ammonium alum, etc. On the other hand, a series of double sulphates, also known as alums, exists,

which contains no aluminium. Examples of these are iron alum, manganese alum, and chrome alum.

The raw materials from which alum is made are alunite (also called alum stone), alum shale, alum schist, bauxite and cryolite. At one time potash alum was the only kind produced, but in 1845 Spence introduced the manufacture of ammonium alum from the refuse shale underlying the coal seams of South Lancashire. Alum is also made in Great Britain from aluminium sulphate derived from bauxite or china clay. When potash alum is strongly heated the water of crystallisation is thrown off, and the product swells up and produces burnt alum.

Ordinary alum is much used for its astringent or drying properties. The largest industrial use of alum is in dyeing, in which process it acts as a mordant or fixer of the colours to the fabric. A great variety of solid colours known as lake pigments is made, in which alum is required as the base.

In paper making, alum in the form of alum-cake fills up the pores of paper and renders it less absorbent. It is also used in making shower-proof garments: in photography, where it hardens the gelatin base of plates and papers; as a fireproof filling for safes, for fireproofing fabrics and wood, for hardening plaster of Paris, in tawing leather, for sewage purification, and for softening water. In medicine, alum is used as a mild caustic and astringent.

Certain sedimentary rocks rich in alumina and highly charged with iron pyrites are known as alum shales. In Britain they occur in the carboniferous rocks of Scotland and in the Jurassic rocks of Yorkshire and Dorset.

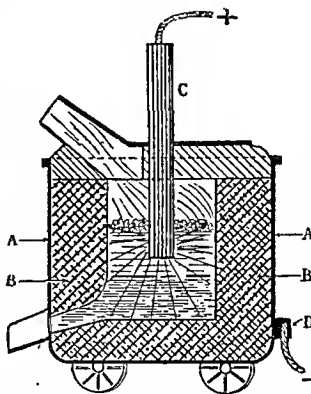
ALUMINA. An earthy mineral, chemically an oxide of aluminium (sesquioxide), its formula being Al_2O_3 . It constitutes a large proportion of slate and of all slaty rocks and shales. It occurs in a pure state in the crust of the earth in the forms of the ruby, sapphire, Oriental topaz, amethyst and other gems, and as corundum and emery.

Alumina, when it is thrown down from a solution containing colouring matter, takes the colour with it and will deposit it on a suitably prepared surface, where it may be fixed by proper treatment. In this manner also the earths and paints which are known as lakes are formed.

ALUMINIUM (Lat. alumen, alum). Metallic element, symbol Al, atomic weight 27.4. It is the base of the mineral alumina. Unlike most other metals, it is never found native, though plentiful and widely distributed. Clays, slates, shales, schists and the granite rocks are largely composed of aluminium. It was unknown to the ancients.

Davy obtained an alloy of aluminium and iron, naming the new metal of his alloy aluminium, and later aluminium. The metal was isolated in 1827.

Aluminium is white, with a peculiar bluish tinge, hard but malleable and ductile, and has a very low specific gravity, 2.56 cast and 2.67 hammered. Its light weight is its most conspicuous physical property. It resists corrosion in ordinary conditions. Its melting point is $658.7^\circ C$ ($1217.7^\circ F$), thus falling between those of zinc and silver. In tensile strength aluminium comes after steel, wrought iron, and copper. It readily combines with most metals, lead being the chief exception.



Aluminium. Diagram of the Héroult cell, a typical electric furnace. See text

The chief uses of aluminium comprise the manufacture of military accoutrements, the preparation of various alloys, the making of parts of petrol motors, and the manufacture of household utensils.

Aluminium is generally prepared by subjecting bauxite to the action of the electric furnace (see illus. p. 66). A is an iron casing packed with carbon, B. The current enters at the anode, C, composed of carbon electrodes, and leaves by the kathode, D. In 1928 the world production of the metal was 246,000 tons. Of this quantity the U.S.A. produced about one-third.

ALUMINIUM BRONZE. Alloy of copper and aluminium, the copper always largely predominating. It is largely used for bolts and other parts of machinery where great strength is required, or which have to be exposed to salt or brackish water. It can be forged and worked in the same way as copper. Another use is for the manufacture of cheap jewellery (See Alloy; Duralumin)

ALUMINIUM SALTS. Three hydrated oxides are known, the native forms diaspor and bauxite being the source whence other salts of aluminium are prepared. Alumina forms with sodium and potassium hydroxide the salts known as aluminates.

Aluminium chloride, $AlCl_3$, is largely employed in preparing organic compounds and as a disinfectant. Aluminium bromide and iodide also find uses in organic chemistry. Aluminium sulphate occurs native and is also made from bauxite and china clay.

ALUM ROOT (*Heuchera americana*). Perennial N. American herb of the order Saxifragaceae. It has clammy, hairy stems, long-stalked, roundish leaves, and reddish flowers. The root is very astringent. The name is given also to the spotted crane's-bill, another herb with astringent roots.

ALUTA, ALT or OLTU. Tributary of the Danube Rising in Transylvania, on the N.W. slope of the Carpathians, it flows through the Roter Turm pass into Rumania, goes through Walechia, and finally enters the Danube opposite Nikopolis. Its length is about 315 m., and it is too rapid for navigation.

ALVA. Burgh of Clackmannanshire, Scotland. It stands under the Ochil Hills, 7 m. E.N.E. of Stirling by the L.N.E. Rly., and has woollen factories, and specialises in tartans, shawls, and tweeds. Cochrane Park was given to the burgh in 1923. Here is Alva Glen, noted for its waterfall. Pop. 4,107.

ALVA, FERNANDO ALVAREZ DE TOLEDO, DUKE OF (1508-83). Spanish soldier. He became a



Duke of Alva. Governor of the Netherlands under Philip II of Spain After the painting by Antonio Moro

soldier when very young, later he was made commander-in-chief in Italy. In 1567 Philip II of Spain appointed him to the governorship of the Netherlands. There for six years he carried out his master's policy of crushing all tendencies towards religious or political liberty. The country's commerce was partly ruined by taxation and the risings ruthlessly put down by the Spanish soldiery. His end, however, was not achieved, and in the regular warfare that broke out the rebels

were sometimes more than a match for their foes. In 1573 Alva left the country and, after leading an expedition into Portugal in 1580, he died Jan. 12, 1583. Consult Rise of the Dutch Republic, J. L. Motley, 1903-04.

ALVARADO, PEDRO DE (c. 1495-1541). Spanish soldier and adventurer. Born at Badajoz, in early life he went to America, and in 1519 was one of the leaders in the expedition under Hernando Cortes for the conquest of Mexico. He was governor after the conquest, and later became governor of Guatemala. See Mexico.

ALVERSTONE, RICHARD EVERARD WEBSTER, VISCOUNT (1842-1915). British lawyer. A son of Thomas Webster, Q.C., he was born



Viscount Alverstone. British lawyer Elliott & Fry

Dec. 22, 1842, and educated at Charterhouse and Trinity College, Cambridge. In 1868 he became a barrister, and in 1885 he entered the House of Commons as M.P. for Launceston as a Conservative and soon came to the front. He was attorney-general in 1885, from 1886-92 and from 1895-1900, during which years he represented the Isle of Wight.

In 1906 he was made Master of the Rolls, but in that year was transferred to the Lord Chief Justiceship, which he retained until 1913. He died Dec. 15, 1915, and his only son having predeceased him, his barony, dating from 1900, and viscounty, dating from 1913, became extinct.

ALWAR. Native state in Rajputana, India, also called Ulwar. It was founded by Pratap Singh (1740-91) from estates in Jaipur territory, and attained its present dimensions of 3,221 sq. m. under his successor, who supported the British in the Marhatta War in 1803. The ruler is a maharajah and the people mainly Hindus. Pop. 701,000.

The city of Alwar, the capital, is 98 m. from Delhi. It is surrounded by walls in which are five gateways and commanded by a fort on a rock 900 feet high. Here are the palace, armoury, jewel house of the maharajah, and several mosques. Pop. 44,700.

ALYTH. Burgh of Perthshire, Scotland. It is 23 m. N.W. of Dundee on the L.M.S. Rly. and has some manufactures, including woollens and jute. In the neighbourhood are the remains of a British camp. Pop. 1,710

AMADAVAT (*Estrela amandava*). Small singing bird of the family Ploceidae. It is a native of E. Asia, and is sometimes called amadavat. In the mature male the head and under parts are bright crimson dotted with white. The feathers of the back are dark grey margined with red and tipped with white. The female is grey, dotted with white; pale sulphur-coloured beneath. It is a cage bird.

AMADE, ALBERT GERARD LEO D' (b. 1856). French soldier. The son of Adolphe d'Amade, military intendant, he was born at Toulouse, Dec. 24, 1856, and entered the army as a lieutenant of Algerian infantry Oct. 1, 1876. Advanced to the rank of general in 1907, he commanded the French forces in Morocco, 1907-9. On the outbreak of the Great War he was in charge of the mobilisation of the Army of the Alps. Later in the same year he commanded a group of territorial divisions, and in April-May, 1915, he led the French troops which landed in Gallipoli.



A. G. L. d'Amade, French soldier H. Walter Barnett

AMADEUS. Salt lake in the S.W. of Northern Territory, Australia. Except on rare occasions there is only a thin crust, about half an inch, of salt in the lake bed, which is about 200 m. long and of varying width. It was discovered in 1872 by Ernest Giles.

AMAGER. Island of Denmark. It is separated from Copenhagen on the southern end of Zealand by the Sound. Christianshavn, a suburb of the capital, is in the N. Amager is 9 m. long by 5 m. broad, with an area of about 25 sq. m.

AMALEKITES. Powerful and warlike nomad tribe who contested the passage of the desert south of Canaan with the Israelites (Ex. 17; Num. 14). Intermittent warfare went on for many generations between Israelites and Amalekites, until the latter were finally smitten by the Simeonites under Hezekiah (Judg. 6: 1 Sam. 15: 1 Chr. 4).



Amalfi. Beautiful Italian city on the Gulf of Salerno. It lies at the foot of Monte Cerreto

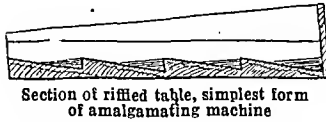
AMALFI. City and seaport of Italy, in Salerno province. Situated on the Gulf of Salerno, 23 m. S.E. of Naples, it is noted for its fine coast scenery and magnificent trees and gardens. Its antiquities include the 11th century cathedral and a 13th century Capuchin convent. In the Middle Ages it was a republic and a great trading centre, this lasting until about 1150. The laws, or tables, of Amalfi were highly regarded by seamen from the 10th to the 16th century. In 1929 the original document containing the Amalfi code in 66 articles, some in Latin and others in Italian, was presented to the Italian Government by Austria. It had been in Vienna. Pop. 6,900.

AMALGAM (Gr. malagma, soft mixture). In metallurgy, a mixture or alloy of mercury with another metal. Examples include gold amalgam, silver amalgam, and copper amalgam. Certain amalgams are important in the arts. One of tin and mercury is used for silvering mirrors. Silver amalgams are used for silvering and gold amalgams for gilding; while other uses are found in connexion with electric batteries, where zinc plates or rods are amalgamated to prevent too rapid waste. Most amalgams are loose combinations; others appear to be true chemical compounds. Two or three native amalgams are known. One of silver occurs in the form of crystals in the quicksilver mines of Bavaria.

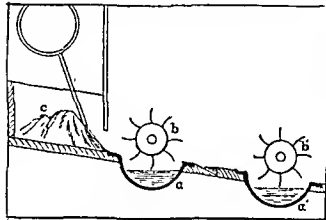
AMALGAMATION. Term used for the process of extracting gold or silver from sands or crushed ore by the aid of an amalgam of mercury. In the recovery of gold the process is used after the rough crushing, mercury being generally put directly into the mortars of the stamp mill, while copper plates which

have been well amalgamated with quicksilver are often inserted in the mortars, so that the precious metal may be seized upon the instant it is released from the ore by the stamp.

Southwark and Gravesend, where also are its paper mills; and its headquarters, The Fleetway House, was erected in 1912. In 1927 Sir W. E. Berry, now Lord Camrose (q.v.), became chairman, and under his direction further progress was made.



Section of riffled table, simplest form of amalgamating machine



Amalgam. Forms of machine used in amalgamation. Left, Attwood machine for recovering gold escaped from battery tables: a, a, troughs containing mercury; b, b', paddle wheels skimming surface of mercury; c, crushed ore; d, water pipe for washing ore down upon mercury. Right, section of Knox amalgamating pan: a, false bottom containing grooves filled with mercury; b', b, iron runners attached through wooden blocks, c, to yoke which rotates them. The pan is partly filled with ore and water, mercury added, and runners set in motion. Steam is introduced, contents of pan heated, and amalgam thus formed is run off.

The crushed ore is washed from the mortars by water and discharged on to inclined tables fitted or formed with riffles, or transverse ridges, and having an upper surface of amalgamated copper plates. As the plates become charged with gold they are changed. Amalgamation is used later in special machines to recover the gold which has escaped the battery tables. The mercury is then removed from the gold or silver by distillation. See Metallurgy; Gold; Silver.

AMALGAMATED PRESS, THE. The origin of what is now the largest publishing enterprise in the world may be ascribed to 1888, when the founder of the firm, Alfred C. Harmsworth (later Viscount Northcliffe), issued the first weekly number of *Answers to Correspondents*, which soon had an immense circulation. Other periodicals and magazines were launched with no less success, and by 1896 the registered capital of Harmsworth

Amalthæa, known as cornu copiae, the horn of plenty, as a symbol of abundance, appears on coins of the Roman emperors.

AMAN-JEAN, EDMOND FRANÇOIS (b. 1860). French painter. Born at Chevry-Cossigny, Seine-et-Marne, he gained the first prize in 1883 at the École des Beaux Arts and a scholarship at Rome in 1885. On his return to Paris he acquired a reputation for portraiture. His genre works are distinguished, and his decorative panels reveal dexterity in colour and drawing.

AMA-NO-HASHIDATE. One of the three celebrated sights of Japan. It is a sandbar, completely covered with pine trees, and is a scenic gem when viewed from the tops of any of the neighbouring hills. The bar separates Iwataki bay from Miyazu bay in the S.W. corner of Wakasa bay, on the Japan Sea. It is about 2 miles in length, and is almost 100 miles due north of Osaka.

AMANULLAH KHAN (b. 1892). Ameer or King of Afghanistan. Third son of Ameer Habibullah Khan, he was born June 1, 1892, and became the legal reigning Ameer on the assassination of his father, Feb. 20, 1919. In 1919, after a short war, he secured from the Indian Government a recognition of his country's independence. In 1928 he and his queen Souriya visited Europe, but his attempts to introduce European customs into Afghanistan caused serious trouble, and in the midst of the fighting in 1929 Amanullah abdicated and went to Italy. See Afghanistan.

AMARA. A town of Mesopotamia. Situated on the Tigris, 130 m. above Basra by the river, it is the largest town between Basra and Bagdad. Pop. 8,000.

At Amara a battle was fought between the British and the Turks, May 31-June 4, 1915. On May 31 General Townshend, with about 14,000 men, attacked the Turks, entrenched on two groups of islands, one 3 m. behind the other, in the Tigris above Kurna. They fled, and on June 4 the British infantry occupied the town, taking 1,800 prisoners and several vessels. See Mesopotamia.

AMARANTH (Greek *amarantos*, unfading flower). Genus of annual herbs found in tropical and warm countries. Individually the flowers are small, but conspicuous by being crowded in long racemes. They have no petals, but the sepals are coloured, and, being of a chaffy consistence, retain their form and colour for a long period, which has made

them popular as garden plants. Love-lies-bleeding and prince's-feather are familiar examples of these plants.

AMARAPURA. Former capital of Burma, called the city of the gods. It is on the E. bank of the Irrawadi, a few miles S.W. of Mandalay. Founded in 1783, of its former prosperity only ruined buildings and a colossal bronze image of Buddha remain. It was the capital from 1783 to 1823 and again from 1837 to 1860. Pop. 8,000.

AMARYLLIS. Name of a shepherdess in the pastoral poems of Theocritus and Virgil. The word is used generally for a rustic sweetheart or village beauty.

AMASA. Son of Ithra and Abigail, sister of David (2 Sam. 17). He commanded Absalom's army and was defeated by Joab (2 Sam. 18). Pardon by David, he became successor to Joab, who slew him treacherously near the great stone of Gibeon (2 Sam. 20).

AMATEUR (Lat. *amator*, lover). One who practises or indulges in a sport, pastime, or profession for pleasure and not for monetary gain or consideration.

In general, in Great Britain the distinction between amateur and professional is sharply drawn. In cricket the practice is to denote amateurs by the prefix Mr. In Rugby football the amateur, after a struggle, succeeded in keeping the game in his own hands, except in the Northern Union, but in the Association game the amateur has almost disappeared from the leading clubs. In athletics, rowing, golf, billiards, boxing, etc., the rule is that amateurs do not compete with professionals.

The Amateur Athletic Association, founded in 1880, is the governing body for all amateur athletic sports in Britain. Its address is 10, John St., London, W.C.2. See Professionalism.

AMATI. Name of an Italian family of violin makers. They lived in Cremona, and the first of them was Andrea (d. c. 1611). His sons, Antonio (1550-1635) and Geronimo (1550-1630), produced some magnificent instruments. Even more successful was Geronimo's son, Nicolo (1596-1684), whose model instrument was known as the grand Amati. His pupils included Stradivarius. The last of the family, Girolamo, son of Nicolo, died in 1740.

AMATITLÁN. Small town of Guatemala, Central America. It stands on Lake Amatitlán, 15 m. by rly. S.W. of Guatemala city, and has hot springs in the vicinity. It was founded by the Jesuits. Pop. 12,000.

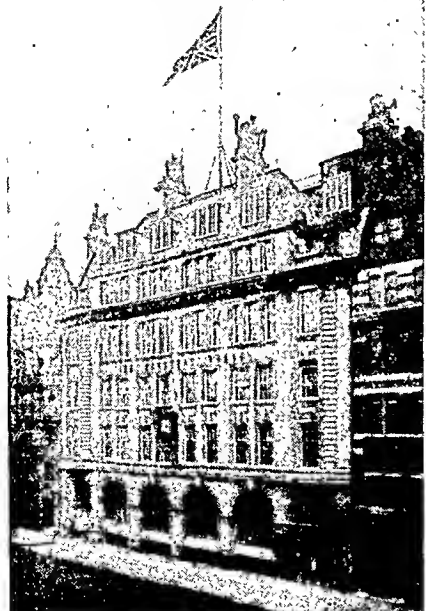
The department of Amatitlán covers 463 sq. m. Lake Amatitlán is 9 m. long and 3 wide, girt by volcanic mountains, and its waters are carried to the Pacific by the Rio Michatoyat, which has a fine waterfall.

AMATOL. High explosive used by the British and American armies during the Great War. Introduced by Britain in 1915, it is a mixture of trinitrotoluene and ammonium nitrate, the proportion of the latter varying from 80 p.c. to 40 p.c., and enabling much larger quantities of explosive to be prepared from the nitrocompound available. See Explosives.

AMAZIAH. Son and successor of Joash, and 8th King of Judah. He defeated the Edomites in the Valley of Salt, but worshipped the gods of the children of Seir and vainly challenged Jehoash, king of Israel, who utterly defeated him at Bethshemesh. He fled to Lachish, where he was assassinated (2 Kings 14; 2 Chr. 25).

AMAZON. River of S. America. It is 3,550 m. long, and is the third in point of length of the world's rivers, coming next to the Mississippi and the Nile, but its valley and watershed cover 2,700,000 sq. m., or more than the Mississippi and Nile basins together.

The sources of the Amazon are the headwaters of the Marañon, which rises above Lake



Amalgamated Press headquarters. The Fleetway House, on the east side of Farringdon Street, London

Bros., Ltd., was £1,000,000. The name Amalgamated Press was adopted in 1902. The company has extensive printing works at

Lauricocha. Other large Peruvian tributaries are the Huallaga and the Ucayali. Ocean steamers ascend the Amazon to the Peruvian town of Iquitos, some 2,500 m. from the Atlantic, and thus navigation is afforded into the heart of S. America from Europe. Small steamers ascend to the foot of the Andes.

The Napo, the Putumayo, and other tributaries come from Ecuador and Colombia. The Negro also comes from the N., and on this tributary, near the confluence, stands Manãos. The Beni and Madre de Dios, from Bolivia and Peru, fall into the great Madeira, which,

tears of pity from her slayer. Antiope, won in battle by Theseus, later fought at his side when he undertook a second expedition against the Amazons to help Heracles (Hercules) to obtain the golden girdle of Queen Hippolyte, her sister.

AMBALA OR UMBALLA. Town of India, in the Delhi division of the Punjab. A railway junction and an important garrison town, it is the centre of a large trade. Pop. 76,300.

AMBASSADOR (late Lat. ambascia, mission, agency). Name given to the representative of one

country in the capital of another. In practice the word is reserved for the representatives sent by one Great Power to another, those sent to less important countries being called ministers, envoys, or chargés d'affaires. Great Britain, for instance, is represented by an ambassador at Washington and Paris, but only by a minister or envoy at Copenhagen and Buenos Aires.

Ambassadors have many social and other privileges. In

order of precedence in Great Britain they come immediately after princes of the blood and before the archbishop of Canterbury. They have direct access to the sovereign in whose land they reside, although in Great Britain and other constitutional countries such interviews are always held in the presence of a responsible minister. Their residences, which are regarded as standing on the soil of their own country, are free from rates and taxes, and ambassadors and their attendants are not amenable to the law of the land in which they live.

The withdrawal of an ambassador is usually a preliminary step to a declaration of war. In a famous phrase Sir Henry Wotton defined an ambassador as "an honest man sent to lie abroad for the good of his country."

The conference of ambassadors was a body that met in Paris after the conclusion of the Peace Conference in 1921 to supervise the execution of the treaties. It consisted of the ambassadors of the principal Allied powers in Paris. Its action was successful in Hungary in 1922 when trouble had arisen owing to the return of the ex-king Charles, and in 1927 it composed an incipient quarrel between Italy and Greece. See Diplomacy.

AMBER (Arabio anbar, ambergis). Fossil resin derived from extinct coniferous trees. It is found principally on the Prussian shores of the Baltic and in pits or mines in Samland, East Prussia. It occurs also in Sicily, Poland, Saxony, Siberia, Greenland, China and Siam, and pieces are found on the east coast of England.

Amber takes a high polish and is used for the manufacture of beads, the mouthpieces of pipes, cigar and cigarette holders, and the handles of umbrellas. The small pieces are made into a varnish. The powder obtained in working amber can be distilled, when it yields oil of amber, employed as an ingredient in a liniment and in the manufacture of a variety of artificial musk. Small pieces of amber, by heat and strong pressure, are compressed into a solid substance known as ambroid, which is employed for ornamental purposes. When amber is rubbed it becomes negatively electrified and emits a pleasant odour, these features serving to distinguish

amber from common copal, which is similar in appearance.

AMBERGRIS (Fr. ambre gris, grey amber). Fatty substance, grey in colour, formed in the intestines of the spermaceti whale. It contains veins resembling marble, and is usually found in warm climates, washed up on the shores or floating on the water. It has a pleasant smell, and is a valuable ingredient in perfumery.

AMBIGUITY (Latin ambiguus, doubtful). Word signifying double meaning, a frequent subject of debate in law. Two kinds of ambiguity, latent and patent, may occur in documents. A latent ambiguity, which arises from the use of words which have two meanings, may always be cleared up by evidence. Where words in a document are ambiguous, they ought to be interpreted against the person who drew the document.

AMBLE. Seaport, market town, and urban district of Northumberland. It is on the Coquet estuary, 1½ m. from Warkworth, and has a station on the L.N.E. Rly. The main industries are fish curing and the manufacture of firebricks. Pop. 4,850.

AMBLESIDE. Urban district and market town of Westmorland, England. It is in the valley of the Rothay, at the foot of Wansfell Pike, 1 m. from the head of Lake Windermere. The church of S. Mary, designed by Sir G. G. Scott, has a memorial window to Wordsworth. On the last Saturday in July a rush-bearing festival is held here. It is an excellent centre for excursions in the Lake District. Market day, Wed. Pop. 2,876. See Rydal Mount.

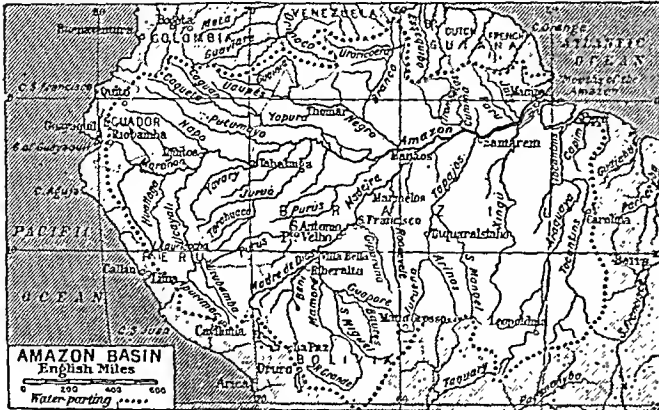
AMBO (Gr. ambon, from anabainco, to ascend). Ros-trum or reading desk with steps used in early Christian churches. It was superseded by the pulpit. Examples, ancient and modern respectively, are in the churches of S. Clement at Rome and S. Thomas, Upper Clapton, London.

AMBOISE. Town of central France, in the department of Indre-et-Loire. It is on the Loire, 15 m. by rly. E. of Tours. The castle was a royal residence, and Charles VIII was born and died here. Its chief features are the Gothic chapel of S. Hubert, where Leonardo da Vinci is said to have been buried, the three massive round towers, and the oubliettes or underground cells. It was used in the 19th century as a state prison, and in 1875 the Comte de Paris began to restore it, but the work is incomplete.

Other notable buildings are the restored hôtel de ville, the churches of S. Denis and S. Florentin, and one of the town's old gates. Amboise is memorable for the Huguenot conspiracy of 1560 against the Guise party and for the edict of 1563, which conceded privileges to the Protestants. Pop. 4,660.

Georges d'Amboise, a French statesman, was made archbishop of Narbonne in 1492 and of Rouen in 1493. He was made chief minister by Louis XII in 1498 and created a cardinal. He died at Lyons, May 25, 1510, and his tomb is in Rouen Cathedral.

AMBOYNA OR AMBOINA (Dutch Ambon). Island of the Moluccas, Dutch E. Indies. Its area is about 360 sq. m. and its population about 45,000. It consists practically of two peninsulas, Leitimor and Hiteo, with the Bay of Amboyna between them. Although mountainous, it is fertile, and produces cloves (its speciality), sago, sugar, rice, coffee, and pepper. Amboyna wood, found on Amboyna and on Ceram, is in demand for cabinet work.



Amazon. Map showing the territory watered by the river and its tributaries. Its drainage area exceeds those of the Mississippi and Nile combined

traversing the Brazilian plain from the S., empties into the Amazon below Manãos. Other Brazilian tributaries, coming also from the S., above Manãos, are the Purús and the Jurú, and below Manãos the Tapajós and the Xingú. The river falls into the Atlantic near Pará.

The Amazon, 2,000 m. from its mouth, on the Peruvian frontier at Tahatinga, is 9,000 ft. wide, with a normal depth at that point of 66 ft., and a current velocity of 1½ m. per hour. Lower down, where the great Brazilian affluents enter, and nearer the mouth, it resembles a sea rather than a river. Tides are felt 500 m. above the mouth, where the river is 200 ft. deep; near the main mouth it is 50 m. wide.

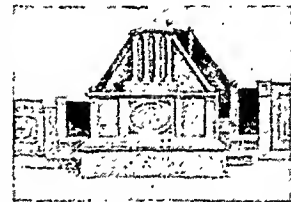
The first European to navigate the length of the Amazon was Orellana, a lieutenant of Gonzalo Pizarro, who, embarking upon its headwaters (the river Napo), to the E. of Quito, floated downstream to the Atlantic in 1541. The name of the river has been ascribed to a mistake of Orellana's followers, who imagined that the long-haired Indians in their cotton shirts were Amazons or women warriors.

AMAZON. In Greek legend a race of women warriors whose kingdom lay on the S. shores of the Euxine or Black Sea. Headed by their queens, they fought against Greece and other States and extended their empire as far as the Caspian Sea. No men were allowed within their borders, and when they wished to have children they visited other tribes. Only the girls were reared. Amazons are represented in Greek art as beautiful women, armed for battle, mounted on fiery horses and trampling on their fallen foes.

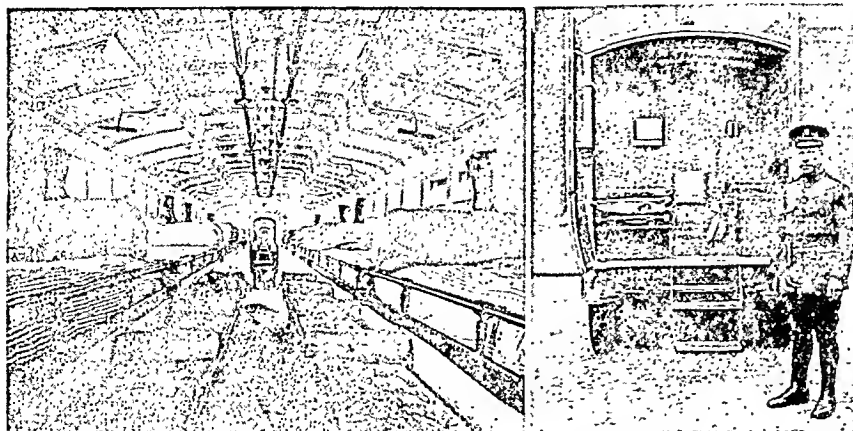
Of their legendary queens, Penthesileia led her hosts against the Greeks in the Trojan War and, dying at the hand of Achilles, drew



Amazon
Vatican, Rome



Ambo, or reading desk

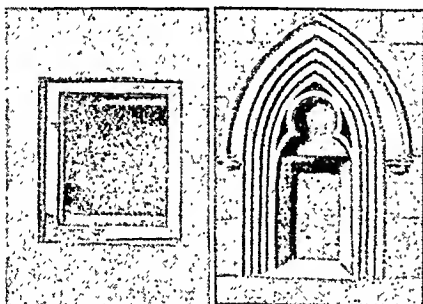


Ambulance. Left, military ambulance railway coach for lying-down cases. Right, interior of a London County Council motor ambulance, one of many available for the victims of traffic accidents

The island was discovered by the Portuguese early in the 16th century, and was taken by the Dutch about 1609. The population consists of Malays with a few European and Chinese.

Amboyna is chiefly known from the massacre of 1623. Its trade was then confined by treaty to the two East India Companies, English and Dutch, and the Dutch tried to expel their rivals. When some English residents were charged with conspiring to seize the castle at Amboyna, their settlement at Cambello was destroyed, and many of them were tortured and put to death. When England and Holland made peace in 1654 the Dutch paid £300,000 as compensation. John Dryden made the incident the theme of a tragedy.

Amboyna, the capital, has a good roadstead, an almost land-locked inner harbour, and a wireless station. Pop. 8,000



Ambr. Two examples of this form of cupboard or niche in a church wall

AMBRINE. Mixture of melted paraffin and amber resin, a remedy for burns and scalds. It was discovered in 1904 by a French doctor, who had used it first on himself in seeking to reproduce the properties of the Dax mud baths, to relieve rheumatism. Its efficacy in treating burns was first proved on a Chinaman during the Boxer rebellion, but this use did not become general until the Great War.

AMBROSE, SAINT (c. 340-97). Bishop of Milan. Son of a Christian prefect of Gaul, his place of birth is disputed, the cities of Trèves, Arles, and Lyons claiming the distinction. He was trained at Rome for the law. In 374, on the death of the Arian bishop of Milan, Ambrose, then a layman, was chosen to succeed him. The first ten years of his episcopate were largely occupied with the Arian controversy, and in this he scored some marked successes.

The popular story of S. Ambrose excluding the emperor Theodosius from the church after the massacre of the Thessalonians is

exaggerated. Some 7,000 citizens had been massacred, under the authority of Theodosius, after an outbreak of sedition, and Ambrose, to avoid meeting the emperor, retired from Milan and, in a letter, urged Theodosius to do penance in the church for the bloodshed. Theodosius complied, and the friendship between the two lasted till the death of the emperor in 395. Ambrose, who is the patron saint of Milan, died on April 4, 397.

Ambrose wrote hymns and took much interest in church music. The Ambrosian chant, which in the 6th century was merged in the Gregorian, was probably due to him.

The Ambrosian library at Milan was founded by Carlo Borromeo and named after S. Ambrose. Housed in a building erected about 1600, it contains some priceless manuscripts, about 250,000 books, and some valuable pictures.

AMBROSIA (Gr. ambrotos, immortal). In Greek and Roman mythology, the food of the gods. It conferred immortality on those who ate it, and possessed the power of healing wounds. Its taste was nine times as sweet as honey, and its fragrance delicious. Juno and Aphrodite anointed their flowing locks with ambrosia, and in the Aeneid Virgil tells how Venus used it as a salve to cure the wounds of her son.

AMBRY, AUMBRY, OR ALMERY (Lat. armarium, cupboard or safe). In mediæval churches, a cupboard or niche in a wall with shelves for the sacred vessels, the Host, holy oil, etc. In monasteries the word was applied to linen presses or pantries, and it is still used in this sense in Scotland.

AMBULANCE. The word ambulance is derived from the Latin ambulare, to move about. It came into use in France at the time of the Napoleonic wars, was employed in England in 1819, and popularised during the Crimean War. It is now used to signify a vehicle for the transport of the wounded, for a surgical aid organization to accompany troops, and, in civil life, for a vehicle for carrying sick and injured persons to hospital.

The term field ambulance was introduced into the British military service, in place of bearer companies and field hospitals, in 1905. Three field ambulances are included in each division. A field ambulance consists of a bearer division for the early medical assistance and collection of wounded, and a tent division for their reception, temporary treatment and care; and is divisible into three sections, each capable of acting independently, or even of being mobilised separately. Each section is organized as a bearer sub-division and a tent sub-division. The transport consists of ambulance wagons for the carriage of sick and wounded, and transport wagons

and carts for the carriage of medical and surgical stores, equipment, and water.

A field ambulance, like other British medical establishments in the field, is distinguished during the day by a flag bearing the Geneva Cross on a white ground and a Union Jack flying side by side on a cross-bar, and during the night by two white lamps placed horizontally. Officers and men of an ambulance carry no arms, and wear on the left arm a brassard bearing the red cross.

The army pattern of ambulance stretcher has poles 7 ft. 9 ins. long, terminating in handles. The canvas is 6 ft. in length and 1 ft. 11 ins. wide when made taut by the traverses at each end. Two pairs of runners, 6 ins. in height, keep the poles from the ground.

AMBULATORY (Latin ambulatorio, promenade). In monastic or ecclesiastical architecture, any covered gallery or passage such as cloisters, or a place for processions leading behind the high altar and round a church. There are double ambulatories in the cathedrals of Paris and Chartres. See Cathedral.

AMEER or **EMIR** (Arab. amara, to command). Title used in the East, meaning commander. Originally a military title, it came to be applied generally to rulers and high officials, and as a title of dignity to the descendants of Mahomet. The king of Afghanistan is known as ameer. As leader of Islam the sultan of Turkey was called Amir ul Muminin, or commander of the faithful.

AMÉLIE. Queen consort of Portugal, 1889-1908, in full Marie Amélie Louise Héliène (b. 1865). A daughter of Philip, duke of Orleans, she was born Sept. 28, 1865. On May 22, 1886, she married the prince who in 1889 became king of Portugal as Carlos I. In 1910, when the country became a republic, she and her son Manuel II settled in England.



Amélie, Queen consort of Portugal

AMEN (Heb. truly, so let it be). In public worship, word used in confirmation of a statement, as at the end of the Creed; or added in a petitionary sense to a prayer, as customary from apostolic times. In the authorised version of the Bible at the beginning of a sentence it is used for emphasis (e.g. Jer. 28. 6) and is translated "verily."

AMEN COURT. This is an enclosed court near S. Paul's Cathedral, London, in which are the residences of the canons. At its entrance off Warwick Lane is Amen Corner. The name dates from the times when religious processions marched round S. Paul's Cathedral, their singing being so timed that they reached Amen at the corner.



Amen Court, London, E.C. Judges' Ltd.

AMENDMENT (Latin emendare, to correct). Act of amending or improving anything. The term is applied particularly to any alteration suggested in a bill before Parliament or a resolution before a public meeting. In Parliament an amendment is sometimes used to change entirely a clause in a bill.

As a legal term, amendment means the correction of an error in a pleading or other judicial proceeding. In the U.S.A. alterations in the constitution are called amendments.

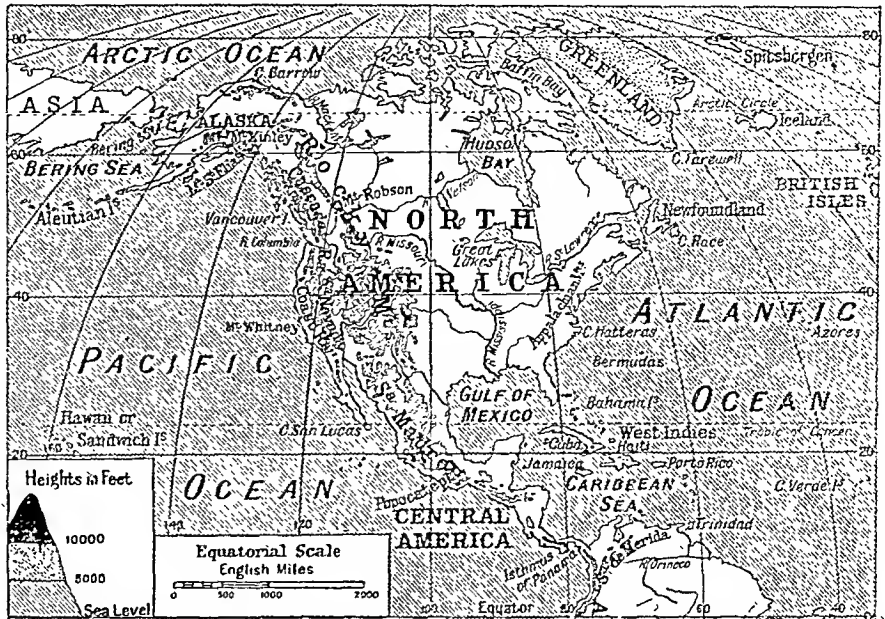
AMENEMHAT. Name of four Egyptian kings of the XIIIth dynasty. The greatest, Amenemhat III, built an embankment 20 m. long for reclaiming 40 sq. m. from Lake Moeris in the Fayum. His pyramid there contains a sepulchral chamber hollowed out of a single 110-ton quartzite block. Near this was a funerary temple, celebrated in antiquity as the Labyrinth. See Pyramids.

AMENHOTEP. Name of four Egyptian kings of the XVIIIth dynasty. Amenhotep II was famous for his strength as an archer. In 1929 the tomb of his queen Meryet-Amen was discovered near Thebes. Called by the Greeks Amenophis, the most famous, Amenhotep III (c. 1400 B.C.), exacted tribute from Nubia to the Euphrates, and wedded a half-Syrian queen, Tiy. His diplomatic correspondence has been recovered. He sculptured a rock-cut tomb and the colossi of Memnon at Thebes. His son, Amenhotep IV, renamed Akhenaton, who succeeded him, sought to make the Egyptians worship one god only, the sun god. See Akhenaton.

AMENTI OR AMENTET. The underworld of the ancient Egyptians. This hidden land was inhabited by human souls journeying to the peaceful fields of the blessed. In one form it was traversed nightly by the sun-god Ra; in another the dead soul was weighed in the balance in the presence of its lord Osiris.

AMERICA. America is the second largest of the four great continents of the globe. In reality it is almost two continents, South America being joined to North and Central America only by the narrow isthmus of Panama, through which a canal has been cut. Altogether America has a surface of between 14,000,000 and 15,000,000 sq. m. Canada occupies about 3,750,000, the United States is slightly less in area, and the states of South America have an extent of more than 6,000,000 sq. m.

Between North and South America there are resemblances both of outline and of geological formation which have given rise to many speculations about their origin. Each presents a triangular shape with the apex to the S., and each is traversed from N. to S. along the W. coast by lofty mountain ranges, and along the E. coast by comparatively low ranges, while their interiors consist of broad, unbroken plains.



America. Map of the connected continents of North and South America, indicating the mountain systems along the western coasts

In the 10th and 11th centuries it is almost certain that Norsemen from Iceland reached Greenland, which they called Vinland, and then, sailing south, visited Nova Scotia and New England. The chief of these rovers was a certain Leif, a son of Eric, the hero of the Saga of Eric the Red, in which the exploits of these early rovers are told.

These expeditions ceased, as far as we know, for some 400 years and then, in 1492, came the memorable voyage of Columbus. The first part of the continent to be discovered was one of the Bahama Islands, where in October he dropped anchor. The object of his voyage was to discover a westward sea route from Europe to Cathay (China) and India. Columbus, when he found land after sailing across the Atlantic, imagined that it was part of India, and that belief accounts for the islands off the eastern coast of North America being called the West Indies, and for the natives of America being called by the Spaniards los Indios, the Indians.

The name America came into existence after the Italian Amerigo Vespucci had in 1504 declared that he was the first to set foot on the mainland of the continent. This man was a clerk in the trading firm of the Florentine Medici, and he went to represent his employers in Spain. He asserted that he sailed from Spain for the New World in 1497, but it appears

to be more probable that Vespucci did not visit America until 1499, after others had landed in South America. The continent, therefore, should more appropriately have been called Columbia. This name, it is true, has been adopted by the Americans, as a poetical name for their country.

Very quickly other explorers added to the discoveries of Columbus, and one of them sailed from an English port. This was Sebastian Cabot, who discovered Newfoundland and Labrador. Whether these were the first men from other continents to land on American soil is a matter in dispute. There exists a tradition that Chinese sailors drifted in junks along the coasts of Asia and were carried to America. Upon better evidence rest the voyages of Scandinavian adventurers, who are supposed to have intended to settle on American soil, but provoked the hostility of the natives and found it prudent to return.

The peoples found in America by the Spaniards and by those who colonised the northern part of the continent were, it is generally assumed, all of one stock, though in physique, language and habits they differed from one another in different regions. Their number was apparently very large.

On this vast expanse of the earth's surface, larger in extent than Europe and Africa put together, every variety of climate, almost every description of animal and plant, and every known mineral are to be found.

See Argentina; Brazil; Canada; Cuba; Mexico; North America; South America; United States; Venezuela, etc.



Amenhotep. 1. Amenhotep I, from a statue in the British Museum. 2. Amenhotep IV, limestone portrait discovered at Amarna. 3. Amenhotep III, head of a colossal statue, now in the British Museum

AMERICA CUP. Prize for an international yacht race. It was originally named the Queen's Cup, and offered by the Royal Yacht Squadron in 1851. It was won over

The war is the story of how the Southerners resisted invasion by sea and land; how the Northerners recovered possession of what they deemed to be national territory, and how President Lincoln put down the rival president, Jefferson Davis, who had set up his government at Richmond, Virginia, within 100 m. of Washington.

The operations grouped themselves into two main theatres divided by the Appalachian Mountains. In the E., the state of Virginia was the scene of nearly 600 engagements; in the W.—in Tennessee, Missouri, Mississippi, Kentucky, Arkansas, Louisiana, and Georgia—nearly 1,300 combats took place. Until the third year of the war the Southern generals,

Joseph Johnston and Robert E. Lee, in Virginia and Maryland, opposed Generals McClellan, Pope, Burnside, Hooker, and Meade, while in the W. the Southern generals, Albert Johnston, Hood, and Forrest, operated against Generals Grant, Sherman, Thomas, and Rosecrans.

Meanwhile, the Federal navy patrolled the coast and the great waterways to prevent supplies reaching the Confederates by sea from Europe, or overland from Mexico, in exchange for cotton and tobacco.

At sea for two years the Confederates held their own, and blockade runners and commerce destroyers such as the Alabama flourished. The

as internal communications during the war is shown by the fact that the larger armies were known by the names of these rivers, e.g. the Army of the Cumberland, of the Tennessee, of the Ohio, of the Mississippi, of the James, and of the Potomac.

The long struggle came to an end when Lee was forced to abandon his lines at Petersburg, where for nine months he had resisted all Grant's attempts to break through. His retreat was blocked at Appomattox Court House and there, on April 9, 1865, he surrendered.

AMERICAN INDEPENDENCE, WAR OF. The troubles which led to the war between Great Britain and her American colonies began in 1765 when stamp duties were imposed by the Parliament in London. These were withdrawn, but in 1767 duties on paper, tea and other commodities were imposed and the resentment of the colonists became more marked. In 1773 a party disguised as Indians threw into Boston harbour 340 chests of tea about to be landed from British ships. The climax came when the British Parliament passed in 1774 a bill closing the port.

The governor, General Gage, saw that Massachusetts was preparing to fight, and on April 19, 1775, he sent out a force from Boston to Concord to destroy military stores collected there. At Lexington the column was attacked by armed farmers and, after effecting its purpose, it returned to Boston under a galling fire. Gage now found himself besieged in Boston. In May the second session of the Continental Congress began at Philadelphia. It appointed George Washington of Virginia to the command of the Colonial forces. On June 16 the Americans had occupied Breed's (not Bunker) Hill overlooking Boston, but on the next day Gage dislodged them.

Washington now planned to occupy Canada, and in the late autumn the Americans held the St. Lawrence, with the British garrison under

Sir Guy Carleton shut up in Quebec. The sea route to Quebec, however, remained open, and the arrival of a rescuing fleet in the spring of 1776 led to the entire withdrawal from Canada of the American forces. In March, 1776, the British evacuated Boston and sailed to Halifax. Sir William Howe, who had succeeded Gage in the command, took possession of the city of New York after defeating Washington in the battle of Long Island.



America Cup. 1. American yacht Resolute, winner of the cup in 1920. 2. The America Cup, previously known as the Queen's Cup, international yachting trophy. 3. America, the schooner yacht which, in 1851, first won the cup over a course round the Isle of Wight

a course round the Isle of Wight by the U.S.A. schooner yacht America, and presented in 1857 by the owners of the winning boat to the New York Yacht Club, it has been known since as the America Cup and held against all challengers, in spite of the boats built for the race by Lord Dunraven and Sir Thomas Lipton. Most of the races in the U.S.A. have been sailed over a 30-m. triangular course round the Sandy Hook Lightship. In 1929 Sir T. Lipton entered his yacht Shamrock V for the race of Sept., 1930.

AMERICAN BLIGHT. Common pest infesting apple trees. It is distinguishable by its dark slaty-brown colour and its white fluffy, cotton-like covering. In small gardens it can be eradicated by scrubbing the affected trees with carbolic soap, but in orchards the trunks must be sprayed in winter with a mixture composed of carbonate of potash 12 lb., caustic soda 1 lb., soft soap $\frac{1}{2}$ lb., and water 15 gallons. Another remedy is brushing with methylated spirit.

AMERICAN CIVIL WAR. This great contest raged for four years over the territory bounded by the Atlantic and the Gulf of Mexico, by the trans-Mississippi States, and by the Ohio and Potomac rivers. The theatre of war was about 1,500 m. from E. to W. and about half that distance from N. to S. The combatants were the Federals and the Confederates, and the war was caused by the desire of the latter to secede from the union. Popularly it was a struggle between North and South, the North being the existing federal government, while the South had formed a new confederation.

After the bombardment of Fort Sumter by the Confederates, on April 12, 1861, no fewer than 2,260 battles, sieges, and skirmishes took place before the last of the Confederate armies surrendered on May 26, 1865. The North began the war with a professional army of 30 regiments, but ultimately put into the field nearly 3,000,000 volunteers. Statistics of the Southern, or rebel, armies are not available, but about 100,000 men finally surrendered, and their estimated loss in the chief battles was 442,000 of all ranks. The losses of the North were 360,000 in dead alone.



American Civil War. Reading the Proclamation of Emancipation Painting by F. B. Carpenter in the Capitol, Washington

tactical operations at sea were also of interest. The ironclads Monitor and Merrimac fought in Hampton Roads for the command of the York and James rivers before McClellan's army could be moved from Washington. Naval attempts to control the Mississippi failed until Grant's land operations secured Vicksburg.

The Confederates may be credited with the first submarine, as well as the original ironclad, for the David, in Feb., 1864, outside Charleston harbour, passed under the keel of a Federal corvette, dragging a floating torpedo, which exploded on striking the blockading vessel. In the end, however, proving again one of history's lessons, the Federal blockade prevailed. The trade of Charleston was ruined, and in 1865 no fewer than 40 harbours, inlets, and channelways had been closed to the outer world. The importance of the great waterways

In 1777 a British army under General Burgoyne gathered in Canada and invaded the state of New York by way of Lake Champlain. In Sept., Howe threw his force against Philadelphia, defeated Washington at the Brandywine, and occupied



American Independence. Liberty Bell which rang for the declaration of American independence. It is now kept at Philadelphia

the city on Sept. 26. On the Hudson, Burgoyne was in difficulty, and on Oct. 17, with 6,000 men, he surrendered at Saratoga. France then, on Feb. 6, 1778, signed a treaty of alliance with the colonists.

Nevertheless the American cause fared ill after the fall of Philadelphia. Washington's army spent the winter of 1777-8 at Valley Forge under distressing conditions. They decided to abandon campaigns by land, to concentrate at New York, and to use their naval power in coast raids with a view to wearing out the enemy. Accordingly, in June, Howe evacuated Philadelphia and marched across New Jersey to New York, harassed on the way by Washington and fighting the battle of Monmouth on June 28, 1778. In Dec., 1778, the British occupied Savannah, Georgia, and in the next year overran that state. In May, 1780, they took Charleston, S. Carolina; Lord Cornwallis won a battle at Camden, South Carolina, on Aug. 16, 1780, and the whole South, to the borders of Virginia, was soon in British hands.

Washington's keen eye detected the weakness of Cornwallis's position. His support from the sea was insecure, for Holland and Spain had entered the war and with France were menacing Britain in the West Indies, so that her fleet was divided. Cornwallis made his headquarters in Virginia at Yorktown, an exposed position lying near the mouth of the York river. A French fleet under De Grasse cut off rescue by sea, and Washington closed in on Yorktown from the land, and on Oct. 19, 1781, Cornwallis surrendered with 7,000 men.

Negotiations for peace were soon begun, and in Nov., 1782, a provisional treaty was signed in Paris. On Sept. 3, 1783, the final treaty was signed, and the British evacuated New York, their last stronghold.

AMERICAN INDIANS. The original inhabitants of the American continent, both N. and S., are usually known as American Indians. The name Indian was given to them about 1493 by Columbus, who wrongly imagined he had reached India, when he was in reality in America. It has persisted, although the Indians, especially those of N. America, are sometimes known from their colour as Redskins, or Red Indians, and the contraction Amerind has been suggested as a substitute.

At the time of the discovery the system of clans in which the woman and not the man was the dominating link was giving way in some tribal groups to the opposite system. The Hurons lived in long houses of interrelated families with a matron in charge. The separate family dwelling was rare. Polygamy, where permissible, was in practice limited by ways and means; many tribes are essentially monogamous. Prudential infanticide was practised and every clan had its totem name. Taboos usually had an exogamous purpose.

Tattooing, although less general than body paint, was widely spread. This, as well as head-deformation and some other mutilations, probably came across the Pacific. The commoner form of head-flattening was accomplished by pressing cradleboards upon the forehead, as among the Choctaws; a rarer form produced a conical occiput. Initiation frequently involved torture.



American Indians. 1. Navaho (Arizona). 2 and 3. Alaskans. 4. Pawnee (Nebraska). 5. Apache. 6. Choctaw. 7. Chippewa, Wisconsin. 8. Navaho woman spinning, using her hand instead of a wheel. 9. Patagonian Indian. 10. Sioux, Dakota in ceremonial dress. 11. Iroquois. Woman of "the Five Nations" pounding maize. 12. Ute

Issues of peace and war were determined at tribal councils, whereat calumet and tomahawk were ceremonial accessories which have given rise to the phrases the pipe of peace and hurrying the hatchet. In the Iroquois and Muskogee region enemy scalps, as trophies of war, were sometimes mounted on poles for the women's scalp dances. Wampum comprising strings of shell heads was used for ornament and currency, formed into belts they served as records of treaties concluded between various tribes.



American Organ. Instrument like the harmonium, but of sweeter tone.

To-day the Indians, like other aborigines, are probably decreasing in number in spite of measures of protection. In the United States and Canada they live on reservations, and in each a department exists to look after their interests, teaching them trades and looking after their children. In 1928 the Indian population of the U.S.A. was 355,500, about a third living in Oklahoma. In Canada the total is something like 110,000.

Outstanding Indians are Hiawatha, Pontiac, Red Cloud, and Tecumseh; a Zapotec, Benito Juarez, was president of Mexico.

AMERICAN ORGAN. Musical instrument of the harmonium type. The wind is drawn through the reeds, not blown through, as in the harmonium. The tone is somewhat rounder and sweeter than that of the harmonium. See Harmonium.

AMERONGEN. Village of Holland, in Utrecht province. It is 20 m. S.E. of Utrecht and contains the castle of Amerongen, the seat of Count Bentinck, to which the German Emperor fled in Nov. 1918. See illus. p. 74.

AMERSFOORT. Town of Holland, Utrecht province. It is on the Eem, 14 m. by rly. N.E. of Utrecht, and has woollen mills and tobacco factories. Pop. 33,098.



Amerongen Castle, Holland. The refuge of the German Kaiser after his abdication, in November, 1918. See page 73

AMERSHAM. Town of Buckinghamshire, England. It is 26 m. W.N.W. of London by the Met. and L.N.E. rlys., and has chair making, brewing, and other industries. In S. Mary's church, a fine old building, are brasses and other monuments. In the main street are the market house, built about 1680, and some almshouses of earlier date. Until 1832 it returned two members to Parliament. It has two yearly fairs, one on Whit Monday and the other in Sept. Pop. 4,221.

AMERY, LEOPOLD CHARLES MAURICE STENNETT (b. 1873). British politician. Born in India, Nov. 22, 1873, he was educated at Harrow and Balliol College, Oxford. From 1899-1909 he was on the staff of *The Times*, representing that paper during the South African War and editing its history of the struggle. An ardent tariff reformer, he tried several times to enter Parliament before being returned for a Birmingham division in 1911. During the great War he served on the staff, as assistant secretary to the War Cabinet and with the War Council at Versailles. From 1919-21 he was under-secretary for the Colonies; in 1921-22 parliamentary secretary to the Admiralty, and in 1922-24 First Lord of the Admiralty. From 1924-29 he was secretary for the Colonies and Dominions in the Conservative Ministry.



L. C. M. S. Amery, British politician

AMETHYST. Name of a lilac to purple coloured quartz used as a gem-stone. The colour is due to a small amount of manganese present as an impurity. The richest stones come from Brazil and Uruguay. The amethyst was supposed by the ancients to be a remedy against drunkenness (Gr. amethystos)—hence the name.

AMHARA. Central division of Abyssinia. It includes Gojam and was at one time a powerful state. The capital, Gondar, was the residence of the Abyssinian emperors until the middle of the 19th century. The Amharic language, originally a provincial dialect, gradually displaced Ge'ez or Ethiopic, the ancient language, and is now the official language of Abyssinia.

AMHERST. Coast town of Nova Scotia, Canada. The capital of Cumberland county, it is situated at the N.E. extremity of Chignecto Bay, 135 m. N.N.W. of Halifax by the National Rly. The centre of a rich farming area, it has shipbuilding yards, boot, shoe, leather, and woollen factories. Pop. 9,998.

Another Amherst is a town of Burma, 30 m. from Moulmein, and there is an Amherst in Massachusetts, both named after members of the Amherst family. In the American town is Amherst College, founded by Congregationalists in 1821. Pop. 5,500.

AMHERST, EARL. British title borne since 1826 by the family of Amherst. The soldier, Sir Jeffrey Amherst (1717-97), was made a baron in 1776. He had helped to conquer Canada and was governor-general of the British possessions in N. America 1760-63. He died Aug. 3, 1797. His nephew, William Pitt Amherst (1773-1857), succeeded to the title. He was governor-general of India from 1823-28, and was made an earl in 1826. His descendant Jeffrey became the 5th earl in 1927. The family estates are in Kent, the family seat, Montreal, being near Sevenoaks. The earl's eldest son is known as Viscount Holmesdale. The barony of Amherst of Hackney must be distinguished from the earldom. It was bestowed in 1892 on W. A. Tyssen-Amherst, and passed in 1909 to his daughter, the wife of Lord William Cecil, and remains in the Cecil family.

AMHERSTBURG. Town and port of Ontario, Canada. On the Detroit river and the Michigan Central Rly., which here crosses the river, it is 18 m. S. of Windsor, and is a calling place for boats engaged in the traffic of the Great Lakes. It carries on a large trade in timber. Pop. 2,769.

AMIANTH OR AMIANT (Greek amiantos, undefiled). Name given to the finest variety of the mineral asbestos. It consists of long flexible filaments, and from its resemblance to flax is sometimes called mountain or earth flax. It is incombustible and is used for lamp wicks and as a filling for gas fires. The name is also applied to a fine fibrous serpentine. The form amianth is due to confusion with the Greek word anthos, flower.

AMICE (Lat. amice, to throw round). Oblong piece of linen worn by the celebrant at Mass and by assistant ministers when the alb is worn. Rested for a moment on his head, it is then spread on the shoulders and tied with strings. The hood or cloak with long ends made of or lined with grey fur, worn by monks and pilgrims, was called an amice.

AMIDES. Bodies derived from ammonia (NH₃) by replacing one of the hydrogen (H) atoms by a metal or organic radical. When two atoms of the hydrogen are replaced the product is an imide, or secondary amide, and if the whole of the hydrogen is displaced by a trivalent radical a nitrile or tertiary amide results. Amides are thus compound ammonias. They are made by the action of ammonia on acid chlorides or on ethers, or by heating ammonium salts. Amide powder is a name applied to an explosive made from ammonium nitrate, saltpetre, and charcoal.

AMIEL, HENRI FRÉDÉRIC (1821-81). Swiss author. Born at Geneva, he became professor first of aesthetics and French literature and then of moral philosophy at Geneva, and wrote verse, but is best remembered for his posthumous *Journal Intime* of 17,000 MS. pages, 1848-81. Parts of the *Journal* were published in 1883-4, with an introduction by Amiel's friend Edmond Scherer, and an English translation by Mrs. Humphry Ward appeared in 1885. Amiel died at Geneva, May 11, 1881.



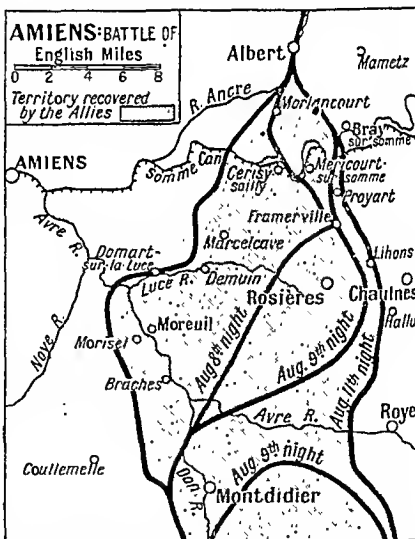
Baron Amherst, British soldier and colonial governor
After Sir Joshua Reynolds

AMIENS. City of France. It stands on the Somme, mainly on the left bank, 81 m. from Paris, and is the capital of the department of Somme. The river divides into a number of branches, and these, with its tributaries the Ayre and the Selle, form canals in the lower part of the town. It has hence been called this Little Venice. The oldest part of the city is on this right bank and the business quarters are on the left. Boulevards occupy the site of the old fortifications.

The finest building in Amiens is the Gothic cathedral. It was built mainly in the 13th century and is remarkable for its size, for the wonderful stonework of the W. façade, and for its choir stalls. The citadel dates from the 16th century and the prefecture from the 18th. The hôtel de ville has been almost entirely rebuilt. Modern buildings include the palais de justice, the public library, colleges, and schools.

There are many old houses and some fine squares. The Museum of Picardy has a valuable collection of paintings, antiquities, etc., including frescoes by Puvis de Chavannes.

Amiens is an important manufacturing and distributing centre as well as a great railway



Amiens. Battlefield, showing the extent of territory recovered from the Germans. See page 75

junction. Its industries include the spinning and weaving of textiles—cotton, wool, flax, silk, etc.—and the making of velvet, hosiery, etc. Machinery, chemicals, and sugar are also produced. In the neighbourhood to the N.E. market gardening is largely carried on, and the produce, with that of the local farms, is a considerable item of trade. The population is over 91,000.

Amiens was a Gallic settlement and in the 4th century the seat of a bishop. Later it was part of Flanders until 1185, when it became French. From 1435 to 1477 it was included in Burgundy, but, recovered by France, it was until the Revolution the capital of Picardy. It surrendered to the Germans on Nov. 28, 1870, but was restored at the peace of 1871.

During the Great War Amiens was occupied by General von Kluck for a few days before the battle of the Marne in Sept., 1914, but afterwards remained French.



Henri F. Amiel, Swiss author

The Mise of Amiens is the name given to the award of Louis IX of France in a dispute between the English king Henry III and his barons in 1264 (see Barons' War).

The Treaty of Amiens, signed in 1802 between Great Britain and France, marked only a truce in the struggle between the two countries, for war broke out again in 1803.

BATTLE OF AMIENS. Amiens gives its name to a great battle, fought Aug. 8-12, 1918, which marked the opening of the British counter-offensive. The object of the attack was to clear Amiens and the important railways there and to penetrate deep with all possible speed to the junction at Chaumes. The British 4th army attacked from Morlan-court to Domart, and the French 1st army from Domart to Moreuil, the whole force under the command of Sir D. Haig. By the night of Aug. 11 the Allies south of the Somme had reached the old German line as it existed before the battle of the Somme. The results were immense. No fewer than 38,500 prisoners with 800 guns were taken, Amiens was cleared and Paris relieved of constant bombardment. This victory proved to the Germans that the offensive had definitely passed to the Allies, and to the latter that they could now with every prospect of success press the attack and extend it. Amiens was awarded the Croix de Guerre. See map on page 74.

AMIRANTES ISLANDS. British archipelago in the Indian Ocean, S.W. of the Seychelles. Of coral formation and fertile, they produce coconut oil and are visited for turtle fishing. British since 1814, they are a dependency of the Seychelles. They were named after Vasco da Gama because he was styled admiral of India.

AMLWCH. Urban district, market town, and seaport of Anglesey, Wales. The port is dry at low water. It is on the N. coast, 24 m. N.W. of Bangor by the L.L.S. Rly. It has an old church and some antiquarian relics. Market day, Sat. Pop. 2,699.

AMMAN. Town of Transjordan. The Rabbath-Ammon of the Bible, and the Greek Philadelphia, it lies on the E. side of the Jordan, 30 m. in a direct line E. of Jericho. In the Great War it formed an important Turkish base on the Hejaz Rly., and was the objective of two British raids, in March and April, 1918. It was finally captured and held by the British on Sept. 25. Later it was made the capital of the new state of Transjordan. See Transjordan.

AMMANFORD. Urban district and market town of Carmarthenshire, Wales, 12 m. N. of Swansea, on the G.W.R. The industries include coal-mining, tin working, and paint manufacture. Pop. 6,984.

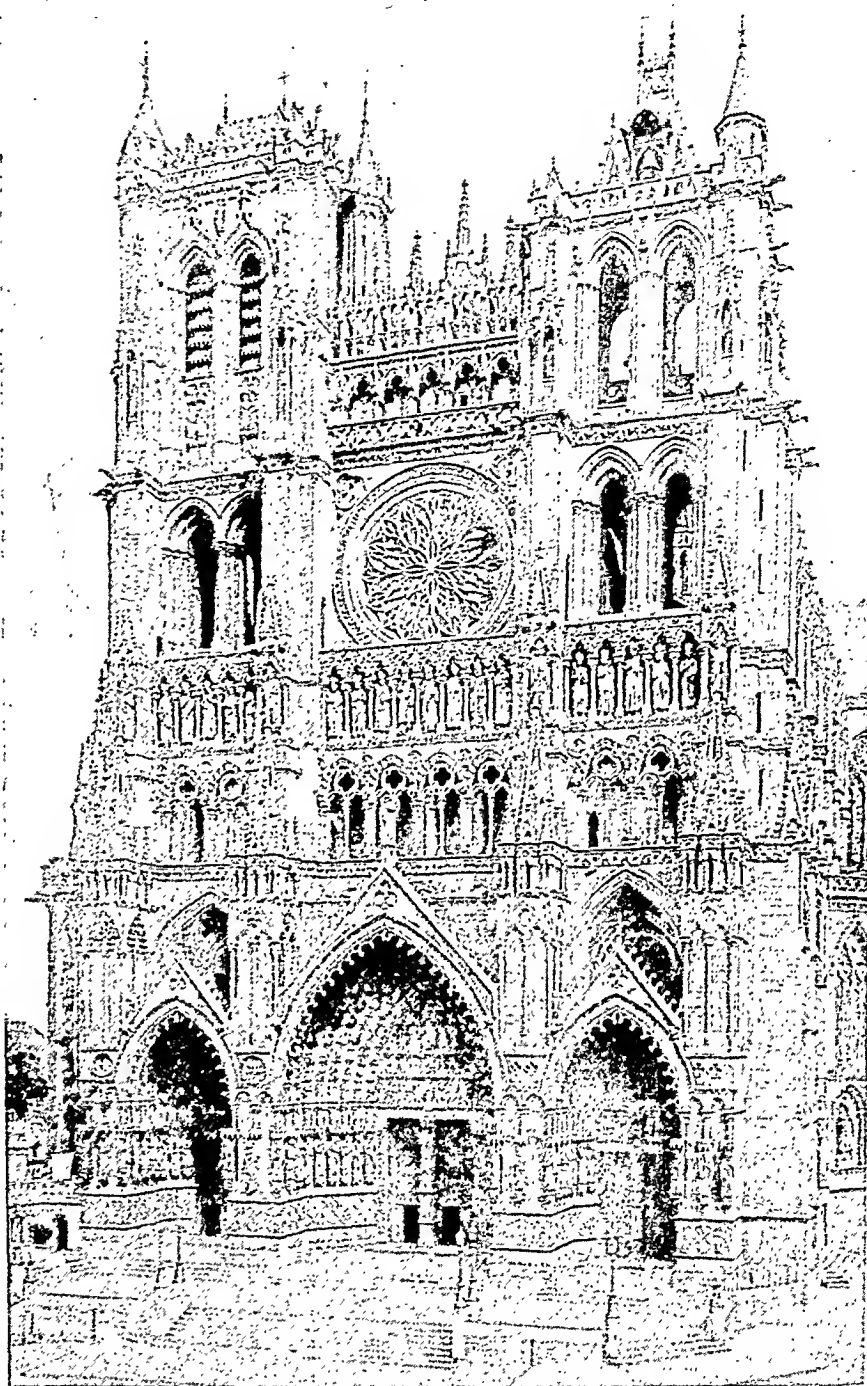
AMMER SEE. Lake of Bavaria; 20 m. S.W. of Munich. Formed by the little river Ammer, it is 10 m. long by 4 m. broad, and lies 1,750 ft. above sea level.

AMMETER OR AMPERE METER. Form of galvanometer for measuring currents of electricity directly in units of amperes.



Ammon, god of the Egyptians
British Museum

In a common type the passage of current through a coil of low resistance endows the coil with magnetic properties and causes it



Amiens. Western façade of Amiens Cathedral, regarded as the finest example of Gothic ecclesiastical architecture in France. This western front is conspicuous for its decorated portals, its grand rose window and its arched row of statues of the Kings of Judah. The cathedral was built in the 13th century from the plans of Robert de Luzarches and has a total length of 469 ft. and a breadth of 216 ft.

to affect a small permanent magnet mounted on pivots within the magnetic field. The intensity of the coil magnetism varies with the strength of the current. A light pointer attached to the magnet indicates current strength in amperes on a graduated scale.

AMMON, AMEN OR AMEN-RA. God of the ancient Egyptians. Originally a local god of S. Egypt whose shrine at Thebes was founded or rebuilt about 2500 B.C., when the kings of Thebes became masters of the North, his importance grew until he came to be regarded as the supreme god. To maintain his position the priests identified him with Ra, the oldest of the Egyptian gods, and in time he assumed the

attributes of other great gods. The name signified hidden, and Amen-Ra was described as representing the hidden and mysterious power which created and sustained the universe, with the sun as symbol of that power.

AMMONAL. Name given to an important class of high explosives. The essential feature is that powdered aluminium is a constituent, this metal being employed on account of its high temperature of combustion. They are also called thermit explosives. See Explosives.

AMMONIA (Greek ammoniakon, rock-salt). A colourless pungent-smelling gas, which turns red litmus paper blue and neutralises

acids. It is chemically a compound of three equivalents of hydrogen and one of nitrogen (NH_3). It is poisonous when breathed. Ammonia is best known in the state of solution, consisting of water saturated with the gas. This liquid, or a combination known as carbonate of ammonia, forms the pungent element of ordinary smelling salts. Ammonia is used in the manufacture of soda, in dyeing, for the preparation of colours, in medicine, and in refrigerating. Its chief source is coal, ammonia being one of the by-products obtained in the manufacture of illuminating gas.

Ammonium is the compound radical NH_4 , contained in the ammonium salts, i.e. salts obtained by neutralising ammonia by acids.

AMMONIACUM. Gum resin obtained from *Dorema ammoniacum*, a herb growing in Persia and India. It contains a volatile oil which renders it of value in medicine, as an expectorant, etc.

AMMONITE. Extinct marine mollusc allied to the living nautilus and belonging to the class Cephalopoda. The shell is coiled into a plane spiral and is variously ornamented by ribs, nodules, or spines. Ammonites are found abundantly in the Mesozoic rocks and are

of the greatest value in aiding the correlation of geological formations, certain generic types and species everywhere succeeding each other in a definite order.

Ammonite is the name given to an English safety explosive. It consists of ammonium nitrate and dinitronaphthalene, and has been proved safe in coal-mining.

The name ammonite is used also for a fertiliser made from the offal of rendering establishments, which contains a high proportion of nitrogen. See Fertiliser; Fossil.

AMMONITES. A semi-savage people who inhabited the region of Palestine, E. of the Jordan. Their capital was Rabbath-Ammon. Rebuilt in the 3rd century and renamed Philadelphia, it is now represented by Amman (q.v.). The Ammonites waged war with the Jews until subdued by Judas Maccabaeus, and were finally absorbed about the 1st century A.D. by the Nabataean Arabs.

AMMUNITION. Term formerly employed to indicate military stores of all descriptions, but now usually confined to articles utilised in charging guns and ordnance, such as cartridges, powder, shell, etc., and to offensive missiles generally.

Military explosives are generally classified in two groups: (1) explosives in bulk, cartridges for cannon, and filled quick-firing ammunition; (2) small-arm cartridges, filled shell, bombs, fuses, primers, and friction tubes. The first two categories of group (1) must be stored in magazines. The remainder may be, and those in group (2) are, stored in ammunition stores. The filling, emptying, or examination of ammunition is always effected in a separate building termed a laboratory.

With modern armies in the field the question of ammunition supply is very important. In the British service, ammunition, after being

filled in the laboratories, is rigidly inspected and a portion taken for proof. If it passes satisfactorily, the lot is taken over by the Royal Army Ordnance Corps, who arrange for its transport from their stores to an ammunition dump or depot near the scene of operations, whence it is banded over to the divisional ammunition columns, who distribute it among the various units. See Artillery; Explosives; Gunpowder; Projectile, etc.

AMNESTY (Gr. *amnestia*, forgetting an offence). Term used for a collective or general pardon. From early Greek times such pardons have been granted to rebels and other offenders against the state, the leading culprits, however, being usually excluded. The word indemnity does not quite carry the same idea of total oblivion as the Greek word.

Indemnities are granted now less to deliberate offenders than to public servants who, in any sudden crisis in the state, may be obliged to transgress the law for the common good. Several instances occurred during the Great War.

AMOEBIA (Gr. *amoebe*, alternation). Genus of the Protozoa. Most species are found in the mud and decaying vegetable matter of ponds. Some species can just be seen with the naked eye, others being much more minute.

The amoeba consists of a tiny shapeless jelly-like mass of protoplasm. It has no limbs or appendages, but can push out parts of its substance, termed pseudopodia, and by this means flows forward rather than crawls. Its shape is constantly varying. The amoeba takes in its food, which consists of minute vegetable matter, by flowing over and around it, the residue being pushed out through any part of the animal's substance. When full-grown, the amoeba splits in two, thus forming two individuals in place of one.

AMOK OR **AMUCK.** Homicidal frenzy very prevalent among Malays. In Malay vernacular the word means to attack furiously, and under its influence the Malay runs through the streets indiscriminately laying about him with his kris until he is killed. Some cases are due to sudden madness, to disease, to the heat of the peninsula, and to the use of drugs. The typical amok may be connected with the wish to die fighting.

AMONTILLADO. Wine grown at Montilla, near Cordova, Spain. Akin to sherry, usually light in colour, sweet, and full-bodied, it is subdivided into fino and oloroso, the former being the more delicate, the latter having the greater bouquet.

AMOR (Lat. love). In Roman mythology, the counterpart of the Greek Eros. He was the son of Aphrodite (Venus) and the god of love. See Aphrodite; Cupid.

AMORITES. Semitic race who settled in Palestine about 2500 B.C. They were allied to and sometimes identified with the Canaanites, who may have succeeded them in a wave of immigration. The Babylonian dynasty of Hammurabi was Amorite. The Amorites settled in the highlands of Palestine and Syria, and

were conquered by the Israelites, who, under Moses, overcame Og and Sihon, and under Joshua, smote other Amorite kings at Beth-horon (Deut. 3, Josh. 10). They are referred to in Assyrian, Babylonian, and Egyptian records. Consult *The Empire of the Amorites*, A. T. Clay, 1919.

AMOS. Shepherd of Tekoa, Judah, and earliest of the Hebrew prophets whose writings are extant. He lived in the days of Uzziah and Jeroboam II (c. 750 B.C.). Wealth and luxury had demoralised Israel and Judah, and the poor were oppressed. Amos foretold that the Day of the Lord was to be a day of judgment on the Hebrews and surrounding nations. Amaziah, chief priest of Beth-el, tried in vain to suppress him. The book of Amos is marked by clear, vigorous, and picturesque diction, imagery of country life, and a remarkable power of social observation.

AMOY. City and treaty port of China, in the prov. of Fu-kien. Standing on the island of Haimen (Hiamen), at the mouth of the Lung-kiang, its walls date from the Ming dynasty. The East India Company first traded here in 1670, and it was one of the five ports to be opened to foreign trade by the treaty of Nanking (1842), but a customs station was not established until 1862. Amoy has lost much of its former importance as a tea centre, but still engages in an extensive foreign trade. It exports sugar, camphor and paper, and has regular steamer communication with Hong-Kong and Formosa, and with Chinese ports. Pop. 400,000.

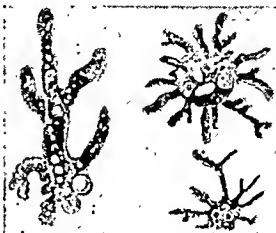
AMPERE, ANDRÉ MARIE (1775-1836), French scientist. Born at Lyons, Jan. 22, 1775, his genius for mathematics was marked at an early age. He moved to Paris, 1805, became a member of the Academy of Sciences, 1814, and professor in the Collège de France, 1824. He died at Marseilles, June 10, 1836. His great work was to establish the nature of the connexion between electricity and magnetism and to work out the theory of electro-dynamics. His son, Jean Jacques Ampère (1800-64), was a noted philologist and traveller.

The ampère is a unit of current or rate of flow of electricity. An ampère hour is a current of one ampère flowing for one hour. See Ammeter; Electricity.

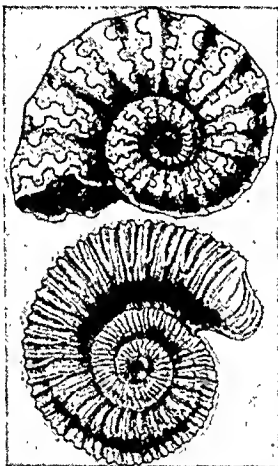
AMPERSAND. The name of the sign &, frequently used for "and". It is of mongrel, Latin and English, origin, being a contraction of the four words—and, per se (by itself), and. In form, it is a combination of the letters e and t, et being Latin for and.

AMPHIARAUS. In Greek legend, brother-in-law of Adrastus, the prime mover in the Argive expedition against Thebes. Amphiaraus, being possessed of the gift of prophecy, desired to take no part in it, knowing that he was doomed to perish. He went into hiding, but his wife Eriphyle, bribed by Poly-nices with the necklace of Harmonia, revealed his whereabouts. During the flight of the Argive chiefs from Thebes Amphiaraus and his chariot were swallowed up by the earth. Later he was worshipped as a god.

AMPHIBIA (Gr. *amphibios*, living a double life). In zoology, one of the chief classes of vertebrata, including frogs, toads,



Amoeba Proteus, the one on the left from a large stream, the other two from a ditch. All greatly magnified



Ammonite. Specimens of a fossil marine mollusc allied to the nautilus



A. M. Ampère, French scientist
A. Tardieu, 1825



Amorites. Typical heads of a conquered western Asiatic race, from ancient sculpture
British Museum

newts salamanders, and certain wormlike forms such as the cecilians. In the larval stage they usually have gills and live in the water, while the adults are provided with lungs and can live on land.

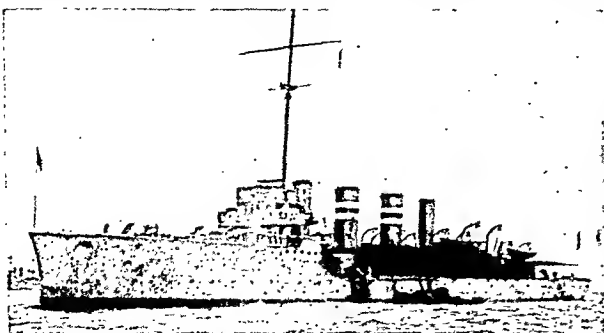
The life history consists generally of a series of metamorphoses. The eggs are usually laid in fresh water, connected in a jelly-like mass or string, and are hatched by the sun. The young in their larval stage possess a long, flat tail, by wriggling which they swim freely. The limbs presently begin to appear. In frogs and toads the tail is gradually absorbed; in newts and salamanders it becomes modified. Amphibians do not drink, but absorb moisture through the skin, and cannot exist unless the skin be kept moist. Hence they are almost invariably found in damp places or near water. See Frog; Toad.

AMPHIBOLE (Gr. *amphiolos*, ambiguous). Group of minerals, complex silicates of calcium, iron, and magnesium, with or without aluminium. They are natural crystalline substances, which enter largely into the composition of certain igneous and metamorphic rocks.

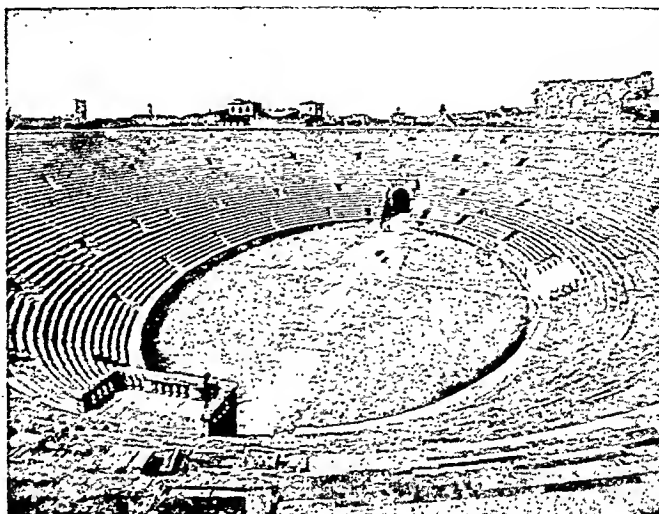
AMPHICTYONIC COUNCIL (Gr. *amphictyones*, dwellers around). Representative council in ancient Greece of neighbouring states originally united in worship at a common temple. Such a council met at Delos and was in existence in the 7th century B.C. or earlier. The most important consisted of twelve states, and its first shrine was at Anthela, near Thermopylae, but at a later date Delphi became its headquarters. See Delphi.

AMPHION. In Greek mythology, son of Zeus by Antiope, wife of Lycus, king of Boeotia, who had divorced her in favour of his second wife Dirce. Amphion and his twin brother Zethus were placed when born on Mt. Cithaeron, but there they were found and brought up by shepherds. On reaching manhood the two brothers avenged the cruelty of Lycus and Dirce to their mother by killing them both. Obtaining possession of Thebes, where Lycus reigned, they erected fortifications, the stones, it is said, moving to their places when Amphion played on the lyre, an accomplishment learned from Hermes.

Amphion was the name of a British light cruiser, completed in 1913. On August 5th, 1914, she sank a German mine-layer, but on Aug. 6 she struck a mine and went to the bottom with a loss of one officer and 148 men.



Amphion, British light cruiser, which after helping to sink the German mine-layer Königin Luise, Aug. 5, 1914, was mined and sunk on Aug. 6.



Amphitheatre at Verona, Italy. Built about the first century A.D., but little remains beyond the interior, the seating of which has been often restored.

Amphioxus. In zoology, a variant name for the lancelet (q.v.)

AMPHIPODA (Greek *amphi*, around; *pous*, foot). Order of small crustaceans with laterally compressed bodies. They have usually six pairs of legs, of which the anterior three are swimming limbs, the posterior being specially developed for use in jumping. They are found in salt and fresh water, fresh-water shrimps, sand hoppers and beach fleas being familiar examples. See Crustacea.



Amphion, with the lyre, and his twin brother Zethus, ruler of Thebes. Relief at Rome.

which have the power of moving equally well backwards or forwards. The true amphibiae are found in Central America and in Africa, and include some thirty species. They are wormlike in appearance and live underground. One species has external limbs. See Lizard.

AMPHISBAENA (Gr. *amphis*, both ways; *baincin*, to go). Group of lizards

theatre at Verona is the best preserved. Other remains are at Arles and Nîmes, in France, and Dorchester, in England. See Colosseum.

Amphitrite. In Greek mythology, wife of Poseidon, the sea god, and herself goddess of the sea.

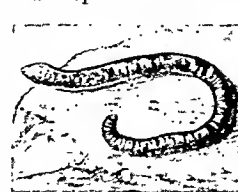


Amphipoda, Fresh-water shrimp, a typical example.

AMPHITRYON OR **AMPHITRUCO**. In Greek mythology, a Theban prince whose wife Alcmena gave birth to Hercules (Heracles), Zeus (Jupiter) having visited her in the form of her husband. The story forms the subject of comedies by Plautus, Molière, and Dryden. From the reference in Molière's play, the name has come to mean a host or entertainer.

AMPHORA. Ancient earthenware vessel, with two handles and tapering to a point at the bottom, which was fixed in a stand or in the ground. It was chiefly used for keeping wines, and later as a cinerary urn. The amphora was also a measure of capacity, and was the standard for estimating the carrying capacity of ships. See illus. p. 78.

AMPLIFIER. Apparatus for intensifying sound vibrations or electrical oscillations. The carbon microphone as used in the transmitter of a telephone is a form of amplifier, the sound vibrations being



Amphisbaena. Worm-like legless American lizard.

made to vary the pressure on carbon granules behind a diaphragm, with a corresponding variation in electrical resistance in a circuit containing a telephone receiver. Thus variations in current strength are caused to produce sound vibrations greatly magnified.

AMPHITHEATRE (Gr. *amphi*, around; *theatron*, seeing-place or theatre). Structure, slightly elliptical in form, specially designed for the gladiatorial exhibitions of the ancient Roman world. The structure was built round an open space reserved for the combatants. This space, the arena, was separated from the spectators' portion (cavea) by a wall (podium) sufficiently high to protect the spectators from the wild

In wireless broadcasting, amplifier usually denotes a three-electrode thermionic valve used to strengthen the weak signals received on the aerial, and so render them audible at the desired strength in the telephones or loud speaker. High-frequency amplification is the magnifying of the impulses before rectification; low-frequency amplification is the intensifying of audio-frequency currents after rectification. The degree of amplification depends on the magnifying power of the valve, or the ratio of its grid-voltage change to plate-voltage change. This may be from 2 to 20.

Several valves may be connected together so that the incoming impulses are increased in strength a step by each; in another arrangement of the apparatus some of the plate current may be fed back again into a valve or valves so as to amplify it still more. See Thermionic Valve; Wireless.

AMPTHILL. Urban district and market town of Bedfordshire, England. On the L.M.S. Rly., 8 m. S.S.W. of Bedford, it has an old church, S. Andrew's, restored in the 19th century. Some almshouses, and a brewery. Ampthill castle, now destroyed, was the residence of Catherine of Aragon just before her trial. Built in the 15th century by Lord Fanhope, it eventually passed to the Russell family, and Lord Odo Russell took his title from here. Near are the ruins of Houghton House, said to be the original of Bunyan's House Beautiful. Pop. 2,270.

AMPTHILL, ODO WILLIAM LEOPOLD RUSSELL, 1st BARON (1829-84). British diplomatist. Born at Florence, Feb. 20, 1829, the son of Lord George William Russell, he began his diplomatic career in 1849 as attaché at Vienna. After working at the foreign office from 1850-2, he filled various diplomatic posts until 1870, when he was made assistant under-secretary for foreign affairs. In Oct., 1871, he was appointed ambassador at Berlin. In 1872 he was made a privy councillor and in 1881 was raised to the peerage. He died Aug. 25, 1884, at Potsdam. His eldest son, Arthur Oliver Villiers Russell, 2nd baron (b. 1869), was governor of Madras from 1899 until 1906, and acting Viceroy of India in 1904.

AMPULLA. Vessel used by the Romans to contain liquids. It was in the shape of a bottle, and was employed for holding the oils with which both living and dead were anointed. It passed for a like purpose into the service of the Christian Church, and is still used at coronations. That used at English coronations is of gold, in the shape of an eagle with outstretched wings. The word comes from the Latin and is a diminutive of amphora (q.v.).



Ampulla used at English coronations

AMPUTATION (Latin ambi, round; putare, to prune, trim). Removal of some portion of the body which is injured or diseased in such a way as to endanger the patient's life or to preclude any hope of its restoration to a normal or useful function. See Anaesthesia; Surgery.

AMRAOTI OR UMRAVATTEE. Town in Berar, Central Provinces, India. The capital of Amraoti district, it is 6 m. from Badnera junction on the Great Indian Peninsula Rly. It is situated in the valley of the Purna, a tributary of the Taptis, at the end of an extensive alluvial plain. A great cotton mart and grain market, it is famous for its temples, that of Bhawani being 1,000 years old. Amraoti district has an area of 4,733 sq. m. Three-quarters of the people are Hindus. Pop. town, 40,694.

AMRAVATI OR AMARAVATI. Ruined city of India. In Kistna district, Madras, near Dharanikota, it is on the south bank of the Kistna, 23 m. N.W. of Guntur. One of the centres of the old Buddhist kingdom of Vengi, its tope (monument) is famous. The carvings, illustrating the life of Buddha, are preserved in the British and Madras museums.

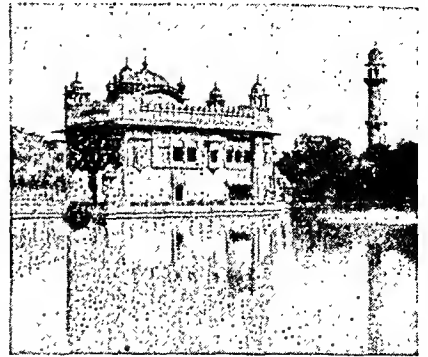


Amphora. One of the finest known of ancient Roman examples. See p. 77
British Museum

AMRITSAR. District and city of India, in the Lahore division of the Punjab. The city is 32 m. E. of Lahore, on the North-Western Rly., and is the religious centre of the Sikhs. An important commercial city, it has carpet, cashmere shawl, and silk manufactures, and is a trading centre for Kashmir and the N.W. Frontier Provinces. Grave rioting took place here April 10-11, 1919, following the removal of two native agitators: the mobs burned banks, Government buildings, and rly. premises. On April 11 troops dispersed a meeting of 5,000 natives, of whom from 400 to 500 were killed and about 1,500 wounded. A public inquiry was held and the evidence aroused grave concern in Britain. Pop. city, 160,218.

AMSTERDAM (Latin Amstelodamum; formerly Amstelredam, the dyke or dam of the Amstel). The commercial capital, largest city, and a seaport of the Netherlands, its area is 183 sq. m. In the prov. of N. Holland, it is on the Amstel river, where it joins the IJ or Y, an inlet of the Zuider Zee.

A fishing village before 1200, the establishment of the Dutch East India Company in 1602 made it the foremost mercantile city in Europe, and its fortunes suffered little until about 1780 and then only temporarily.

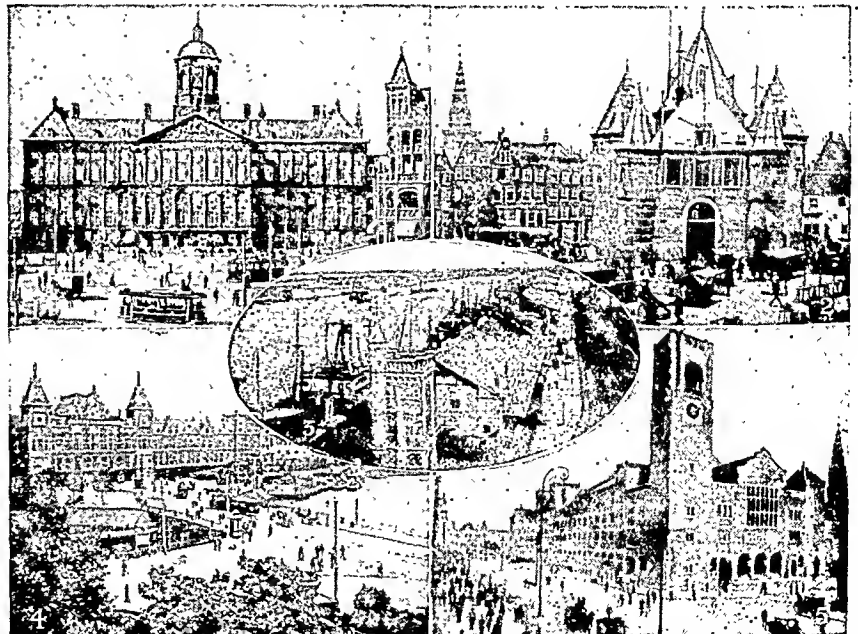


Amritsar, India, religious centre of the Sikhs. The Golden Temple standing by the Pool of Immortality

Built on piles, the oldest portions of the city lie round the Dam, a great square. Later extensions are marked by concentric crescents of house-lined canals, some filled in, which form its main structural lines. The buildings include S. Anthony's Waag (weigh house), at the Nicuwe Markt, originally a city gate, once the surgeons' guild house, for which Rembrandt painted the Anatomy Lesson, containing the city archives; the Oude Kerk (Old Church, 1300), behind the Warmoesstraat; and the Nieuwe Kerk (New Church, 1408), beside the palace on the Dam, which was built in 1648-55 by Jacob van Kampen as a town hall.

During the 17th century Amsterdam expanded, by the stately Heeren and Keizergrachts or avenues, as far as the present Lynbaans-gracht. Since then the city has overflowed in new suburbs. In these suburbs building developments are supervised by the authorities, and the result is a pleasing arrangement of wide roads and open spaces in the midst of houses, shops, churches and other modern edifices. The docks and quays, which extend along the IJ, have been improved to deal with the port's increasing trade.

Amsterdam is Holland's chief money market and an important European mercantile mart. It is connected with the sea by the North Holland (1819-25) and North Sea (1865-95) canals. Diamond polishing is almost Amsterdam's monopoly. Other industries are ship-



Amsterdam: old and new buildings in Holland's commercial capital. 1. The Royal Palace, which looks on to the Dam, a great square, and the vital centre of Amsterdam. 2. Nieuwe Markt, with the quaint S. Anthony's weigh house, in which are preserved the civic archives. 3. Docks and wharf buildings. 4. The central railway station, built upon an artificial island. 5. The Bourse, an imposing modern building

building, sugar refining, printing, brewing, dyeing, and the making of glass, paper, etc.

The city's administration is vested in a burgomaster, wetbouders (aldermen), and a municipal council. The university, which has a library of 350,000 vols., dates from 1632.

Amsterdam's chief glory is associated with Dutch art. In the Rijks (National) Museum is the most representative collection of Dutch painting in the world. Other galleries are the Municipal Museum, the Fodor, the Six, and that of a private society, Arti et Amicitiae. The Palais van Volksvlijt, or palace of National Industry, is used for exhibition purposes. The city has a botanic garden and one of the finest zoological gardens in Europe. Pop. 734,884.

AMU-DARIA. River of Central Asia. It rises on the Pamir plateau in two headstreams, and during its course of about 1,500 m. forms part of the boundary between Afghanistan and Bokhara, whence it takes a general N.W. trend to enter the Aral Sea by two main branches. It is less utilised as a commercial waterway than for irrigation.

AMULET. Object worn as a charm against evil. Researches in Babylonia, Assyria, and Egypt have brought to light a vast number of specimens, of which the scarabaeus and the eye of Isis are familiar examples. Mabeomedans wear small cases containing extracts from the Koran. In Italy the peasants very commonly wear little figures of animals as charms against the Evil Eye. In Great Britain flint arrowheads and small pebbles with holes in them served a similar purpose. The wearing of Christian symbols as amulets has always been common. See Evil Eye.

AMUNDSEN, ROALD (1872-1928). Norwegian explorer. About 1901 he joined an exploring expedition into the Arctic seas, and in 1905 led a party through the North-West Passage. In 1910 Amundsen set out in the Fram for the Antarctic, and reached the South Pole on Dec. 16, 1911. After his return, he wrote a book, *The South Pole*, 1913, and lectured on his travels. In 1918 he started on a North Polar expedition, reaching Nome, Alaska, in July, 1920. He crossed the North Pole by airship, May, 1926. On June 18, 1928, Amundsen left Tromsø, in Norway, in a French seaplane, to search for the expedition under General Nobile. He never returned, so it is certain that he met his death on the journey.



Roald Amundsen, Norwegian explorer

AMUR. River of Asia. Known also as the Sakhalin-ula and the Heilung Kiang, it is formed at Ust-Stryelka by the union of the Argun and Shilka, which rise in the Stanovoi Mts. In its upper course the Amur proper follows a S.E. direction, and separates Manchuria from the Siberian prov. of Amur, after which it flows N.E., forces its way through the Khingan ranges, and enters the sea at Nikolaievsk. Frozen for half the year, it is navigable by large steamers for 1,500 m. from May to Oct. It is 2,920 m. long from the source of the Argun; the Amur proper is 1,800 m.

One of the three provinces of Manchuria, officially called Heilung Kiang (q.v.), is sometimes called Amur, as is a province of Siberia.

AMURNATH. Cave in the mts. of N.E. Kashmir. About 30 yds. high, with a depth of 20 yds., it is reputed to be the dwelling place of the god Siva, and is a resort of pilgrims.

AMYCLAE. Ancient Greek town of Laconia, 2 m. S.E. of Sparta. The reputed home of Castor and Pollux, and originally the chief town of the Achaeans, it long maintained its independence after the Dorian conquest. A

tomb of its princes contained two gold cups, magnificent examples of Mycenaean art, found at Vaphio, and the bronze statue of Apollo in his temple was famous.

AMYGDALIN (Greek amygdalē, almond). A glucoside discovered in 1830 by Robiquet and Boutron-Charlard in bitter almonds to the extent of 2.8 p.c. to 4 p.c. It is also contained in peach kernels (2.35 p.c.), cherry kernels (0.82 p.c.), and other vegetable products. See Emulsion.

AMYGDALOID (Greek amygdalē, almond; eidos, form). Geological name for a lava in which most of the steam-cavities have been filled with almond-shaped masses of mineral matter since the lava became solid. These secondary masses are known as amygdalae.

AMYL (Gr amydon, starch) or **PENTYL**. Alcoholic radical of the pentacarbon series. Fusel oil is amyl alcohol and is obtained in the rectification of alcohol, particularly that prepared from potatoes. Amyl alcohol forms the starting point in the production of synthetic rubber. Amyl acetate is known as jargonelle pear oil and is used for flavouring purposes. Amyl valerate has the flavour of apples. Amyl nitrite when inhaled produces sudden dilatation of the blood vessels, and is used in medicine to relieve angina pectoris.

AMYLOPSIN (Gr. amydon, starch; opsia, appearance). Name of a ferment secreted in the pancreas or sweetbread. It acts on starch in the process of digestion, converting it into maltose, a form of sugar.

ANABAPTISTS (Gr. anabaptizein, to baptize again). Title of a fanatical Protestant sect that arose at Zwickau under the leadership of Thomas Münzer in 1520. It held that the existing order ought to be destroyed and a new divine order instituted which should do away with all inequalities and private property, ideas which developed into a negation of all moral laws. The name was afterwards loosely applied to other Protestant sects.

Münzer's doctrines helped to bring about the Peasant Revolt in Germany in 1525. He himself was put to death, but the Anabaptists continued to flourish under John of Leiden until 1535, when Münster, their stronghold, was captured and their leaders executed.

ANABASIS (Gr. going up). Historical work by the Greek general and writer Xenophon. It is the narrative of the expedition in 401 B.C. of Cyrus the younger against his elder brother Artaxerxes, king of Persia, and of the famous Retreat of the Ten Thousand, led by Xenophon himself after the death of Cyrus. The style of Xenophon's narrative is conspicuous for its simplicity and directness. Anabasis is also the title of Arrian's account of the campaigns of Alexander the Great.

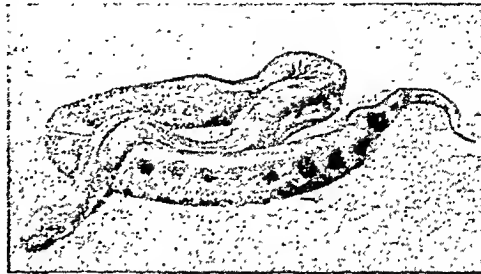
ANABLEPS. Small fresh-water fish of the family of Cyprinodontidae, found in Central and S. America, and remarkable for the structure of the eyes, which project strongly and are each horizontally divided by a band or partition into two parts. Hence its popular name of cuatro ojos or the four-eyed fish.

ANABOLISM (Gr. anabolē, anything thrown up). In biology, the chemical and physical process involved in the construction or building up of simple elements into a complicated combination of protoplasm, or living matter. See Metabolism.

ANACHRONISM (Gr. ana, back; chronos, time). Assignment of events or things or persons to a period earlier or later than that to which they actually belong. Literature abounds in examples of such mistakes in fact, especially in historical drama and fiction, owing to imperfect acquaintance with the more or less remote period dealt with or to mere carelessness.

ANACOLUTHON (Gr. anakolouthos, not following). Inconsistent construction of a sentence, in which the writer or speaker passes from one form of construction to another before the first is complete, e.g. having opened the window, the candle went out.

ANACONDA. Snake of the python family, a native of Brazil and Guiana. Brown in colour, with large black spots on the back and smaller ones with white centres along the sides, its length is from 25 ft. to 30 ft. It inhabits the



Anaconda, a large snake of the python family, sometimes 30 ft. in length. It is a native of South America

forest rivers and preys upon animals and birds.

ANACONDA. City of Montana, U.S.A. It is 27 m. N.W. of Butte. Its copper smelting works, the largest in the world, are principally fed by the rich Anaconda mines. Pop. 11,668.

The Anaconda Copper Mining Co., the chief mining company in the district, is a great producer of silver and copper.

ANACREON (563-478 B.C.). Greek lyric poet. He was born at Teos in Ionia, and fled before the invading Persians to Abdera in Thrace. Later he lived at the court of Polycrates, tyrant of Samos, until 525, then under the Peisistratidae at Athens, and perhaps lastly in Thessaly. He wrote in the Ionic dialect. His language is simple, like that of everyday life, and his themes are love, wine, dancing, and enjoyment. The genuine extant fragments are distinguished by grace and charm, but lack depth of sentiment. At a much later date a collection of pieces, tasteless imitations of the real Anacreon, was published under his name.



Anacreon, Greek lyric poet
British Museum

ANADYOMENE (Gr. rising). In Greek mythology, a name given to Aphrodite (Venus). It refers to her supposed birth from the foam of the sea. This was the subject of a famous painting by Apelles. See Venus.

ANAEMIA (Gr. an-, not; haima, blood). Reduction in the amount of the blood as a whole, or of its corpuscles, or of some of its more important constituents, such as albumin and haemoglobin. It may be a primary disease, of which there are two forms—simple anaemia and pernicious anaemia—or it may be a symptom of some other disease or condition, when it is called secondary anaemia.

Simple anaemia is characterised by a marked diminution in the haemoglobin of the blood. The condition is most frequent among overworked and ill-fed girls living in large towns who do not obtain sufficient fresh air, sunshine, and healthy exercise. Chlorosis or green sickness, another form, generally begins between the fourteenth and seventeenth years. The skin takes on a greenish-yellow tinge, to which the disease owes its earlier name.

Simple anaemia is an entirely curable disease. Pernicious anaemia is a much more serious condition, associated with profound changes in the blood. It affects principally persons who have reached middle age.

ANAESTHESIA (Gr. an-, not; aisthesis, feeling). A condition of total or partial insensibility to touch and pain. This may be the result of injury or disease, or may be produced artificially by drugs. In 1800 Sir Humphry Davy discovered nitrous oxide gas for use in dentistry; in 1846 a Boston dentist

W. T. G. Morton, used sulphuric ether in dental operations; and in 1847, the Scottish obstetrician, James Young Simpson, introduced chloroform, primarily for childbirth, but also for employment in general surgery.

Modern progress in general anaesthesia has been chiefly in the direction of improvements in methods of administration. Other allied drugs have been occasionally introduced, but none except ethyl chloride has been generally adopted. Some degree of local anaesthesia can be obtained by freezing the skin with a spray of ethyl chloride or ether, but the most usual method is by the use of cocaine, discovered by Koller in 1884, and by other drugs of the same type, such as eucaine, stovaine, etc.

A general anaesthetic is usually administered in the form of vapour, by means of specially designed inhalers. Local anaesthetics may be given by spraying, as in throat operations, by dropping, as in ophthalmic surgery, or by injection, a valuable example of the latter being injection into the spinal cord to produce regional anaesthesia.

Fatalities are very infrequent and are due in nearly every instance to the severity of the injury or the bad state of health of the patient. See Chloroform; Cocaine; Ether; Laughing Gas; etc. Consult Handbook of Anaesthetics; J. S. Ross and W. M. Fairlie, 1929.

ANAGNI. City of Italy. It stands on a hill 1,500 ft. above sea level, and is 46 m. by rly. from Rome. The chief city of the ancient Hernici and a bishopric since 487, it possesses an 11th century cathedral, an early 12th century town hall, and remains of walls. It was the birthplace of four popes and the scene of Adrian IV's death. Pop. 10,430.

ANAGRAM (Greek ana, back; gramma, anything written). Word, phrase, or sentence made up of all the letters forming another word, phrase, or sentence, as in the instances: Matrimony, "Into my arm": Florence Nightingale, "Flit on, cheering angel." A 16th century one was Charles James Stuart, "Claims Arthur's Seat." An old scholastic example is that of Pilate's question Quid est veritas? (What is truth?), turned into Est vir qui adest (It is the man before you).

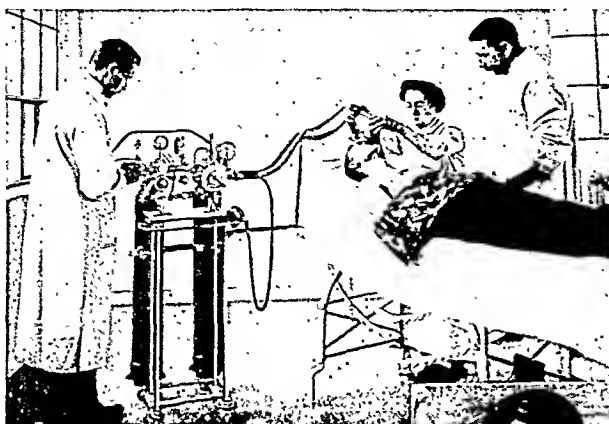
ANAHUAC. Name by which the great central plateau of Mexico is known, formerly applied to the ancient kingdom of Mexico. The region extends between the Rio Grande in the N. and the isthmus of Tehuantepec in the S., and was covered by lakes, hence its name, meaning amid the waters.

ANAITIS. Iranian goddess, sometimes called the Persian Artemis. The name is the Greek form of the Persian Anahita. The goddess of fertilising waters, she passed into Mazdeism, and was described in the Avesta. She was invoked in aid of marriage and child-

birth, and the Persian Artaxerxes Mnemon erected images of her throughout his empire. Her cult spread to Armenia and Asia Minor.

ANAKIM OR **ANAKIMS.** Giant race who inhabited the hill country of Hebron, S. Canaan. They were overthrown by Joshua and Caleb (Num. 13; Josh. 11, 14, 15; Judg. 1). They are regarded as Cushite wanderers from Babel.

ANALOGY (Gr. ana, up to; logos, proportion). A certain similarity in things in other respects unlike. In language, it creates



Anaesthesia. Administering an anaesthetic to a patient; (right), giving ether by Clover's inhaler

forms and even alters whole words after the model of others already familiar. Biological analogy is resemblance in function, not in form. In logic, it is a process of reasoning in which it is assumed that if two or more things possess similar essential, non-contingent attributes, their other attributes will probably be similar

ANALYSIS (Gr., decomposition). Separation of any whole into the parts of which it consists. Its correlative is synthesis (putting together), without which it is incomplete.

Grammatical analysis is the splitting of a sentence into the nouns and other parts of speech. In chemistry, analysis implies the determination of the composition of a substance, or the quantity of extraneous matter present. In mathematics, analysis denotes the process by which a problem is reduced to its simplest elements. It is more specifically applied to those branches of mathematics which investigate the relations of variable or indeterminate quantities by means of symbols. Thus analytical geometry investigates the character of lines, curves, and surfaces by the employment of algebraic symbols.

ANALYST, PUBLIC. Person appointed by a local authority—county or town council in Great Britain—under the provisions of the Sale of Food and Drugs Act, 1875. By a general order of 1900 he or she must furnish proof of competent skill and knowledge in (a) analytical chemistry, (h) therapeutics, and (c) microscopy, proof to be by certificate, diploma, licence, or document. The analyst must not be engaged directly or indirectly in any trade or business connected with food or drugs in the place for which he is appointed.

Any private individual who has purchased a food or drug is entitled to submit it to the public analyst for the place where the purchase is made, and to receive a certificate of the result of his analysis, on payment of a fee.

The Society of Analysts was founded in 1874 to promote the efficiency of food adulteration laws, secure the appointment of competent

public analysts, and improve the methods of detecting adulteration (q.v.). In 1907 it was incorporated as a limited company, The Society of Public and Other Analysts. The offices are at 85, Eccleston Sq., London.

ANANIAS. The name of three persons mentioned in the N.T. (1) A convert who made a false declaration concerning the sale of a piece of land for the church; he and his wife Sapphira fell dead before the rebuke of Peter (Acts 5). (2) A disciple at Damascus to whom Christ appeared in a vision and directed him to baptize Saul of Tarsus, who was afterwards known as Paul (Acts 9 and 22). (3) The Jewish high priest who was one of Paul's accusers before Felix (Acts 23-24).

ANAPAEST (Greek ana, back; paion, to strike). In prosody, a tri-syllabic foot consisting of a long, or accented, syllable preceded by two short, or unaccented, syllables. It is so called because it is a dactyl reversed. Although the English language contains few words that are anapaests—domineer is an example—anapaestic verse, especially the anapaestic tetrameter, has established itself firmly in English literature. A familiar example is Byron's *The Destruction of Sennacherib*, beginning *The Assyrian came down like the wolf on the fold*. See Poetry

ANAPHYLAXIS (Gr. ana, back; phylassein, to guard). Term applied to the condition of exaggerated susceptibility to the action of an injected (albuminous) substance following a first injection of the same substance.

ANARCHISM (Gr. an-, not; archē, rule). Revolutionary doctrine in opposition to all law and order as enforced by a government. In its original sense the Greek word anarchy meant no government whatever, and it is so used to-day.

Anarchism, however, is held by its more intelligent advocates to be a system of voluntary government not relying on the sanctions of the state. It is rather a movement directed towards destroying the tyranny of the state and giving fuller play to natural economic forces and the principle of mutual aid. This, it is thought, would produce a state of society in which social order would rest not on repression, but on goodwill.

Although the philosophy of anarchism is not concerned with violence, its supporters generally are avowed advocates of forcible methods and of propaganda by deed. Before the Great War anarchist societies were common in Europe.

ANASTASIUS. Name of two East Roman emperors. Anastasius I (c. 430-518) succeeded Zeno, whose widow Ariadne he married, as emperor, in 491, changing his name from Silentiarius to Anastasius. In 493 he defeated Zeno's brother Longinus at Cotyaeum (Kutaya), and in 506, after a three years' war, made peace with Persia. He built the long wall, which was called after him the Anastasian wall, in order to protect Constantinople from Bulgar raids.

Anastasius II (d. 721) succeeded the emperor Philippicus Bardanes in 713. A mutiny at Rhodes in 716 resulted in his deposition in favour of a tax-gatherer, Theodosius, who was succeeded by Anastasius's former general, Leo the Isaurian. In 721 Anastasius, who had lived for five years as a monk at Thessalonica, attempted to recover his lost throne and besieged Constantinople, but was captured by Leo and put to death. See Byzantium.

ANATASE (Gr. ana, back; teinein, to stretch). Oxide of titanium. It is of the same composition as rutile and brookite, but differs from them in crystalline form. It occurs as small tetragonal pyramids and tables, and is usually a product of metamorphism of other

titaniferous minerals, e.g. ilmenite. As microscopic crystals it is common among the heavier constituents of most sands.

ANATHEMA. Greek word used in the Church in passing sentence of excommunication. Its literal meaning is something set up, and it was originally applied to gifts to the gods or to animals designated for sacrifice. In the latter connexion it gained its later meaning of condemned to destruction, and it is in this sense that S. Paul uses the term: "If any man love not the Lord Jesus Christ, let him be anathema" (1 Cor. 16).

ANATOLIA. The late Greek name (Anatolē, the East) for Asia Minor (q.v.). It was revived by the Turks, who called it Anadolı, and it is now part of Turkey.

The Anatolian Railway is part of the Bagdad Railway (q.v.). It runs from Constantinople to Angora and Konieh, with a prolongation from Angora to Caesarea. Its first section was opened in 1872.

ANATOMY. Derived from the Greek *anatemnein*, to cut up, the word anatomy is applied to the scientific study of the bodily structure of man and other animals. It has also been described as the art or practice of dissection, as it is only by dissecting the body that the necessary knowledge about the structure of its parts is obtained.

The systems of the body are: (1) the alimentary system, which has to do with the mastication, transmission, digestion, and absorption of food; (2) the absorbent or lymphatic system, concerned in conveying to the blood certain products absorbed from the alimentary system and also waste products from the tissues; (3) the respiratory system, comprising the lungs and breath passages, by which oxygen enters the body and the waste gas—carbon dioxide—is thrown out; (4) the circulatory system, made up of the heart, which forces blood containing oxygen and nutriment along arteries into minute vessels or capillaries, from which the living tissues are fed; while from the capillaries the blood, laden with waste products from the tissues, particularly carbon dioxide, passes into veins, by which it is conveyed back to the heart; (5) the locomotive system, comprising the muscles, which give living beings a power of moving one part upon another; the bones or skeleton, which serve as levers to the muscles and give support, solidity and protection to the body; and the joints, where bones come in contact and move on each other; (6) the nervous system, which comprises the brain, spinal cord, nerves, and organs of sense, such as the eye, the ear, the nose, the tongue, and the palate. In this system must also be included the skin, which not only serves as an organ of sense, but also protects the body and helps in regulating its temperature.

Besides human anatomy, there are veterinary anatomy, which includes a knowledge of the structure of domestic animals. artistic anatomy, in which the structure of the human or animal body is studied for purposes of correct delineation; microscopic anatomy, which reveals the minute composition of the tissues; and embryology, which is the study of the structure and growth of developing forms.

It was not until the close of the 18th century that comparative anatomy was rightly cultivated. Cuvier (1769-1832), a French naturalist, set out to classify all living animals according to their internal structure, while Darwin (1809-1882) explained variations of structure by his theory of evolution. John Hunter (1728-93) is the real founder of functional anatomy, as opposed to morphology, which is the study of form. See Embryology; Morphology; Physiology; Surgery, etc. Consult Guide to Anatomy, D. Ewart, 1926

ANAXAGORAS

(c. 500-428 B.C.). Greek philosopher. Born at Clazomenae in Asia Minor, he settled at Athens, where he found an influential patron in Pericles. Anaxagoras held that the universe was composed of an infinite number of seeds of the different kinds of matter. In the beginning these seeds were in a state of chaos, but with the advent of nous, or intelligence, a rotary impulse was given to the mass, as a result of which all cognate seeds gradually came together to form the different substances. His suggestion that the sun and moon were not divinities, but merely fiery lumps, was condemned as atheistic, and he was forced to leave the city. He died at Lampsacus in Asia Minor.

ANAXIMANDER

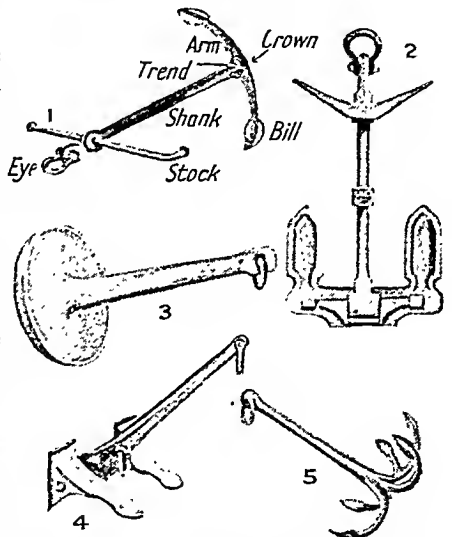
(c. 610-547 B.C.). Greek philosopher. Born at Miletus in Asia Minor, he was the friend of Thales and lived for many years at the court of Polycrates of Samos.

He held that all the material substances which make the universe are derived from one element—which he called *apeiron*, or indeterminate matter—which contained and governed all things, being itself immortal and imperishable. He is also credited with various inventions, e.g. a sundial and celestial globe.

ANAXIMENES. Greek philosopher who flourished in the 6th century B.C. Born at Miletus in Asia Minor, he held that all the substances of which the material universe is composed are derived from one natural element, air, as the result of its rarefaction and condensation.

ANCASTER, DUKE OF AND EARL OF. English title. The title of Duke of Ancaster and Kesteven was held by the family of Bertie 1715-1809, and that of Earl of Ancaster by the family of Heathcote-Drummond Willoughby since 1892. The earl is joint hereditary great chamberlain of England, an office held by the dukes of Ancaster. The estates of the family are mainly in Lincolnshire and Perthshire. Ancaster is a village in Lincolnshire, once a Roman station.

ANCESTOR WORSHIP. Expression in ritual of reverence for departed ancestors, parental or remote. It should be distinguished from the general cult or tendence of the dead, which is a widespread concomitant of the belief known as animism.

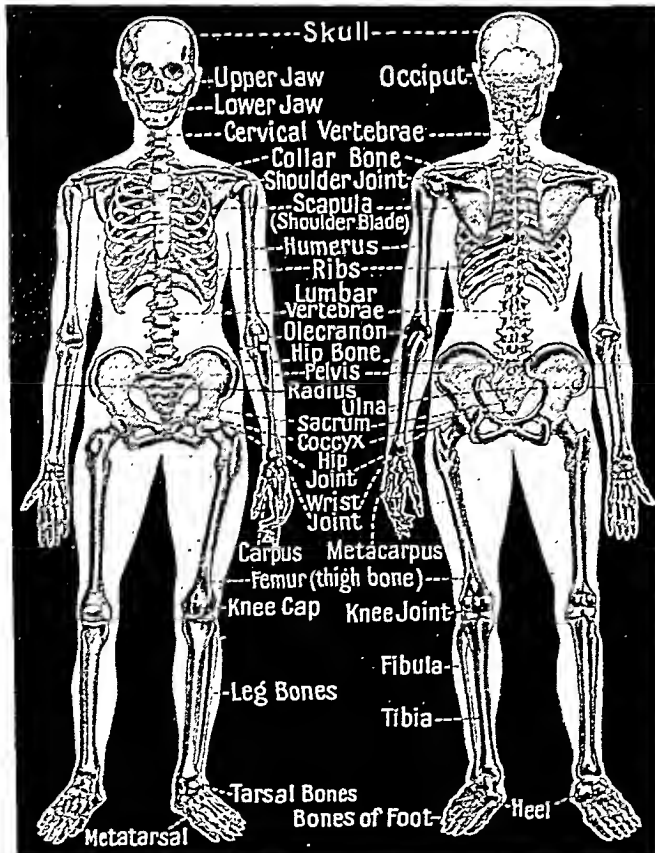


Anchor. 1. Admiralty pattern. 2. Close stowing anchor. 3. Mushroom anchor, used for lightships. 4. Stockless anchor. 5. Grapple, used from small boats

In its stricter form ancestor worship belongs to a later culture, when settled husbandry and patriarchal rule first developed outstanding men. In this form it dominated early Greek religion, with its deification of heroes. It persisted as a private worship in imperial Rome by the side of the national polytheism, and was converted, in early Christianity, to devotion to the saints. Its chief home to-day is China, where the motive is filial piety rather than the hope of objective benefits. See Animism.

ANCHISES. In Greek legend, ruler of Dardanus in the Troad. By his beauty he attracted the goddess Aphrodite, who became by him the mother of the Trojan hero Aeneas (q.v.). In the story in Virgil's *Aeneid* the aged Anchises was carried off by his son after the fall of Troy, and died in Sicily.

ANCHOR (Lat. *ancora*, a hook). Implement of iron or steel attached to a cable and thrown overboard to hold a ship stationary. A large ship will carry several anchors—bower, sheet, stream, waist, and spare anchors. The sheet anchor is presumed to be the best and to be used only in case of emergency.

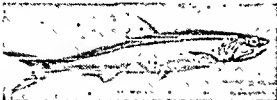


Anatomy. Front and back views of skeleton, with the terms used in anatomy for indicating the various bones that build up the human frame

ANCHOR ICE. Ice formed on the bed of a stream. The waters of a stream are mechanically mixed by continual movement, so that when the air temperature is very low the whole mass is occasionally reduced to freezing point. In these conditions anchor or ground ice would be formed on the bed, where there is less movement than at the surface.

ANCHORITE (Greek, ana, back; chorein, to retire). One who retires from the world and lives apart for religious meditation. Anchorites arose about the 3rd century, where at one time some thousands lived in the deserts of Egypt. In later days the anchorite or anchoress occupied a cell or small house connected with a church. See Asceticism.

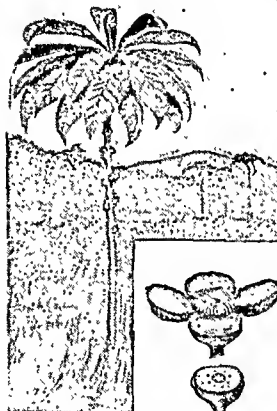
ANCHOVY (*Engraulis encrasicolus*) Small fish of the herring tribe. It abounds in the Mediterranean and in the Zuyder Zee. It



Anchovy, a small fish of the herring family, common in European waters

occurs more or less around all the European coasts, except in the extremenorth, and is not uncommon off Cornwall and Devonshire. It is characterised by a deeply forked tail and a conical snout which projects considerably beyond the lower jaw. The anchovy in its preserved state is much in demand as a relish and for sauce making.

ANCHOVY PEAR (*Grias cauliflora*). Fruit produced in Jamaica and the W. Indies by a tall slender tree of the order Myrtaceae. The tree has an unbranched stem and a crown of drooping, lance-shaped glossy leaves, often 3 ft. in length. The flowers are large and white with four leathery petals. The fruit is plum-like and russet-brown, 3 ins. or more long. It is pickled and tastes like the mango.



Anchovy pear, showing the inflorescence and a section of the fruit

Ancien Régime. Term used for the social and political system which existed in France before the French Revolution.

ANCIENT (late Latin *antianus*, old). Word of various applications. By the ancients is generally understood the civilized people of antiquity, and sometimes the early Greek and Roman authors. The word often implied seniority, hence influence and position. In the book of Isaiah the ancients of his people are the rulers. The Ancient of Days is a title of God. As a corruption of *ensign*, the word formerly meant a flag or flag-bearer, e.g. Shakespeare's Ancient Pistol.

The Society for the Protection of Ancient Buildings was founded in 1877. Its offices are at 20, Buckingham Street, London, W.C. The Ancient Monuments Protection Act, 1913, empowers the Office of Works to take charge of buildings of historic architectural interest, and many are in its care.

Ancient demesne is a phrase used for land that has been long in the possession of the Crown and the tenants of which enjoyed special privileges. Many of the old towns such as Nottingham were in ancient demesne.

ANCIENT LIGHTS. English legal term. At common law, if a building has a window which has been there since time immemorial, the owner of the building has the right to an uninterrupted flow of light to that window, and it is called an ancient light. This means that no adjoining owner may put up anything which will shut out a reasonable flow of light to the window. By the Prescription Act, 1832, a light is ancient if it has been uninterrupted for a period of 20 years.

ANCON OR **PORT ANCON.** Coast town of Peru. It is 30 m. by rly. N.W. of Lima. It is less populous than formerly, although much visited for bathing. It gave its name to the peace that ended the war between Chile and Peru in 1883.

Ancon is also the name given to the hospital quarter of Panama city. It was founded during the construction of the Panama Canal for the benefit of the workers.

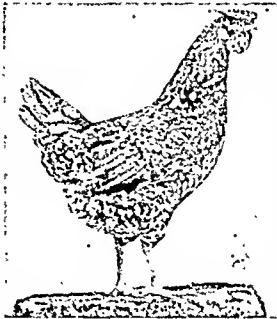
ANCONA (Greek *ankon*, elbow, bend). Seaport and city of Italy. The capital of Ancona province, it stands on the Adriatic, 130 m. direct and 185 m. by rly. N.E. of Rome. The harbour, one of the best in Italy, is protected by two fine piers, one built by Trajan in 115 and bearing a triumphal arch in his honour. The cathedral dates from the 12th century and stands on the site of a temple of Venus, of which ten of the original columns survive; its dome is one of the oldest in Italy. There are several palaces and a museum. Ancona is defended by modern forts, and is a torpedo and wireless station; its citadel is now a sugar refinery.

Ancona was founded about 385 B.C. by Greeks from Syracuse, became a Roman colony, and was made a naval station in the Illyrian war, 178 B.C. Caesar took it on his famous march north; Trajan enlarged it; Goths, Lombards, and Saracens sacked it; and in 1532 it was handed over to Pope Clement VII. It was captured by the Austrians in 1849 and hom-barded by them from the sea during the Great War. Pop. 83,236.

The province of Ancona has an area of 748 sq. m. Fruit and cereals are produced, silkworms are bred, and sulphur is mined.

ANCONA FOWL. Offshoot of the Leghorn breed. It was imported into Great Britain in the 19th century. The breed is very precocious, the pullets often laying at eighteen weeks old, and their eggs are large and white-shelled. As a table bird it has few qualifications. The general colouring of the plumage is a distinct hestle green, each feather being tipped with white (see illustration above). See Poultry.

ANCRE. River of N. France. Rising a few miles S.W. of Bapaume, in the department of Pas-de-Calais, it flows generally W. and S.W. for about 25 m. and joins the river Somme below Albert.



Ancona Fowl. Fine specimen of Rosecomb pullet. See below

BATTLE OF THE ANCRE. The closing episode of the great series of battles in the Somme area during 1916-17 is known as the battle of the Ancre. The British advance on the Somme had left a salient on both sides of the Ancre, and to reduce this, Sir D. Haig attacked the Germans on Nov. 11, 1916, the objectives being the fortified villages of Beaumont-Hamel, Grandcourt, Beaucourt and St. Pierre-Divion. The 51st (Highland) division stormed Beaumont-Hamel on Nov. 13, and the 63rd, or Naval division, reached the outskirts of Beaucourt, which fell to the British the next day. South of the Ancre the 39th division entered the fortified village of St. Pierre-Divion. On Nov. 17 the British right made a small advance S. of Grandcourt, but German resistance prevented its capture. These actions so greatly weakened the German positions there as to render a retreat inevitable.

For some time had weather held up the attack, but on Feb. 4 the British front was carried forward N. of the Ancre, up to a point level with the centre of Grandcourt. Throughout the month the advance continued; on Feb. 27 Gommecourt was occupied, Irles was stormed on March 10 and Gréville and Loupart Wood on March 13. Then followed the German retirement to the Hindenburg line, which marked the first important surrender of territory by Germany in the west since the opening of trench warfare in 1914. See Beaumont-Hamel; Somme.

ANCRUM. Parish and village of Roxburghshire, Scotland, 3½ m. N.N.W. of Jedburgh. It was at Ancrum Moor, 2 m. N.W., that 5,000 English were defeated on Feb. 17, 1545, by the Scots. A monument marks the spot where Lilliard, a Scottish maiden, is said to have distinguished herself in battle. Ancrum has one of the best-preserved crosses on the Border.

ANCUS MARCIUS. Fourth legendary king of Rome, 640-616 B.C. The reputed grandson of King Numa, he is credited with the foundation of the port of Ostia, at the mouth of the Tiber, and the fortification of the Janiculum, which be connected with the city by a wooden bridge, called the Pons Sublicius or bridge of piles.

ANDALUSIA. Region of southern Spain. It now comprises eight provinces—Almería, Granada, Málaga, Cadiz, Jaén, Cordova, Seville, and Huelva, and has an area of 33,700 sq. m. It includes some of the most historic and interesting parts of Spain, e.g. the Moorish kingdom of Granada, the cities of Cordova and Seville, and the seaport of Cadiz. It was a Roman province, and later for about 800 years it was under the Moors, whose influence is still evident. Pop. 4,287,872.

ANDALUSIAN FOWL. Spanish breed of poultry introduced into England in 1851 from Andalusia. In egg production it compares favourably with other Mediterranean breeds, laying a large, white-shelled egg. As it thrives equally well in confinement or at liberty, it is hardy and robust, and is adapted to farmer and backyarder alike. The body colour is a slate blue, laced with feathers of a darker tint. The legs are a dark leaden hue, the ear lobes are white, and the male bird weighs from 7 lb. to 8 lb.

ANDAMAN ISLANDS. Group of islands in the Bay of Bengal, 120 m. S.W. of Burma. Together with the Nicobar Islands (q.v.) they form a province of India. They consist



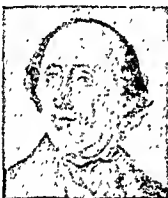
Andalusian Fowl. Cockerel of this robust breed of poultry

of six main islands and about 200 small islands and islets, and have an area of 2,508 sq. m. They are covered with dense tropical jungle, volcanic, and hilly, and have several well-sheltered natural harbours, the chief being Port Blair, the capital. From the forests large quantities of timber are obtained. Tea and coconuts are cultivated. The islands were utilised from 1858 by the Indian Government as a penal settlement, but the practice is being discontinued; 7,196 convicts were on the islands in 1927. There is a wireless station at Port Blair. Pop. 17,814.

ANDERIDA. Roman flint fort at Perensey, Sussex. It was probably erected by the count of the Saxon shore early in the 4th century. It was destroyed by the Saxon invaders in A.D. 491, and later became their settlement of Andredesceaster. Twelve of its solid buttress towers are still discernible.

ANDERMATT. Village of Switzerland, in the canton of Uri. It lies in the upper valley of the Reuss, 3 m. above Göschenen, and stands 4,738 ft. above sea level, near the junction, at Hospenthal, of the roads over the Furka and St. Gotthard passes. It is visited for winter sports. Pop. 986.

ANDERSEN, HANS CHRISTIAN (1805-75). Danish story-teller and poet. In 1830 Andersen published his first volume of poems, including the widely translated *Dying Child*. Three years later he received from the Danish king a pension, which enabled him to travel in Germany, England, Spain, and the East. A prolific writer, it is for his wonderful tales that he is best remembered and will be longest known. These include *The Ugly Duckling*, *The Tin Soldier*, *The Little Match Girl*. On his 70th birthday Christian IX decorated him with the Grand Cross of the Dannebrog, and an album containing one of his tales in fifteen languages was presented to him by his admirers. He died at Copenhagen, Aug. 4, 1875.



Hans Andersen,
Danish writer



E. Garrett Anderson,
British doctor
Office Edit

In 1865 the Society of Apothecaries gave her the degree of L.S.A., and in 1866 she opened a dispensary in London, which developed into the New Hospital for Women in Euston Road, of which she was senior physician for 24 years. Graduating at Paris as M.D. in 1870, she was for 23 years lecturer and ten years dean of the London School of Medicine for Women. Her greatest victory, perhaps, was the formal admission of women to the degrees of the British Medical Association in 1892. In 1908 she became mayor of Aldeburgh, the first woman to hold mayoral office in England.

She married Mr. J. G. S. Anderson, a shipowner, in 1871. Their son, Sir Alan Garrett Anderson, was controller of the navy during 1917-18; and their daughter, Dr. Louisa Garrett Anderson, was chief surgeon at the military hospital, Endell Street, London, during the Great War.

ANDERSON, MARY ANTOINETTE (b. 1859). American actress. She made her first appearance on the stage as Juliet, Nov. 27, 1875. After achieving enormous success in her own country, in 1883-7 she had seasons in London,

occupying the Lyceum Theatre during the absences of Henry Irving in America. Her chief productions were *Ingomar*, *The Lady of Lyons*, Gilbert's *Pygmalion* and *Galatea*. *Romeo and Juliet*, and *A Winter's Tale*, in which she doubled the parts of *Hermione* and *Perdita*. In 1889 she retired from the stage, and in 1890 married Antonio Navarro de Viana. She published *A Few Memories*, 1896.

ANDES. The mountain system of the Andes extends in an almost unbroken line throughout S. America from N. to S., a distance of over 4,000 m., parallel with the Pacific coast, traversing Colombia, Ecuador, Peru, Bolivia and Chile, with Argentina, and contains some of the highest peaks and most stupendous mountain scenery in the world.

In Colombia the Andes split into four ranges, the most important being the Eastern Cordillera, along the

eastern flanks of which is situated the main population of Colombia. The Andes in Ecuador embody two great chains, enclosing the basins or tablelands of Quito, Ambato and Cuenca, and forming as it were an immense avenue of snow-clad peaks, some of which are active volcanoes.

Among them are Chimborazo, 20,498 ft. and Cotopaxi, which is the world's highest active volcano, 19,613 ft.

In Peru the Andes consist of three main chains, the Western, the Central and the Eastern Cordillera. The highest peaks are the Huascaran, 22,182 ft., Huandoy, 21,088 ft. and Coropuna, 22,900 ft. In the S. of Peru the Central Cordillera disappears, and the Eastern and Western enclose the basin of the great lake, Titicaca, 165 m. long and 12,508 ft. above sea level. The Andes in Bolivia form one of the most impressive mountain masses on the globe. In Chile they consist of one main chain, with a lesser maritime Cordillera, and the system approaches much nearer the coast.

The great peak of Aconcagua, 23,097 ft., is the highest mountain in the New World.

These mountains are rich in metalliferous and

other minerals, notably gold, silver, copper, tin, lead, quicksilver, zinc, and, in places, coal. They are treeless except in the ravines, but the uplands are generally covered with coarse grass, the natural food of the llama and the vicuña. They are served by several lines of rail-

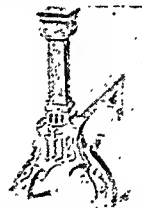
ways, including the Guayaquil-Quito line; the Oroya and the Southern, in Peru, reaching 15,660 ft. and 14,660 ft.; and the Transandine in Chile.

Among the principal ascents of the Andes peaks are those of Chimborazo in 1802 by Humboldt, in 1831 by Boussingault and Hall, and in 1880 by Whymper; Cotopaxi in 1880 by Whymper; Aconcagua in 1897 by Zurbiggen and Vines, in 1898 and 1900 by Conway and in 1902 by Rankin. See Aconcagua.

ANDIRONS (old French andier, mod. landier) or FIREDOGS. Iron supports for logs, commonly in use before the discovery of coal,

when wood fires were universal, and still used in parts of France and elsewhere where wood is abundant. In olden times they were placed in the centre of the room or hall and supported a fixed lower and a movable upper bar; on the lower bar logs were placed criss-cross for burning, the upper one being used for grilling. Usually they were of iron in rather a plain design, though sometimes of most elaborate and exquisitely pierced steel work, and occasionally even of solid silver.

ANDOCIDES (c. 440-c. 390 B.C.). Athenian orator. In 415 B.C. he was forced to leave Athens under suspicion of being concerned with Alcibiades in the mutilation of the statues of Hermes. After two unsuccessful



Andirons, old design,
from Godington, Kent



Andes. One of the great chains of the Andes in Ecuador, the snow-clad peaks of which give rise to several of the large affluents of the river Amazon, some of which break through the Eastern Cordillera

attempts, in 399 he cleared himself of the charge. Of his three surviving speeches the most important was that delivered in 390, in which he advocated peace with Sparta on her own terms. He was included among the ten Attic orators.

ANDORRA (Arab. Aldarra). Republic in the eastern Pyrenees. It lies between the Spanish prov. of Lerida and the French department of Ariège, and covers an area of 175 sq. m. Its pop. is 5,500. Agriculture thrives where the soil is suited to tillage, rye, barley, vines and tobacco being cultivated. There is also abundant mineral wealth, especially iron and lead but transport difficulties make its exploitation doubtful. The inhabitants pay attention to stockbreeding. The natives speak a Catalan dialect.

Andorra is under the joint suzerainty of France and the bishop of Urgel, and its government is entrusted to a council, consisting of twenty-four members holding office for four years, who elect a first and second syndic to preside. Andorra la Vieja is the capital.

Sir Henry Clinton. In this capacity he acted as intermediary in the negotiations between Clinton and Benedict Arnold, who was planning to betray West Point to the British. André and Arnold met, and on the return journey to the British lines André fell into the hands of the Americans. After a court martial he was sentenced to death as a spy, and hanged at New York, Oct. 2, 1780. His remains were reinterred in Westminster Abbey in 1821.



Andrea del Sarto. Self-portrait of the Italian painter. Uffizi Gallery, Anderson

ANDREA DEL SARTO OR **ANDREA D'AGNOLO** (1486-1531) Italian painter. While a pupil of Piero di Cosimo he became intimate with Fra Bartolomeo, and the two collaborated in The Baptism of Christ, the first of twelve frescoes for the Scalzo Cloister. About 1518 he was invited by Francis I of France to visit that country; and while there he painted the famous Charity, now in the Louvre. Returning to Florence in 1519, he gradually sank into indigence, and finally fell a victim to the plague, Jan. 22, 1531.

Andrea is finely represented at the Uffizi and Pitti

galleries, and in the National Gallery, London, by a Holy Family and a portrait of himself. His famous frescoes include the Cenacolo of the S. Salvi Convent, the series of S. Philip Benizzi in the Church of the Annunziata at Florence, and the Scalzo series. Andrea had an imitative and a creative genius, a great sense of structure, drawing and colour, and a marked homeliness of style. See Assumption.

ANDREWSWEALD. Name of a woodland waste extending from Folkestone to Southampton Water, between the N. and S. Downs. This uninhabited wild—now the Weald—long formed a barrier between the Sussex and Wessex kingdoms, traversed only by Stane Street. Its timber was afterwards employed for smelting Sussex iron. Scattered relics of the original forest remain in Ashdown and Tilgate, and in avenues along many roads.

ANDRÉE, SALOMON AUGUST (1854-97). Swedish balloonist. He was born at Grenna, Oct. 18, 1854. He was educated at the Stockholm technical college and showed early a marked interest in ballooning. In 1895 he worked at a plan for reaching the North

Pole in this way. In July, 1897, he left Danes Island, Spitsbergen, with two companions, Strindberg and Fraenkel, in a balloon of 162,000 cubic feet capacity, but was heard of no more. Some of the buoys which they dropped were found, but beyond these the several expeditions sent out to find him could discover nothing. Since Andrée's time the North Pole has been successfully reached both by airship and aeroplane.



S. A. Andrée, Swedish balloonist

ANDREEV, LEONID NICOLAIEVITCH (1870-1919). Russian novelist and dramatist. He started life as a law reporter, but when his short stories began to appear rapidly attained popularity as a writer. These stories display vivid imagination and something of a morbid delight in the horrible, particularly in the analysis of the psychology of madness. The first collection of them was published in 1901. Later he wrote plays, some of which enjoyed considerable success; a Biblical Trilogy—Judas Iscariot, Eleazar, and Ben Tobit—(tr. W. H. Lowe, 1910), and a grim description of war, The Red Laugh.



L. N. Andreev, Russian author

ANDREW, SAINT. One of Christ's apostles. A native of Bethsaida, a fisherman, and a follower of John Baptist, he left the latter to follow Jesus (John 1), to Whom he immediately brought his brother Simon Peter. With his brother he was one of the two first called to apostleship (Mark 1), to be "fishers of men." The accounts of his later life are purely traditional. He is said to have preached in Scythia and so to have become patron saint of Russia, and to have suffered martyrdom at Patrae about A.D. 70. He is the patron saint of Scotland, S. Andrew's day being Nov. 30.



Lancelot Andrewes, Anglican divine Bodleian Library

ANDREWES, LANCELOT (1555-1626). Anglican divine. Appointed master of Pembroke Hall, Cambridge, in 1589, he was made vicar of S. Giles's, Cripplegate, by Elizabeth in 1589, a court chaplain, 1590, and dean of Westminster, 1601. James I promoted him to the bishopric of Chichester, 1605, Ely, 1609, and



Andorra. Capital of the little mountain republic between France and Spain

ANDOVER. Borough and market town of Hampshire. On the Anton, Andover is 57 m. W.S.W. of London by the Southern Rly. Situated in an agricultural district, it has malting works and is an aircraft station. There are Roman villas near the town. Market day, Fri. Near is Enham, the village centre for disabled soldiers. Pop 8,572

ANDRASSY, JULIUS, COUNT (1823-90). Hungarian statesman. He was born March 8, 1823, took an active part in the revolution of 1848, and remained in exile until 1857. In 1861 he was elected to the Hungarian diet, and on the formation of the Dual Monarchy in 1867 was appointed prime minister of Hungary. From 1871 to 1879 he was foreign minister of Austria-Hungary, and he represented Austria-Hungary at the Congress of Berlin in 1878 and negotiated the alliance with Bismarck in 1879. He died Feb. 18, 1890.



Count Andrassy. 1823-1890

His son, Julius Andrassy (1860-1929), was a determined opponent of Count Tisza, and became leader of the Constitutional party. In Oct., 1918, he was appointed foreign minister but soon resigned. Later he took part in Hungarian politics as a partisan of the deposed King Charles. In 1920 he published Diplomacy and the World War. He died June 11, 1929.

ANDRÉ, JOHN (1751-80). British soldier. He was born in London of Franco-Swiss parentage, and during the American War of Independence he joined the British army in Canada, 1774, and became aide-de-camp to



Andrew. The martyrdom of S. Andrew, one of Christ's apostles, depicted by the great Spanish painter Murillo Madrid

Winchester, f619. He took part in preparing the 'Authorised Version of the Bible, and died Sept. 26, 1626.

Of his literary work, *The Manual of Private Devotions* has made the widest appeal, and has been frequently reprinted. As a controversialist against Rome his talents are fully displayed in the replies to Cardinal Bellarmine on the subject of the oath of allegiance demanded by James I. His preaching and personal character were alike extolled.

ANDRIA. City of Italy, in Bari province. It is 35 m. W. of Bari, with which a light rly. connects it, and has a trade in almonds, olive oil, and majolica ware. Its cathedral, dating from the 11th century, was destroyed by fire in 1916. Pop. 53,275.

ANDROCLES OR **ANDROCLUS.** Roman slave, who is said to have lived in the 1st century A.D. He is famous for his friendship with a lion. When captured and condemned to die in the arena, the lion sent to devour him fawned upon him, and proved to be the lion from whose paw Androcles, when hiding from his cruel master in a cave in Africa, had extracted a thorn. Androcles was forthwith pardoned and presented with the lion.

Bernard Shaw's play, *Androcles and the Lion*, is a drama dealing with the persecution of the early Christians. It was produced Sept. 1, 1913, at The St. James's Theatre, London, and is an attempt to remove the halo from the first martyrs and to analyse the psychology of martyrdom.

ANDROMACHE. In Greek legend, wife of Hector. Homer's description of Hector's parting with his wife and infant son, Astyanax, before going to his fatal meeting with Achilles is one of the finest passages in literature. After the taking of Troy, Andromache became the captive of Neoptolemus, son of Achilles, who took her back with him to his kingdom of Epirus. She afterwards married Helenus, a brother of Hector. Her sorrows are the subject of a tragedy by Euripides.

ANDROMEDA. In Greek mythology, the daughter of Cepheus, king of Ethiopia. Her mother, Cassiopeia, having boasted that Andromeda was more beautiful than the Nereids, Poseidon, persuaded by the latter, sent a monster to ravage her country. An oracle declared that the monster could be got rid of if Andromeda were sacrificed to it, and so the unfortunate maiden was chained to a rock, to await her doom. She was saved by Perseus, who turned the monster to stone by showing it the head of the Gorgon Medusa.

In astronomy, Andromeda is the name given to a constellation in the northern hemisphere, one of a group which preserves the legend of Perseus and Andromeda. See Astronomy.

ANDROMEDID. Meteor which falls due in Nov. They follow the Leonids, which arrive earlier in the month. The point from which they appear to come, their "radiant," is visible throughout the night. They are slowly travelling meteors and their colour is yellow, which suggests that sodium may be their chief constituent. They are part of a meteoric orbit which appears to recede half-way between the orbits of Jupiter and Saturn, and their orbital period is therefore one of 6½ years. See Meteor.



Andromeda Nebula, which, it is suggested, may be another universe, beyond that indicated by the Milky Way

ANDRONICUS. Name of three East Roman emperors. Andronicus I was emperor 1183-85. Grandson of Alexius I, he suffered twelve years' imprisonment for plotting against the emperor Manuel. He regained Manuel's favour, 1168, and after his death in 1180 Andronicus, taking advantage of the disorders at Constantinople, reigned jointly with Alexius II until 1183, when the latter, a mere boy, was murdered and Andronicus became sole emperor.

In less than two years he restored order in the city and brought prosperity to the empire, but was killed by a rival faction in 1185. Andronicus II succeeded in 1282 and for a time reigned jointly with his son, during which time war was waged with the Turks. In 1328 he abdicated in favour of his grandson, Androniens III, under whom most of Asia Minor was lost to the Turks.

ANDROPHAGI (Gr. anēr, man; phagēin, to eat). Tribe of man-eaters described by Herodotus as dwelling north of Scythia. Finnish nomads of savage culture, they came from the N.E. and settled in the region now called Poltava. There is no cannibal tradition in the folklore of the Mordvins, who may be ethnically their living representatives.

ANDROS. Largest island of the Bahamas (q.v.). It is 110 m. long. Another Andros is an island of the Greek archipelago, one of the Cyclades. It is 25 m. long and its chief town is Andros. Pop. 18,000.

ANEMOCHORD (Gr. anemos, wind; chordē, string). Musical instrument of the harpsichord kind, played by jets of compressed air. It was invented by Johann Schnell, of Württemberg, in 1784, to reproduce the tones of the Aeolian harp, and was played with great success by the inventor, and especially by the German pianist, Johann Nepomuk Hummel. The secret of its construction died with its discoverer.

ANEMOMETER (Gr. anemos, wind; metron, measure). Appliance for measuring wind pressure or velocity. A common type is the Robinson anemometer. The Kew pattern consists of four metal cups fixed on crossbars. The revolutions turn cog-wheels, thereby causing an indicator to move on a graduated dial. Wind velocities are recorded in miles per hour, and are given in British Weather Reports by the Beaufort index numbers. In the Dines pressure tube anemometer the wind acts on a recorder floating in water.

ANEMONE OR **WIND-FLLOWER.** A genus of perennial herbs of the order Ranunculaceae, consisting of about 70 species, generally distributed in temperate and Alpine regions. The divided or lobed leaves spring direct from thickened or tuberous rootstocks. Although they have no petals, they all possess handsome flowers, the sepals being large and brightly coloured. One species is the wild wood anemone with its solitary white

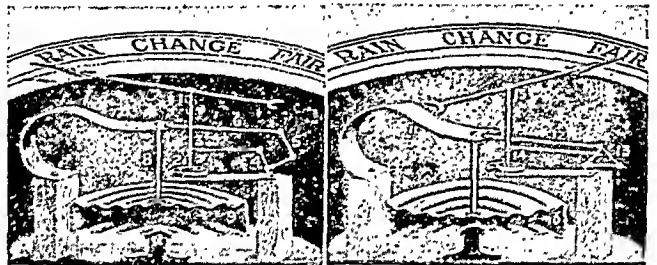


Anemone. Wood anemones, familiar in English coppices

flowers and purple-tinged buds. The poppy anemone and the flame anemone are natives of the Mediterranean region, whence they were introduced into English gardens at the end of the 16th century. These varieties have tuberous roots.

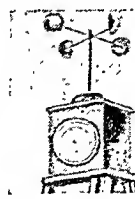
ANERLEY. Suburb of London. It is in Kent, within the par. bor. of Bromley, 7½ m. S. of London Bridge Station on the Southern Rly. The parish church is a modern structure built in the Decorated style, with a fine reredos of Caen stone. There is an entrance to the Crystal Palace at Anerley.

ANEROID OR **ANEROID BAROMETER** (Gr. a, not; nerōs, liquid; eidos, form). Instrument for measuring the pressure of the atmosphere. It consists of a cylindrical metal box, the lid of which is a thin corrugated plate. This box is exhausted of air, leaving a more or less perfect vacuum. The pressure of the outside air, therefore, forces the thin lid inwards. As the pressure varies, the bending of the lid varies, and the amount of its bending is registered through a system of delicate levers by the movement of a pointer which passes over a graduated scale. See Atmosphere; Barometer.



Aneroid, showing the principle on which it works. 1. Hand turning on pivot. 2. Hair spring. 3. Chain that turns the hand. 4. Lever fixed to pivot. 5. Lever. 6. Lever rod from spring. 7. Spring pulling against the air pressure on box. 8. Rod. 9. Part of round metal vacuum box. 10. Box pressed in by increased air pressure. 11. Spring pulled down by lowered top of box. 12. Lever rod lowered. 13. Levers lowered. 14. Chain unwound by levers. 15. Hand pivot pulled round by chain

ANEURISM (Gr. aneurysmos, widening). Localised dilatation of an artery which may eventually become so extreme as to form a sac or bag communicating with the artery.



Anemometer, for measuring wind velocity

The condition is frequently the result of syphilitic disease of the arteries, heavy muscular work and alcoholism being contributory causes. An aneurism of the main arteries in the chest may cause serious symptoms by displacement of the heart, pressure on the lungs, and interference with the act of swallowing.

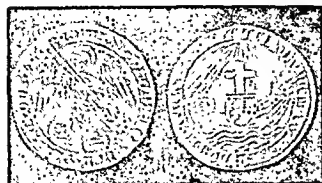
The condition is best treated by prolonged rest and avoidance of muscular effort and excess.

ANGAMOS POINT. Promontory of Chile, about 50 m. N. of Antofagasta. Off this cape, Oct. 8, 1879, the Chilean ironclads, Blanco Encalada and Almirante Cochrane, defeated the Peruvian battleship Huascar.

ANGARY. Term used in international law. The modern definition of the right of angary (droit d'angarie) is "an act of the state by which foreign as well as private domestic vessels which happen to be within the jurisdiction of the state are seized and compelled to transport soldiers, ammunition, or

instruments of war; in other words, to become parties against their will to carrying on direct hostilities against a power with whom they are at peace."

ANGEL (Gr. angelos, messenger). Spiritual being intermediate between God and man. According to the O.T. angels were created by



Angel. English gold coin of the reign of Edward IV, slightly reduced

God (Ps. 48), and have two functions. (1) They are the messengers of God sent to guide and assist His people. (2) They are the attendants upon God's throne, in the hierarchy of heaven. In the N.T. the same functions are recorded. While the general rule is that angels are sinless beings solely devoted to God's service, reference is also made in the Bible to fallen angels, whose function is the trial and temptation of man. In the hierarchy of heaven four angels are named as arch-angels; Uriel, Michael, the warrior of Revelation, Gabriel of the Annunciation (Luke 1, 26-38), and Raphael of the book of Tobit.

An English gold coin was known as an angel. Struck in 1465, it bore a representation of the Archangel Michael slaying the dragon. It was coined until the reign of Charles 1. and ranged in value from 6s. 8d. to 10s.

ANGEL FISH (Angelus squatinus). Fish of the shark order. One species, also known as the monk fish, is common on the British coasts, especially off Scotland. It somewhat resembles a ray or skate and may be 5 ft. long.

ANGELICA. Genus of Umbelliferae, natives of the N. temperate and sub-Arctic regions, including about 18 species. They are perennial herbs with handsome compound leaves and large umbels of white or purplish flowers. The stalks of one species are candied and used as a sweetmeat. Another species (A. sylvestris) is common in damp woods and near streams throughout Britain. Angelica tree is the popular name of a N. American shrub, Aralia spinosa, used in medicine.



Angelica, flower of the species

ANGELICO, FRA (Lat. frater, brother). Italian painter, in full IL BEATO FRA GIOVANNI ANGELICO DA FIESOLE (1387-1455). In 1407 he entered the Dominican order at Fiesole, taking the name of Giovanni, but was called the Angelic, on account of his sweet disposition. In 1436 he was transferred to the priory of San Marco at Florence. Here, as at Fiesole, he decorated the convent and church with frescoes. In 1445, commissioned by Pope Nicholas V to paint a chapel in the Vatican, he removed to Rome, and he died in this city, March 18, 1455.

Fra Angelico's art is remarkable for its elaborate figure composition, rich colouring, and ecstatic though simple sentiment. He is best represented at Florence, where, in addition to the San Marco frescoes, there are numerous works in the Academy and the Uffizi Gallery. Among the most celebrated

of these are the Madonna of the Linen-weavers (1433), and the Deposition, the Last Judgement, and 35 panels of the life of Christ.

ANGEL INN. An old London posting inn, now a café and a great traffic centre. It stands at the corner of Pentonville Road and High Street, Islington, and the N. end of City Road. It was rebuilt in 1880. The original building had galleries round the yard (see illustration in right-hand column).

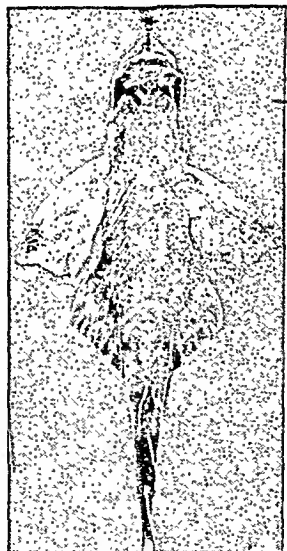


Angel. The Guardian Angel, celebrated picture by the 17th century Italian painter Guercino

S. Agostino Fano, Italy

crystallised in 1910 in his book, The Great Illusion. In 1929 he was elected Labour M.P. for North Bradford.

ANGELUS. Service in the Roman Catholic Church in honour of the Annunciation of the Virgin Mary. It is quite short, and is said three times a day—at 6 a.m., noon, and 6 p.m. The



Angel Fish. Genus of the same pictorial order as the shark

name comes from its opening sentence, Angelus Domini. It is to announce this service, dating from the 14th cent., that the angelus bell is rung in churches.

ANGERS. City of France, formerly the capital of Anjou. It is 212 m. by rly. S.W. of Paris and the chief town of the department of Maine-et-Loire. Here the rivers Sarthe and Mayenne meet to form the Maine, and the town is a natural converging point of roads and railways. The cathedral, dedicated to S. Maurice, was built in the 12th and 13th centuries, and added to in the 16th. S. Serge's is another old church. The castle, now an armoury, dates from the 13th century. Angers has some picturesque old houses. Until the Revolution it had a famous university and it is still an educational centre. In the city are the noted medieval abbey of S. Aubin and the hospital of S. John. Pop. 86,260.

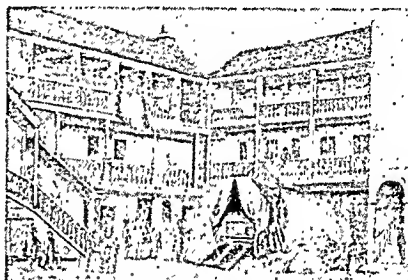
ANGEVIN. Family to which eight of the English kings belonged. Henry II of England, the son of Geoffrey, count of Anjou, himself became count in 1151. The counts were called Angevins, and Henry and his descendants on the English throne, of whom Richard II was the last, are often called the Angevin kings, although generally known as Plantagenets. See Plantagenet.



Fra Angelico, 15th century Italian painter

Painting by Carlo Dolce at Florence

ANGILBERT (d. 814). French saint. He was educated at the court of Charlemagne, where he fell in love with Charlemagne's unmarried daughter, Bertha, and became by her the father of two children, one of whom was the chronicler Nithard. In 790 he became abbot of S. Riquier, in Picardy. He rebuilt



Angel Inn, Islington. Courtyard of the old hostelry From an old print

the abbey and endowed it with a library. He died Feb. 19, 814, and by unofficial canonisation figures in the calendar of saints.

ANGINA PECTORIS (Lat. angina, cheking; pectoris, of the breast). Severe paroxysmal pain in the heart. A symptom of various abnormal conditions of the heart, it is a disease of adult life, and is more frequent in men than in women. The chief causes are syphilitic disease of the arteries, gout, and diabetes, and less frequently influenza. The pain comes on suddenly, usually in consequence of muscular effort or strong emotion, such as a fit of anger. The face is pale and the body may be covered with sweat. The paroxysm lasts from a few seconds to a minute or two. Inhalation of nitrite of amyl is often of great value in relieving the pain.

Pseudo-angina, or false angina pectoris, is a condition of paroxysmal pain in the heart which is often mistaken for the true form, but is much less serious. It occurs most often in women, and is usually an indication of neurasthenia or hysteria. See Heart.

ANGIOSPERM (Greek angion, vessel; sperma, seed). One of the two sub-classes of seed-bearing plants (spermatophytes). It embraces all those natural orders whose seeds are produced in a seed vessel, as opposed to gymnosperms, whose seeds are naked.

ANGKOR or NAGARA THOM. Ruined city of Cambodia, French Indo-China. It stands near the Tonle Sap or Great Lake. Enclosed by walls 30 ft. high, it covers an area of 2 m.



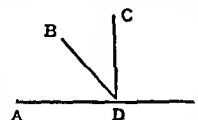
Angiosperm, Horse-chestnut

square, has five splendid gates, and remains of palaces and temples. To the S. is the temple of Angkor Vat, a wonderful building where Brahma and later Buddha were worshipped. One of the finest remaining examples of Khmer architecture, it dates probably from the opening half of the 12th century. It is a Buddhist place of pilgrimage.

ANGLE (Lat. angulus, corner). In the simplest terms, the point where two lines meet, or the line where two surfaces meet. The point of meeting is called the vertex, and when meeting lines are under consideration, the figure formed by the lines emanating from the vertex is the angle.

In the strict mathematical sense, the angle is the measurement of the amount of rotation which would be necessary to make one of the lines coincide with the other. The amount is usually expressed in degrees. When one line is perpendicular to another the number of degrees between them is 90 and the angle is called a right angle. If the angle is less than this it is called an acute angle; if greater, an obtuse angle. Complementary angles are those which make up a right angle, e.g. the angles A D B and B D C.

In aeronautics there are many angles of importance. The chief are the angle of attack or angle of incidence, which is an angle formed



mainland of Wales. Anglesey has generally a flat, unpicturesque surface, relieved by slight undulations, the highest point being Holyhead Hill, 703 ft. Copper is worked, and zinc, limestone, lead ore and marble (the green serpentine of Holyhead Island) are found. Agriculture and cattle rearing receive considerable attention. Beaumaris is the county town, but Holyhead is of greater importance. Amlwch and Llangefni are other places. The county is served by the L.M.S. Rly. The county returns one member to Parliament. Pop. 51,695.

Known as Mona, Anglesey was a stronghold of the Druids, and was subjugated by the Romans A.D. 61 and 78, and finally, in 1272, by Edward I, who built Beaumaris Castle. Off the E. coast is Puffin Island. See Druid.

ANGLESEY, EARL AND MARQUESS OF. Titles held by the families of Annesley and Paget. In 1661 Arthur Annesley (1614-86). Viscount Valentia, was made earl of Anglesey by Charles II. His son James succeeded him, then his descendants until Richard, the 6th earl died in 1761, when the title became extinct.

William Paget, a Londoner, was secretary of state under Henry VIII and Edward VI. He was made a peer as Lord Paget of Beauchamp in 1552 and obtained extensive lands in Staffordshire. The barony passed to his descendants, and the 7th lord was made earl of Uxbridge in 1714, but his title became extinct when his grandson died in 1769. The barony, however, passed to a cousin who was made earl of Uxbridge in 1784. His son became first marquess of Anglesey in 1815, and the title is still held by his descendants. The estates of the family are in Staffordshire and Anglesey; their chief seat is Beauchamp, near Rugby. See Paget.

ANGLESEY, HENRY WILLIAM PAGET, 1ST MARQUESS OF (1768-1854). British soldier and statesman. He was the eldest son of the 1st earl of Uxbridge, and was educated at

He served in Flanders in 1794 and under Sir John Moore in Spain. In command of the British cavalry through the Waterloo campaign in 1815, he lost a leg in the charge on June 18, and was made marquess of Anglesey. In 1828 Anglesey was appointed lord-lieutenant of Ireland. He left Ireland in 1833 and died, a field-marshal, April 29, 1854.

ANGLESITE. Mineral found in many lead regions. A sulphate of lead (PbSO₄), it is insoluble in water, but soluble in acids, potash, and other alkaline solutions. It occurs in a massive form of granular structure, white and rather soft, and also in the form of crystals. Anglesite was first discovered in Anglesey.

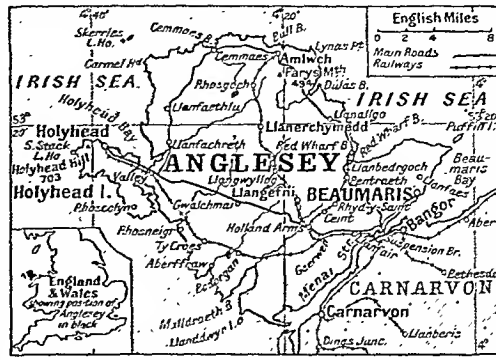
ANGLICANISM. Comprehensive term used to describe the extensions throughout the world of the Church of England. Its adherents have taken to other lands the order, teaching and traditions of the Church as it is at home. The Anglican churches in the British dominions overseas do not form a single corporation, as does the Church of England, but nevertheless they look for guidance to England and to the archbishop of Canterbury. It includes the episcopal churches in Scotland, Ireland and Wales, in Canada, Australia and S. Africa, the American episcopal churches and the missionary organizations connected with all these. See Church of England.

ANGLING (A.S. angel, a hook). The art of catching fish with rod, line, and hook, more particularly that branch of fishing which requires delicate manipulation of an artificial or natural bait. The term is specially used to denote the capture of fish as a sport and a means of recreation rather than as a commercial undertaking.

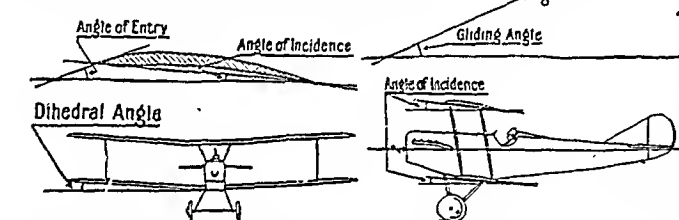
Angling as a sport has several branches. The capture of salmon, sea trout, and river, or brown, trout with the artificial fly is considered the highest form of the art of fishing. General fish or coarse fish, as distinguished from the game fish of the salmon family, are taken by bait-fishing in mid-water, or on the bottom, and in the case of pike by spinning or trolling a natural or artificial lure. The principal fish now included under the category of general, and frequenting rivers, lakes, or ponds, are pike, perch, carp, bream, tench, rudd, roach, chub, eels, and gudgeon. Barbel are only found in flowing water, and dace do not thrive, as a rule, in lakes. Chub occasionally resort to still water, but they prefer streams.

The outfit for the general fisherman consists of a pike rod, a bottom rod, landing net, reels, two lines, one stout and one finer, hooks of various sizes, gut casts, and two or three floats.

Trout fishing with the artificial fly is an art that excels all others in the sport of angling. The easiest form of fly-fishing is with a wet or sunk fly in a rough mountain brook, well stocked with free-rising fish. Two or three flies may be used. These are attached to a fine gut cast about 3 yds. long.



Anglesey. Island county off the coast of N. Wales. It was the last stronghold of the British Druids.



Angle. Diagram illustrating four of the more important kinds of angle in aeronautics

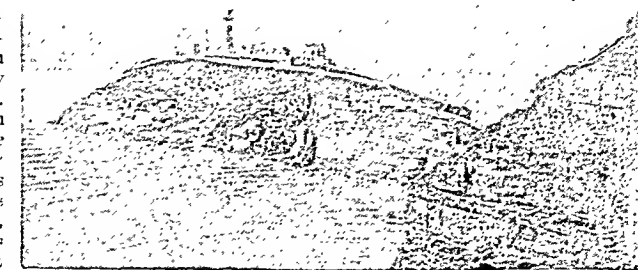
by the chord of the wings with the line of flight of the aeroplane; the angle of entry, which is the angle formed by the intersection of the line of flight with the tangent of the leading edge of the plane; the dihedral angle, which is the angle between two planes; and the gliding angle, which is the angle of descent which an aeroplane makes when gliding to the ground in still air after the engine has been put out of action.

ANGLER FISH (*Lophius piscatorius*). A fish of the order Teleostei, or bony fishes. Common around the British coasts, it ranges in length from 3 ft. to 5 ft., and is known also as the sea devil, the fishing frog, and the gab. Extremely ugly and awkward in movement, it usually lurks in the weeds by the shore, where it can walk along the bottom by means of its paired fins. Its conspicuous feature is its enormous head. It derives its name from lying in wait on the sand or mud, with the bones of the first back fin stalks waving like fronds of seaweed. These attract small fish, which are promptly snapped up.

Angler fish. One of the bony fishes common round the British coast

means of its paired fins. Its conspicuous feature is its enormous head. It derives its name from lying in wait on the sand or mud, with the bones of the first back fin stalks waving like fronds of seaweed. These attract small fish, which are promptly snapped up.

ANGLESEY OR ANGLESEA. Island and county of North Wales. It has a length of 21 m., a breadth of 28 m., and an area of 275 sq. m. Menai Strait separates it from the



Anglesey. The South Stack Lighthouse off Holyhead Island, the most westerly point of the county. The port of Holyhead is on this island

Westminster and Christ Church, Oxford. After sitting in the House of Commons 1790-6 and 1806-12, he succeeded his father as earl in 1812.



Anglo-Egyptian Sudan. Map of this part of North Africa, showing the bordering countries, railway communications and regions of the Upper Nile

Having practised the wet-fly method for a few weeks, the novice may essay the more complicated science of the dry-fly. Only one floating fly is attached to the cast, which should be delicately tapered. The fly is touched with paraffin to cause it to float. There are two ways of dry-fly fishing—watching the rise, and casting into all likely places. On southern rivers, experts usually “fish the rise.” The angler closely scans 50 yds. or so of the stream, until he sees a trout take a natural fly. He then stalks within casting distance, sometimes crawling and kneeling, and presents the fly deftly just above the rising fish. On no account must the shadow of the fisherman fall upon the spot where the trout are rising.

Success depends upon careful stalking, especially in clear waters with a moderate flow. When the floating fly falls lightly on the stream, no movement must be imparted to it, but it should sail down with the current, without the slightest drag of the cast. The avoidance of the fatal drag can only be learnt by practice and perseverance. In this form of fishing the fly must be tied for the purpose, with erect wings resembling the natural insect.

ANGLO-EGYPTIAN SUDAN. British protectorate in N. Africa. It covers 1,000,000 sq. m. and its pop. was estimated in 1928 at 6,500,000. Khartoum is the capital and Omdurman the largest place. Port Sudan and Suakin on the Red Sea are the chief ports. It is divided into 14 provinces and is governed by a governor-general and a council under whom are district commissioners. The governor is appointed by Egypt with the consent of Great Britain, and a convention signed in 1899 settled the relations between the two countries. Imports from Egypt enter the Sudan free of duty, and the slave trade is illegal. The legal system consists of a high court at Khartoum and district magistrates in the provinces. The Sudan defence force protects the country.

suzerain of Egypt, took up the matter, and in 1896-98 the country was subjugated by an Anglo-Egyptian force. When Britain recognized the independence of Egypt in 1922 she retained her hold on the Sudan. See Egypt; Sudan.

ANGLO-JAPANESE ALLIANCE. A treaty between Great Britain and Japan, signed Aug. 12, 1905. Based on the entente of 1902, it was revised and renewed for ten years in 1911. Its objects were the preservation of peace in the East, the maintenance of the integrity of China, and the defence of common interests. It was in force when the Great War broke out, and Japan declared war on Germany, August 23, 1914. The alliance was not renewed in 1921.

ANGLO-SAXON. Term applied to the people of English race to denote their descent from the Angles and the Saxons. The name has its origin in the fact that before the Norman Conquest the English kings called themselves kings of the Angles and Saxons. The present tendency is to use British rather than Anglo-Saxon, the former word embracing the Celtic elements in the Empire.

The Sudan exports ivory, cotton and gum arabic. The area under cotton has increased greatly, owing partly to irrigation, and ginning factories have been opened. A little gold is mined, and there are large herds of salt. Cattle, sheep, goats and camels are kept in great quantities, and much millet, the staple food, is grown. There is a forest area which is rich in rubber, ebony, hambo and other valuable trees. A railway owned by the state runs from Khartoum to Wadi Halfa, with branches to Port Sudan, Kassala, a cotton-growing centre, and elsewhere. The unit of currency is the piastre, 100 of which go to the £1 sterling; of weight the kantar (99.05 lb.); and of area the feddan or 5,024 square yards.

Egypt ruled the Sudan until a revolt in 1882 destroyed her authority. After a period of anarchy Great Britain, as the

Anglo-Saxon literature has characteristics that mark it off definitely from the literature that preceded and followed it. It begins with Beowulf, and the parts of that epic which have been preserved, along with fragments of other poems, such as the Battle of Maldon, show a command of vigorous narrative and free use of rhetoric that are remarkable.

Following on the heroic narrative poetry there is a fine body of religious poetry, much of which is associated with the names of Caedmon and Cynewulf. This includes renderings of Bible stories, e.g. Genesis, Exodus, Judith, etc.

The Anglo-Saxon Chronicle is a narrative which relates the history of England from the birth of Christ to 1154. It is written in Anglo-Saxon and in prose, the information being arranged chronologically and without style.

The dates are not always accurate, and some of the matter is obviously legendary, but there is no reason to doubt the genuine character of the bulk of the contents.

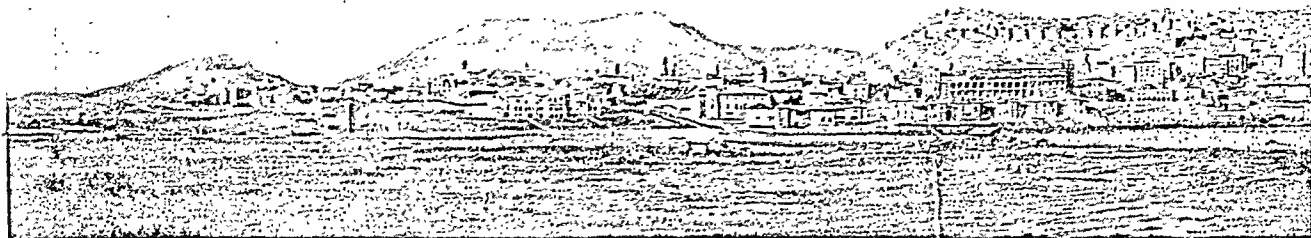
The compilation of the Chronicle was probably begun in the time of Alfred the Great, just before 900, and possibly at his instigation. Its early part was taken from Bede's History, from oral traditions, and from other sources, and is of little value. Scanty at first, it is much fuller for the 7th and succeeding centuries, and for the 8th and 9th especially is valuable. The best edition is C. Plummer's, 1892. See Alfred; English Literature.

ANGMAGSALIK. Eskimo village at the mouth of Sermilik Fiord on the S.E. coast of Greenland. Behind rises Ingolf's Fjeld, 6,000 ft. high, probably the first landmark of the early Norse visitors. The chief settlement on the east coast, it is a missionary centre, and has a meteorological station.

ANGOLA. Portuguese possession in Africa. On the west coast it has a coastline of 1,000 miles. Its area is 485,000 sq. m. and its pop. 2,500,000. It is divided into 12 administrative districts, is ruled by a high commissioner, and has S. Paulo de Loanda for its capital. Other towns are Kabinda, Ambriz and Benguela. The chief products are coffee, rubber, ivory, cotton, sugar, maize and hides. Tobacco is grown and minerals, including diamonds, oil, copper, iron and salt, have been found.



Angola. Map of the territory also known as Portuguese West Africa. Portugal annexed it in 1575, and the colony has proved rich in natural resources



Angora, capital of Turkey. The old town, still surrounded by its medieval walls, is seen on the hill at the back. To the left is the wireless station

The colony has about 900 miles of railway, good roads and telegraph and cable services. The unit of currency is the angolar, a coin introduced in 1928. Angola has been Portuguese since 1575 except from 1641-48, when it was Dutch.

ANGORA. City of Turkey and since 1923 the capital of the republic. The Turkish name is Ankara. In Asia Minor, it stands on the Angora river, about 220 m. from Constantinople, and is a terminus of a branch of the Anatolian Rly. Here, in 1919, Mustafa Kemal set up a nationalist government. The buildings include mosques and the newer ones erected for government purposes, including the Parliament House. Great improvements were put in hand after 1919, and the city has modern systems of drainage and water supply, and is furnished with electric light. It has a wireless station and a telephone service, and industries, such as saw and flour mills, have been started. The ancient Ancyra, Angora was an important place on the caravan route from Constantinople to Syria. The Romans built temples here and later it fell into the hands of the Turks. Pop. 74,784.



Angora goat. Long-haired breed that produces soft, light wool

The Angora goat, a variety of the Asiatic goat, is famous for its long hair. The goats are largely bred in the district, and the fleece, called mohair, is exported from here. See Mohair; Turkey.

ANGOSTURA. Name of the city in Venezuela now called Ciudad Bolívar (q.v.).

The bark of a small tree which grows in Venezuela is called angostura or cusparia. It contains an aromatic drug which is used as a carminative and sometimes in cases of fever and dysentery. It is also a constituent of angostura bitters.

ANGOULEME. City of France. The capital of the department of Charente, it stands on a hill between the Charente and its tributary, the Anguienne, is 83 m. from Bordeaux on the rly. to Poitiers, and is at the head of the navigation of the river. It has a trade in wine and paper is made here. The cathedral erected in the 11th and 12th centuries has been altered considerably. It is surrounded by levees which occupy the site of the fortifications. The hôtel de ville, now a museum, is an imposing building. Pop. 34,900.

The counts of Angoulême were persons of importance in France before their lands passed to the king. In 1619 Charles, a natural son of King Charles IX, was made duke of Angoulême, and later the same title was borne by Louis Antoine (1775-1844), who was the eldest son of Charles X.

ANGRA PEQUENA. Harbour in the South-West Africa Protectorate, 150 m. N. of the mouth of the Orange river. Here, on April 9, 1883, Adolph Lüderitz established a German settlement which became the protectorate of German South-West Africa. The township is connected with the main rly. system in South-West Africa. It was captured by the S. African forces Sept. 19, 1914, and its original Portuguese designation, which means little bay, was re-adopted as its official name. Near are diamond fields. Pop. 2,025.

ANGUS. Eastern maritime county of Scotland, formerly called Forfarshire. It is bounded S. by the Firth of Tay, and has an area of 873 sq. m. It contains some wild and beautiful scenery. In it are Strathmore and the Sidlaw Hills. Glas Meal (3,500 ft), one of the Grampians, is the highest point. The N. and S. Esk and the Isla are the main streams, and of several small lakes Loch Lee is the largest. Agriculture and cattle rearing are prominent, and jute and flax manufactures occupy many people.

The L.M.S. and L.N.E. Rlys. serve the county. Forfar, the county town, Dundee, Arbroath, Brechin, and Montrose are the principal towns. Glamis with its castle is in the county. Excluding the burghs, it returns one member to Parliament. The antiquities include the castle ruins of Edzell and Melgund, and the round tower at Brechin. Pop. 271,000.

LITERARY ASSOCIATIONS. At Dundee in 1465 was born Hector Boece, and nearly two centuries later, at Baldovie, Andrew Melville. Among the county's poets are Alexander Ross, the Lochlee schoolmaster; William Thom, the weaver, who lived for some years in Dundee; and James Tytler, the dialect poet. James Mill was born at Northwater Bridge, Logic Pert, and Sir Charles Lyell at Kinnordy, near Kirriemuir. At Kirriemuir (q.v.) itself Sir James Barrie was born.

ANHALT. State of the German republic. Its area is 888 sq. m. and it has a population of 351,000, who are mostly Protestants. Dessau is the capital and Bernburg the next largest town.

Anhalt lies on both sides of the Elbe which, with the Saale and the Mulde, flows

through it. Its soil is generally fertile and produces wheat, vegetables, tobacco, hops, etc., while many cattle are reared. It has extensive forests in which deer abound, and fish are plentiful in the rivers. The district is one of the greatest chemical producing areas in the world. The railways are incorporated with those of Prussia.

Anhalt was separated from Saxony early in the 13th century, and until 1800 a bewildering succession of petty rulers governed Anhalt-Zerbst, Anhalt-Dessau, and other small districts. In 1863 Anhalt-Bernburg and Anhalt-Dessau, the surviving duchies, were united under Leopold of Anhalt-Dessau. He called a single landtag for all Anhalt and his troops assisted Prussia in the war of 1866. In 1871 Anhalt joined the German Empire. In Nov., 1918, the reigning duke abdicated and a new constitution was adopted.

ANHYDRIDES (Greek an-, not; hydor, water) Oxides which react with water to



Angus. Map of the east coast county of Scotland, formerly known as Forfarshire. The Braes of Angus form part of the great range of the Grampians

form acids or are obtained from acids by withdrawing water. Acid anhydrides are the acid radicals remaining after abstracting water from the acid. Similarly, the anhydride of an organic body is the substance obtained from it by the elimination of water. Anhydrous is the term applied to a substance with no water in it. A crystal with no water of crystallisation is said to be anhydrous.

Sulphate of calcium exists naturally in an anhydrous form, and is known as anhydrite, the variety containing water being named gypsum or selenite.

ANI, PAPYRUS OF. Finest extant example, 78 ft. long, of the Egyptian Book of the Dead. Made in honour of a Theban scribe Ani about 1500 B.C., its magnificently coloured vignettes, now in the British Museum, depict the ceremonial at an Egyptian funeral and the

amoebæ, infusorians, and blood parasites. See the articles on the several classes mentioned above, and on the various animals.

ANIMAL INTELLIGENCE. In animals intelligence, or quickness of mental apprehension, is usually measured by aptitude for

rated. Experiments carried out under scientific conditions at a circus in New York showed that, during brief periods of maximum effort, for every pound of its own weight an elephant pulled 729 lb.; a horse, 822 to 1,172 lb.; a camel, 764 lb.; a man, 8 to 1,166 lb. See Horse Power.



Ani. Portion of the magnificent papyrus made in honour of the Theban scribe Ani about 1500 B.C. This papyrus is the finest known example of the Egyptian Book of the Dead. It depicts among other incidents a funeral procession, and, as shown here, the weighing of the soul before the judgement seat.

Reduction from the original in the British Museum

weighing of the soul before the judgement seat. A papyrus in the Cairo Museum contains the paternal precepts of another scribe Ani of about 600 B.C. See Book of the Dead.

ANILINE (Arab. annil, indigo) ($C_6H_5NH_2$). Colourless oily liquid used as the starting point in the manufacture of a series of aniline dyes. Aniline is made by distilling nitrobenzene ($C_6H_5NO_2$), scrapings of soft iron castings (swarf), and hydrochloric acid. The three qualities of aniline made are pure aniline oil, aniline for red, and toluidine. Aniline combines with acids to form well-crystallisable salts, one of these, the hydrochloride, being prepared on a large scale and known commercially as aniline salt ($C_6H_5NH_2 \cdot HCl$). See Dyes

ANIMAL (Latin, living being). Scientific name for all living creatures except plants. A living creature may be defined as an organism which exhibits five forms of activity—movement, sensation, nutrition, growth, and reproduction. It moves by its own impulse, possesses the power of sensation, or irritability, and responds to the impact of external objects or forces. It takes in nutriment, which becomes part of its own tissues, to repair a waste continually going on as the result of activity. It grows by this process, and it possesses organs of reproduction.

The animal kingdom is divided into phyla or sub-kingdoms, and these again are subdivided into about sixteen classes. The classes are divided into orders; each order is subdivided into families; each family into genera; and each genus into species.

Into a single species are grouped, generally, all animals so far identified in form that they cannot well be separated, and that interbreed and have fertile offspring. The chief classes of the animal kingdom may be thus enumerated, beginning with the highest:

I. Vertebrates (backboned). Class 1. Mammalia; 2. Aves (birds); 3. Reptilia (reptiles); 4. Amphibia (frogs, newts, etc.); 5. Pisces (fishes); 6. Cyclostomata (round-mouthed fishes); 7. Cephalochorda (amphioxus); 8. Urochorda (sea-squirrels); 9. Hemichorda (balanoglossus).

II. Invertebrates (without backbone). Class 1. Mollusca (snails, shellfish, and cuttle-fish); 2. Arthropoda (spiders, insects, crustaceans, etc.); 3. Echinodermata (starfishes and sea-urchins); 4. Annelida (worms, leeches, etc.); 5. Coelenterata (jelly-fish, corals, sea-anemones); 6. Porifera (sponge).

III. Protozoa (first forms of life). Includes

learning under training or by readiness in finding out things for themselves. In reality, intelligent behaviour is manifested by the originality of the actions concerned, and by the individuality displayed in dealing with novel conditions. This conception of intelligence serves to distinguish it from instinct.

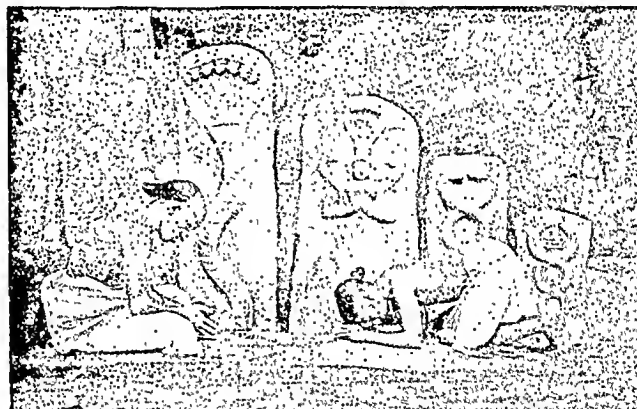
Many alleged intelligent actions of domesticated or captive animals are either the direct outcome, or slight modifications, of simple instincts. Under natural conditions the lives of many vertebrate animals depend upon their rapidity of response to the slightest

is possible that animal worship may be the primary origin of animal domestication.

Functionally, beast cults are related to the chief material concerns of their worshippers. The nomad hunters of N Asia reverence the hear, many American Indians the deer. The pastoral races of the ancient Nile valley and of Aryan India paid divine honours to the cow. Dangerous animals are propitiated in the case of the leopard (W. Africa), lion (Bantu Africa), tiger (S.E. Asia), hawk (N. Borneo). A potent motive for the worship of animals is their supposed kinship with

man as tribal ancestors in the communion of the totem. Animal worship reaches its most systematic development in Hinduism. See Totemism.

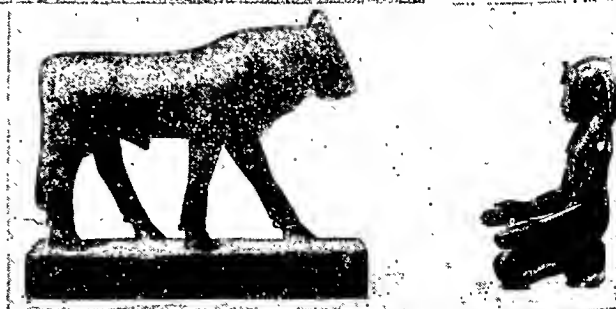
ANIMISM (Latin anima, soul). Belief in spiritual beings, which is the philosophic groundwork of all primitive culture. It should be distinguished from animatism, which attributes to natural objects and phenomena the ability to



movement or sound. They are, therefore, exceedingly quick at detecting and acting upon signs from their trainer which are likely to pass unnoticed by onlookers. In this faculty may be the explanation of the alleged spelling and counting capabilities of horses and dogs.

ANIMAL POWER.

Standard of work that certain animals can perform. Watt estimated that a horse could do work equivalent to raising 33,000 lb. one foot per minute (33,000 foot-pounds). In practice this is too high. 22,000 ft.-lb. being about an average, but the figure of 33,000 has been adopted as the standard horse-power by which engines are



Animal Worship. Old Egyptian figures showing a king making an offering to the sacred bull, Apis. Above: Snake worship in India

exercise personal will power, apart from a separate soul.

To the savage mind a spirit may be a thing of mystery, but not an abstraction, as when the natives of Danger Island, in the Indian Ocean, employ rope nooses as traps for errant

souls. Moreover, not all spirits are traceable to a material home, while many are conceived as able to enter at will different kinds of bodies, human, animal, or inanimate. They are thus often creatures of the imagination rather than objective ghosts.

There is little, if any, moral element in animism. The belief that the after-life is determined by the ethical acts of the present belongs to a higher stage. Among animistic peoples ethics is essentially obedience to tribal law. It was after religion had come to exert a more peremptory hold on the attitude of the individual soul that to customary law it added sanctions based upon the fear of subsequent retribution, or the expectation of ultimate reward. See Anthropology; Spiritualism.

ANISE (*Pimpinella anisum*). Perennial herb of the natural order Umbelliferae. Anise is a native of S. Europe. It has leaves cut into lobed or toothed leaflets, and minute white flowers. The little fruits are pierced with tubes filled with an aromatic essential oil. The fruits, the aniseed of commerce, are used as a flavouring and the oil extracted is used in medicine. Much of the commercial oil of anise is obtained from the fruits of star anise, an evergreen shrub of the order Magnoliaceae, and a native of China and Japan.



Anise. The star anise, from which much of the oil used in medicine and for flavouring is obtained

ANJOU. Old province of France. It lay around its capital, Angers, on the Maine, and came into existence in the 7th or 8th century. In the 10th century it was ruled by Fulk, founder of the family of the counts of Anjou. One of these counts, a later Fulk, warred with Henry I of England, but in 1129 Henry's daughter Matilda married Fulk's son Geoffrey.

Henry II of England, the son of this marriage, became count of Anjou. His son John lost Anjou about 1203, when it was seized by Philip Augustus of France, and henceforward it belonged to his successors, except when, during the reigns of Henry V and Henry VI, it was again an English possession. It was finally recovered by France about 1444. In 1360 the count was made a duke. Since the Revolution it has formed the department of Maine-et-Loire and part of the departments of Indre-et-Loire, Mayenne and Sarthe. See Angevin.

ANKER. Old Dutch measure of liquid capacity. Formerly used in England, where it contained ten gallons of wine, it is still used in S. Africa, equalling $7\frac{1}{2}$ gallons. It was also used in Scotland, where it contained 20 pints.

ANKH. Ancient Egyptian symbol resembling a loop surmounting a T. From its use at coffin ends under the 1st dynasty, it is now recognized as having originated as a sandal-string. As its name resembled that of life it became the symbol of life, and as such is depicted in later ages in the hands of gods. By local association it became among the early Coptic Christians the sign of the cross.

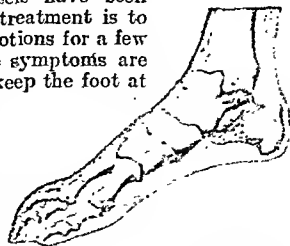


Ankh

ANKLE. A hinge joint of the human body, scientifically known as ginglymus. It possesses very great strength owing to the ligaments which surround it and the close interlocking of the bony surfaces, the ends of the leg bones being prolonged down on each side to form a hollow resembling a mortice into which the ankle bone fits.

Injuries of the ankle are sprain, dislocation, and fracture of the bones forming the joint. Sprain is usually due to twisting or wrenching

the foot in a fall or "stepping over," and is accompanied by pain and swelling of the joint and sometimes discoloration of the skin if the blood vessels have been injured. The treatment is to apply cooling lotions for a few days while the symptoms are acute and to keep the foot at rest, but as soon as the pain and swelling have sufficiently subsided gentle massage should be begun and movements of the joints made in order to prevent adhesions and permanent stiffness resulting.



Ankle. Bones of the joint that connects the foot with the leg

Disuse of the ankle is most frequently tuberculous, a pulpy swelling gradually involving the whole region of the joint, with impairment and eventually loss of movement of the foot. The treatment is to give the joint complete rest for a prolonged period either by the application of splints or, and often preferably, by encasing it in plaster of Paris. See Anatomy; Man.

ANKLET. A ring worn upon the ankle as a bracelet is on the wrist. It is specially in favour with the peoples of Asia, Polynesia, and Africa. Anklets are made of metals, glass, and also of textiles and woven

grasses. Asiatic dancing girls often have small bells attached to their anklets, while some African tribes wear anklets of spiky grasses as a protection from snakes. See Charm.

ANKYLOSIS. Partial or complete fixation of a joint resulting from inflammation following disease or injury. The new tissue which is formed and unites the bones may be either fibrous or bony. Where only a small amount of fibrous tissue has been formed, the condition may be improved by massage, exercises, or breaking down the adhesions by forcible extension of the joint under an anaesthetic. Severe cases can sometimes be improved by an operation. See Ankle.

ANKYLOSTOMIASIS (Gr. ankylos, hooked; stoma, mouth). Disease characterised by progressive anaemia, due to a parasite which is a worm, the male being about 7 to 11 millimetres in length and the female about 10 to 18 millimetres. The American form is shorter and thinner than the other. The disease is widespread in tropical and sub-tropical countries, and during recent years has much increased in Germany.

ANNA. Indian coin, the sixteenth part of a rupee. It is about equivalent to a penny, and is divided into four pice, or 12 pie.

ANNA COMNENA (1083-1148). Earliest female historian. Born at Constantinople, Dec. 1, 1083, daughter of the emperor Alexius I Comnenus, she was the wife of the Byzantine historian, Nicephorus Bryennius. In 1118, when her brother John succeeded, she intrigued to depose him. The conspiracy was detected,

her property was confiscated, and Anna fled to a convent, devoting the rest of her life to writing the Alexiad. This prolix work, in fifteen books, is rather a panegyric of her father than a serious contribution to history. The first two books contain a sketch of the period from 1069 to 1081. Scott made use of the Alexiad in Count Robert of Paris.

ANNAM. French protectorate in S.E. Asia; the central littoral of French Indo-China. Extending for 750 m. along the China Sea, with a mean breadth of 98 m. and an area of 40,000 sq. m., it adjoins Tongking on the N., Laos and Cambodia on the W., and Cochinchina on the S.W. Its population is about 5,300,000, but there are a further 800,000 of Annamese race in other parts of Indo-China. Hué is the capital, and Tourane is the chief seaport. The country's products include rice, cotton, silk, sugar, maize, and spices. Copper, coal, iron, and zinc are mined. A railway line runs along the coast.

The government is a native monarchy under French control. The king, Bao-Dai, who succeeded in 1925, resides at Hué. The French resident superior presides over the protectorate council, composed of departmental officials and four members of the comat. A chamber of representatives was set up in 1926. Foreign relations are directed from Paris through the governor-general of Indo-China in council. Each of the fourteen provinces has a resident, but the internal administration is entrusted to Annamese mandarins.

For some centuries Annam was under Chinese rule, but a native monarchy, set up in 968, gradually gained power, and in 1428 the country became independent. In 1787 the French appeared, and in 1884 a French protectorate was established. See Indo-China.



Annam. Two Moïse, primitive natives of the interior

ANNAN. Burgh and seaport of Dumfriesshire, Scotland. It stands on the Annan, $1\frac{1}{2}$ m. from its mouth, in the Solway Firth, and 18 m. E.S.E. of Dumfries, on the L.M.S. Rly. Its burghers have the right of fishing for salmon in the Solway. Edward Irving, founder of the Catholic Apostolic Church, was a native of Annan, and Thomas Carlyle was a schoolboy here. The town was frequently involved in the wars with England. Pop. 4,219.

Annapolis is the part of Dumfriesshire through which the river Annan flows. It is 30 m. long and about 16 m. broad. Near the source of the river is a hollow known as the Devil's Beef-tub or Beef-stand, which figures in Scott's Redgauntlet.

A town of New South Wales, really an industrial suburb of Sydney, is also called Annapolis. Pop. 12,500.

ANNAPOLIS. Town of Nova Scotia, Canada. It is on Annapolis Bay, an arm of the Bay of Fundy, 95 m. by rly. W. of Halifax. Founded by the French as Port Royal in 1604, it became British in 1713, and was the capital of Nova Scotia until 1879. The English renamed it Annapolis in compliment to Queen Anne. It has a good harbour with steamer service across the Bay of Fundy.

Another Annapolis is the capital of Maryland, U.S.A. It is 26 m. from Baltimore and was founded in 1649, its name being changed later from Providence to Annapolis in honour of Queen Anne. Pop. 11,200.



Anna. The Indian nickel coin, of about one penny in value. Actual size

ANI, PAPYRUS OF. Finest extant example, 78 ft. long, of the Egyptian Book of the Dead. Made in honour of a Theban scribe Ani about 1500 B.C., its magnificently coloured vignettes, now in the British Museum, depict the ceremonial at an Egyptian funeral and the

amoebæ, infusorians, and blood parasites. See the articles on the several classes mentioned above, and on the various animals.

ANIMAL INTELLIGENCE. In animals intelligence, or quickness of mental apprehension, is usually measured by aptitude for

rated. Experiments carried out under scientific conditions at a circus in New York showed that, during brief periods of maximum effort, for every pound of its own weight an elephant pulled 729 lb.; a horse, 322 to 1-172 lb.; a camel, 764 lb.; a man, 8 to 1-166 lb. See Horse Power.



Ani. Portion of the magnificent papyrus made in honour of the Theban scribe Ani about 1500 B.C. This papyrus is the finest known example of the Egyptian Book of the Dead. It depicts among other incidents a funeral procession, and, as shown here, the weighing of the soul before the judgement seat.

Reduction from the original in the British Museum

weighing of the soul before the judgement seat. A papyrus in the Cairo Museum contains the paternal precepts of another scribe Ani of about 600 B.C. See Book of the Dead.

ANILINE (Arab. annil, indigo) ($C_6H_5NH_2$). Colourless oily liquid used as the starting point in the manufacture of a series of aniline dyes. Aniline is made by distilling nitrobenzene ($C_6H_5NO_2$), scrapings of soft iron castings (swarf), and hydrochloric acid. The three qualities of aniline made are pure aniline oil, aniline for red, and toluidine. Aniline combines with acids to form well-crystallisable salts, one of these, the hydrochloride, being prepared on a large scale and known commercially as aniline salt ($C_6H_5NH_2 \cdot HCl$). See Dyes

ANIMAL (Latin, living being). Scientific name for all living creatures except plants. A living creature may be defined as an organism which exhibits five forms of activity—movement, sensation, nutrition, growth, and reproduction. It moves by its own impulse, possesses the power of sensation, or irritability, and responds to the impact of external objects or forces. It takes in nutriment, which becomes part of its own tissues, to repair a waste continually going on as the result of activity. It grows by this process, and it possesses organs of reproduction.

The animal kingdom is divided into phyla or sub-kingdoms, and these again are subdivided into about sixteen classes. The classes are divided into orders; each order is subdivided into families; each family into genera; and each genus into species.

Into a single species are grouped, generally, all animals so far identified in form that they cannot well be separated, and that interbreed and have fertile offspring. The chief classes of the animal kingdom may be thus enumerated, beginning with the highest:

I. Vertebrates (backboned). Class 1. Mammalia; 2. Aves (birds); 3. Reptilia (reptiles); 4. Amphibia (frogs, newts, etc.); 5. Pisces (fishes); 6. Cyclostomata (round-mouthed fishes); 7. Cephalochorda (amphioxus); 8. Urochorda (sea-squirrels); 9. Hemichorda (balanoglossus).

II. Invertebrates (without backbone). Class 1. Mollusca (snails, shellfish, and cuttle-fish); 2. Arthropoda (spiders, insects, crustaceans, etc.); 3. Echinodermata (starfishes and sea-urchins); 4. Annelida (worms, leeches, etc.); 5. Coelenterata (jelly-fish, corals, sea-anemones); 6. Porifera (sponge).

III. Protozoa (first forms of life). Includes

learning under training or by readiness in finding out things for themselves. In reality, intelligent behaviour is manifested by the originality of the actions concerned, and by the individuality displayed in dealing with novel conditions. This conception of intelligence serves to distinguish it from instinct.

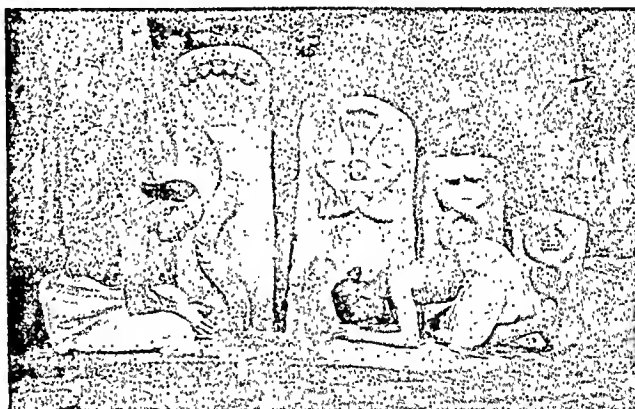
Many alleged intelligent actions of domesticated or captive animals are either the direct outcome, or slight modifications, of simple instincts. Under natural conditions the lives of many vertebrate animals depend upon their rapidity of response to the slightest

is possible that animal worship may be the primary origin of animal domestication.

Functionally, beast cults are related to the chief material concerns of their worshippers. The nomad hunters of N Asia reverence the bear, many American Indians the deer. The pastoral races of the ancient Nile valley and of Aryan India paid divine honours to the cow. Dangerous animals are propitiated in the case of the leopard (W. Africa), lion (Bantu Africa), tiger (S.E. Asia), hawk (N. Borneo). A potent motive for the worship of animals is their supposed kinship with

men as tribal ancestors in the communion of the totem. Animal worship reaches its most systematic development in Hinduism. See Totemism.

ANIMISM (Latin anima, soul). Belief in spiritual beings, which is the philosophic groundwork of all primitive culture. It should be distinguished from animatism, which attributes to natural objects and phenomena the ability to



movement or sound. They are, therefore, exceedingly quick at detecting and acting upon signs from their trainer which are likely to pass unnoticed by onlookers. In this faculty may be the explanation of the alleged spelling and counting capabilities of horses and dogs.

ANIMAL POWER.

Standard of work that certain animals can perform. Watt estimated that a horse could do work equivalent to raising 33,000 lb. one foot per minute (33,000 foot-pounds). In practice this is too high. 22,000 ft.-lb. being about an average, but the figure of 33,000 has been adopted as the standard horse-power by which engines are



Animal Worship. Old Egyptian figures showing a king making an offering to the sacred bull, Apis. Above: Snake worship in India

exercise personal will power, apart from a separate soul.

To the savage mind a spirit may be a thing of mystery, but not an abstraction, as when the natives of Danger Island, in the Indian Ocean, employ rope nooses as traps for errant

There are two divisions, hardy and half-hardy. Hardy annuals, if sown in the open ground in spring, flower in the summer, and die in the autumn of the same year. Half-hardy annuals require to be started in heat, that is, sown in boxes in a heated greenhouse, botbed, or frame, and transplanted in the open air when all danger of late frosts is over. See Gardening; Perennial.

ANNUITY (Latin *annus*, year). Periodical payment made for a limited time and carrying with it the repayment of capital by regular instalments. The time during which an annuity is payable may be either a fixed term of years, or the duration of one or more lives. The word is sometimes used for a pension, as when the king grants an annuity to a retiring judge, or Parliament votes one to a member of the royal family.

Annuities are in most cases purchased from either the Government, through the Post Office Savings Bank, or from insurance companies. The cost of annuities is calculated by skilled actuaries. Every £100 will purchase a certain annual income, varying according to the age and sex of the intending annuitant.

ANNULET (Lat. *annulus*, a ring). Architectural term for the fillets at the base of the Doric capital. In heraldry, as a mark of cadency, the word denotes the fifth son and his descendants.

ANNUNCIATION (Lat. *annuntiare*, to announce). Literally, the act of making known or announcing anything officially or publicly. The Feast of the Annunciation was appointed by the Church to commemorate the day on which the angel Gabriel announced to the Virgin Mary that she should bring forth a son and should call his name Jesus (Luke 1). The day, the observance of which dates from the 7th century, has been always observed in the Western Church on March 25, except in Milan. In the Church of England calendar the title is the Annunciation of the Virgin Mary; in the table of Lessons proper for holy days, Annunciation of Our Lady—hence Lady Day. The subject of the Annunciation has inspired some famous paintings. See Incarnation; Lady Day.

ANNUNZIATA, ORDER OF THE. An Italian order dating from 1362. It was founded by Amadeus VI, count of Savoy, as the Order of the Collar. It was remodelled in 1518, and became Italian when the kings of Sardinia and counts of Savoy became kings of Italy. The badge is a representation of the Annunciation, surrounded by knots; the ribbon is blue.

ANNUNZIO, GABRIELE D' (b. 1863). Italian poet and novelist. He was born at Pescara, of Dalmatian extraction, his patronymic being Rappagnetta. His first volume of poems, *Primo Vere*, published when he was about fifteen, was followed in 1882 by the prose *Terra Vergine*; then came *Canto Novo*, 1882, and *Intermezzo de Rime*, 1883. Poems and novels, brilliant in quality but frequently marked by sensuousness, followed rapidly, and some of them have been translated into English, notably *The Virgins of the Rocks*, 1899.



d'Annunzio, Italian poet, novelist, and patriot

In May, 1915, Annunzio returned to Rome

from France, where he had become fired with hatred against German vandalism, and his eloquence in speech and print had a great influence in determining Italy's choice. He became a daring airman and flew over enemy towns and bombed Austrian troops, losing the sight of an eye as the result of an accident. In 1919 Annunzio appeared as a new Garibaldi, and led a raid on Fiume in Sept., 1919. He administered its affairs and issued flamboyant manifestoes. In Nov. he occupied Zara, where he acted in a similar manner. In 1924 he became Prince of Monte Nevosa.

One of the greatest of modern Italian authors, Annunzio shows in his poetry that natural magic which is one of the rarest endowments of genius, and in his prose is almost as successful, though it has been said that he is wanting in the creative gift.

ANODE (Gr. *anodos*, way up). Plate of a cell of an electric battery by which the current enters the electrolyte or solution. The anode is, therefore, the positive plate of a cell, but forms the negative pole of the external circuit. In the thermionic valve the anode or plate is usually a metal cylinder. It is maintained at a potential higher than that of the filament or cathode, and attracts the electrons sent out by the filament. See Electrode; Cathode; Thermionic Valve.

ANOINTING. Ceremonial use of consecrated oil or ointment. The practice is often referred to in the Bible. The custom prevailed

in the early Christian Church of anointing at baptism, confirmation (chrism), in time of sickness, and at ordination, and is still so retained in the Roman Catholic Church. In the Anglican Church anointing is retained only at a coronation of the sovereign. See Extreme Unction.

ANORTHITE. A silicate of calcium and aluminium, and an important member of the group of plagioclase feldspars. Like all the soda-lime feldspars, it crystallises in forms belonging to the triclinic system. It is a prime constituent of basalt and other igneous rocks, and also occurs as a product of the thermal metamorphism of calcareous rocks.

ANORTHOCLASE (Gr. *an-*, not; *orthos*, straight; *klasis*, fracture). Feldspar similar to orthoclase, but with soda replacing potash in its composition. Anorthoclase is a constituent of many alkaline igneous rocks. See Rocks.

ANSBACH OR **ANSPACH**. Town of Bavaria. It stands on the river Rezat, 27 m. by rly. from Nuremberg, and trades in agricultural produce. The palace of the margraves, erected 1713-23, now used for public offices, stands in a large park. Ansbach has several fine ancient churches, schools, and a museum. It has some manufactures, and at one time it was famous for its porcelain. The little principality of which it was the capital was ruled by a branch of the Hohenzollern family from 1362 to 1886. It was transferred to Bavaria in 1806. Pop. 20,600.

ANSELM (1033-1109). English saint and theologian. Born at Aosta, he entered in 1060 the Benedictine abbey at Bee, and in 1078 was made abbot. On the death of Lanfranc, archbishop of Canterbury, in 1089 William Rufus appropriated the revenues of

the see until 1093, when he appointed Anselm to be Lanfranc's successor. The king and Anselm were soon in collision, the questions at issue being the relations with the pope and the duty of the archbishop to help the king in his wars. The result was that Anselm left England.

William was succeeded in 1100 by his brother Henry I, who sought a reconciliation with the exiled archbishop, and in 1105 a compromise was reached. The insignia of ecclesiastical offices were to be bestowed only by the pope; but practically, though not as a right, royal appointments would be recognized and prelates and abbots were to do homage for their temporalities to the king. Anselm finally returned to England in 1107, and died April 21, 1109. He was canonised in 1494. Anselm was a great theologian. The most notable of his works is *Cur Deus Homo*, an exposition of the doctrine of the Incarnation. See Investiture; Scholasticism; consult also S. Anselm, R. W. Church, 1888.

ANSON, GEORGE ANSON, LORD (1697-1762). British admiral. Born April 23, 1697, at Shugborough, Staffordshire, he entered the navy in 1712, became a captain 1724, and in 1739, on the outbreak of the war with Spain, was appointed to the command of a squadron of six ships, in one of which he circumnavigated the globe and brought back treasure to the value of £500,000. Anson's next triumph was the defeat of the French fleet off Cape Finisterre, May 3, 1747, in recognition of which he was made Baron Anson of Soberton. From 1751-6 he was first lord of the Admiralty, and again from 1757 until his death at Moor Park, Herts, June 6, 1762. Anson was responsible for the organization of the marines in their present form.



Baron Anson of Soberton, British admiral and naval administrator
After Sir Joshua Reynolds

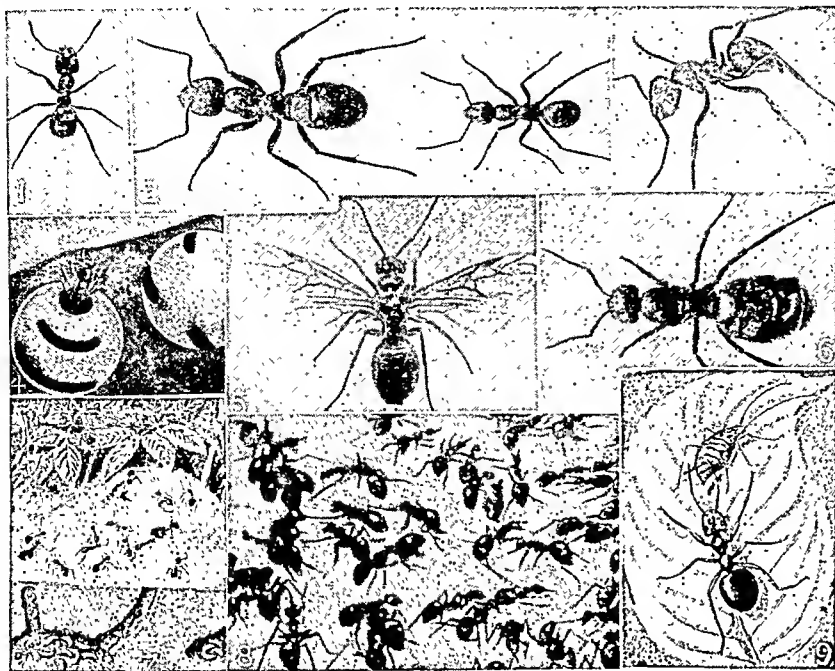
ANSTEX, F. (b. 1856). The pen-name of Thomas Anstey Guthrie, British humorist and playwright. Born at Kensington, Aug. 8, 1856, and educated at Trinity Hall, Cambridge, his writings, characterised by a fanciful humour, include *Vice Versa*, 1882; *The Giant's Robe*, 1883; *The Tinted Venus*, 1885; *The Brass Bottle*, 1900; *Salted Almonds*, 1906; and *In Brief Authority*, 1915. In 1886 he joined the regular staff of Punch, after which much of his best work appeared in that periodical: *Voces Populi*, rich in penetrating humour; *The Man from Blankley's*; *Baboo Jabberjee, B.A.*, etc. On the stage *The Man from Blankley's* enjoyed considerable vogue, while *Vice Versa* and *The Brass Bottle* were successful. His adaptation of Molière's *Le Malade imaginaire* was produced at the Old Vic, London, in 1929.

ANSTRUTHER. A harbour and market town of Fifeshire, Scotland. It stands on the Firth of Forth, 9 m. S.S.E. of St. Andrews and 19 m. E. of Thornton Junction by the L.N.E. Rly. It consists of the royal burghs of Anstruther Easter, Anstruther Wester, and Kilrenny, has a fine harbour, and is the centre of the Fifeshire fisheries. Market day, Fri. Pop., Easter, 1,011; Wester, 577; Kilrenny, 2,054. Pron. Anster.

ANT. Group of insects belonging to the order Hymenoptera, which includes bees and



S. Anselm's seal
British Museum



Ant. Typical species of the Formicidae family. 1. Brown garden ant, worker. 2. British slave-making ant (*Formica sanguinea*), left, and, to right, one of an enslaved species (*Formica fusca*). 3. Wood ant, worker. 4. Mexican honey-pot ant. 5. Winged male wood ant. 6. Wood ant queen after she has lost her wings and started egg-laying. 7. Section of an ant-hill. 8. Raid of slave-making ants upon a peaceful species. 9. Ant "milking" an aphid on a leaf.

wasps. In the ant the first segment of the abdomen is reduced in size to a mere stalk. The queen and males have wings, but the workers, or sterile females, who constitute the bulk of each community, are wingless. About 2,000 species are known.

Ants are regarded as the most intelligent of all insects, and the economy of their communities is even more highly developed than that of the hive bee. Slave-keeping prevails among certain species, and one kind of ant depends entirely upon slave labour for the work of the nest.

At certain seasons the young queens and the males take a nuptial flight. On their return the queens settle down to egg-laying. The eggs are carried about by the workers from one part of the nest to another according to the temperature, and, after they hatch, the legless larvae are fed and tended until in due course they turn into pupae. After some days they emerge as perfect insects, and then go about the work of the community.

The nest consists of a series of passages and chambers constructed in the ground, in masses of fallen leaves and wood debris, or in the trunks of old trees.

Antacid. Term used in medicine for a substance which neutralises acidity. The drug most frequently used is sodium bicarbonate.

ANTAEUS. In Greek mythology, a Libyan giant, son of Poseidon and Gaia (the earth). A mighty wrestler, a fall to the ground only brought him fresh strength from his mother earth. He was conquered by Hercules, who held him out of reach of the earth and squeezed him to death.

ANTALCIDAS (4th century B.C.). Spartan diplomatist and naval commander. In 393 he was sent to detach Persia from Athens, in which he was successful. This agreement and the blockading of their fleet by Antalcidas compelled the Athenians to accept the terms known as the Peace of Antalcidas (387). By this the Greek towns in Asia Minor were to remain under Persian suzerainty, all others being declared independent. Athens, however, was to retain the islands of Imbros, Lemnos, and Scyros. See Greece.

ANTANANARIVO or **TANANARIVO** (French Tananarive). Capital of Madagascar. Situated on a hill, 4,750 ft. above sea level, it is in the central plateau of the island, about 100 m. from the E. coast. Here are the administrative offices, Anglican and Roman Catholic cathedrals, numerous churches, the royal palaces, schools, and colleges. It has several industrial establishments, including a meat preserving factory, and is connected by rly. with Tamatave, the chief seaport. Pop 70,800, including 4,000 Europeans.

ANTARCTICA. The circumpolar continent of the South. Its area is about 5,000,000 sq. m. and it has a coastline of about 14,000 m. Nearly all of it is within the Antarctic Circle, a parallel of latitude drawn about 23½ deg., or 1,700 m., from the South Pole.

Of its various divisions Graham Land is only 700 m. from S. America, and on the other side is Wilkes Land, about 1,700 m. from Tasmania. East of Graham Land is Weddell Sea, one of the great openings of the continent. The other great bay is Ross Sea, fringed by the Great Ice Barrier and bordering S. Victoria Land, which stretches almost to the Pole. At the N.W. corner of Ross Sea are the Balleny Islands, about 1,400 m. from New Zealand, and then going eastward come Oates Land, King

George V Land, Queen Mary Land and Enderby Land. Coats Land fronts Weddell Sea. The great ice barrier, sometimes called Ross Barrier, about the size of France, is the largest sheet of floating ice.

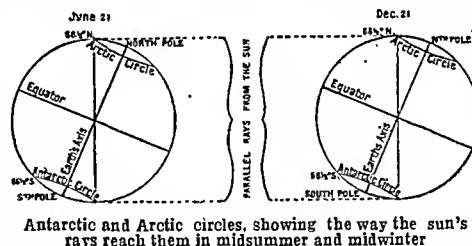
In certain parts, S. Victoria Land, for instance, there are mountains rising to 8,000 ft. or more. Inland of the mountains, round the Pole itself, is a plateau where the overlying ice sheet is between 1,000 and 2,000 ft. thick. The greatest height is 15,500 ft. and the average height about 3,000 and 4,000. There are many extinct volcanoes, but only one, Erebus on Ross Island, is active. Coal has been found. The continent is nearly devoid of life. There are no land animals and only a few birds, notably the penguins on Ross Island and elsewhere. Whales and seals are found. The mosses and lichens seen on the coastal rocks are the only indications of plant life. In addition to coal other payable deposits of minerals are believed to exist.

At the Imperial Conference in 1926 it was declared that by right of discovery the British had a good title to part of Coats Land, Enderby Land, Kemp Land, Queen Mary Land, Wilkes Land, King George V. Land and Oates Land.

Antarctic Circle. This is a parallel of latitude drawn 23½ degrees (approximately) from the south pole, i.e. in latitude 66½° S.

ANTARCTIC EXPLORATION. Exploration in the Antarctic may be said to date from Jan 17, 1773, when James Cook was the first man to cross the Antarctic Circle. The next great step forward occurred in 1819, when William Smith discovered what are now the South Shetland Islands. In 1821 Bollingshausen, a Russian, discovered Peter I Island and Alexander I Land. James Weddell, a Scotsman, reached 74° 15' S. in 1823, in the great bay to which his name has been given. Enderby Land was seen in 1831 by Biscoe, a captain in the service of Enderby Brothers: the next year Biscoe discovered Adelaide Island, the Biscoe Islands, and Graham Land. John Balleny was sent southwards by the same merchants and discovered the islands which bear his name in 1839. D'Urville made Adélie Land in 1840, and in the same year Wilkes, of the U.S. Navy, sailed along the coast of Wilkes Land.

In 1839 the British Admiralty placed James Clark Ross in command of the Erebus and of a British Antarctic expedition. He discovered the Admiralty Mts., Possession Island, Coulman Island, Mt. Melbourne, Franklin Island, and finally the volcanic mts. Erebus and Terror, and Cape Crozier. In each of the following seasons attempts were made by



Antarctic and Arctic circles, showing the way the sun's rays reach them in midsummer and midwinter



Antarctic Exploration. Members of the Amundsen expedition proving themselves to be at the South Pole, Dec. 16, 1911. Scott's expedition reached it one month later

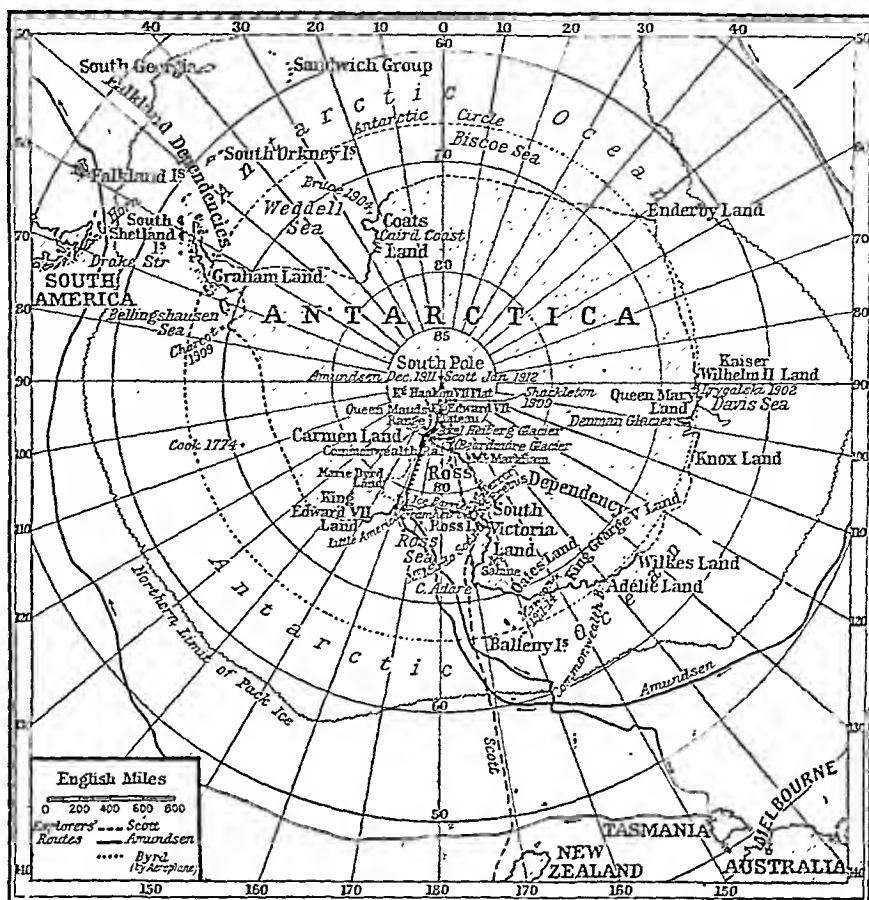
Ross to reach the high latitudes, the best effort being $71^{\circ} 30' S.$ in the Weddell Sea in March, 1843.

On Dec. 21, 1872, the Challenger expedition sailed for the S., and on Feb. 16, 1874, the Challenger was the first steam vessel to cross the Antarctic Circle. King Oscar II Land was discovered by Larsen in 1893. In 1897 the Belgica sailed from Antwerp, under Adrien de Gerlache, with a company which included Roald Amundsen, Dr. Cook, and Henryk Arctowski; the ship was gripped by the ice in March, 1898, and at $71^{\circ} 30' S.$ and for the first time an exploration party spent the winter in the Antarctic.

In 1901 R. F. Scott sailed in the Discovery and landed a party at the foot of Mt. Terror on Ross Island on Jan. 22, 1902. The ship followed the Great Ice Barrier eastward and discovered King Edward VII Land. Winter was passed in McMurdo Sound, and then sledge journeys were made S. over the harrier ice.

Drygalski sailed in the Gauss in 1901 from Hamburg and discovered Kaiser Wilhelm II Land, while Nordenskiöld, in the Antarctic, reached King Oscar II Land, where he wintered. W. S. Bruce sailed in the Scotia in 1902 from the Clyde, wintered at Laurie Island, and in 1904, after refitting at Buenos Aires, the Scotia reached $74^{\circ} 1' S.$ at Coats Land. Mossman remained for meteorological work until 1905 on Laurie Island.

On New Year's Day, 1908, Shackleton, who had been with Scott on his sledge journey over the harrier ice, left New Zealand on the Nimrod, and wintered near Cape Royds. He set out polewards over the barrier ice in Oct., climbed the Beardmore Glacier in Dec., and reached $88^{\circ} 21' S.$ on King Edward VII Plateau on Jan. 9, 1909, an advance on the previous farthest S. of some 420 m. A second sledge party pushed N., ascended the plateau near Mt. Bellingshausen, and discovered the South Magnetic Pole in $72^{\circ} 25' S., 155^{\circ} 16' E.$, at an elevation of 7,260 ft., on Jan. 16, 1909.



Antarctic Exploration. Map of the South Polar region showing the points reached by various explorers and the routes taken by Amundsen, Scott and Byrd in their successful attempts to reach the Pole.



Charcot made a second Antarctic voyage and explored Bellingshausen Sea in 1909-10.

Roald Amundsen left Norway on the Fram in Aug., 1910, and reached the Bay of Whales on the edge of the Great Ice Barrier on Jan. 14, 1911; winter quarters were established, and the dash for the pole began on Oct. 20.

The inner edge of the barrier ice was reached on Nov. 17, at $85^{\circ} S.$, and the pole was reached on Dec. 16, 1911.

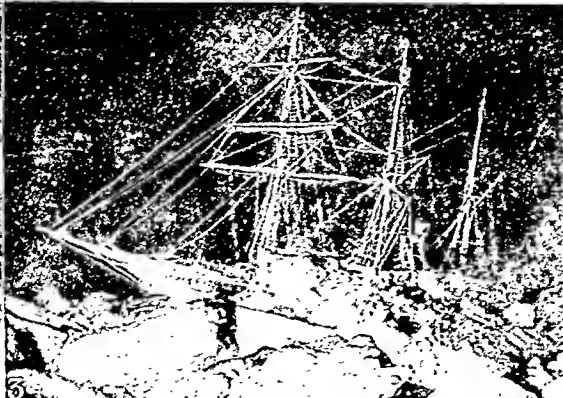
Scott left London on the Terra Nova on June 1, 1910, winter quarters being prepared in Jan., 1911, on Ross Island. Sledge parties set out S. in Oct., and on Jan. 4 Scott and four companions, Wilson, Bowers, Oates, and Evans, went onwards from lat. $87^{\circ} 35' S.$ and reached the pole on Jan. 17, 1912.

On Dec. 2, 1911, Mawson sailed from Hobart in the Aurora to explore the area W. of Wilkes Land. Sledging parties explored the neighbouring areas, and the Aurora in her voyages to and from Australia made oceanographical discoveries, and the expedition returned on Feb. 26, 1914.

Shackleton left England in 1914 on the Endurance to attempt a sledge journey from Weddell Sea across Antarctica to Ross Sea. The Endurance was frozen in off the Caird Coast, Jan. 18, 1915, drifted from $76^{\circ} 30' S.$ to $69^{\circ} S.$, where she was crushed on Oct. 27, the crew reaching safety after difficulty.

In 1928 two expeditions set out for the south polar regions, one under Adm. Richard Byrd and the other under Sir Hubert Wilkins. Byrd's first ship left Hoboken in Aug., and he himself left California in Oct. In Nov., 1929, he flew over the pole. In Sept., 1929, Sir Douglas Mawson set out from Cape Town in the Discovery to lead another expedition. A Norwegian expedition also went out for scientific purposes. See Amundsen, R.; Arctic Exploration; Scott, R. F.; etc.

ANTARCTIC OCEAN. Name conventionally applied to the waters of the Atlantic, Pacific, and Indian Oceans which girdle the Antarctic continent. The arbitrary northern limit of the ocean is lat. $60^{\circ} S.$, where it merges with the Southern Ocean. The chief seas of



Antarctic Exploration. 1. Crew of Scott's expedition of 1910-12 in the cabin of the Terra Nova. 2. Sir Hubert Wilkins and his pilot standing by their aeroplane after one of their flights over the South Polar regions in 1929. 3. Shackleton's ship, the Endurance, closely beset by the floating ice and drifting northwards in 1915. She was crushed, but the crew reached safety. 3, from "South," by Sir Ernest Shackleton. London: William Heinemann

the Antarctic Ocean are the Weddell Sea, between Graham Land and Coats Land; the Biscoe Sea, between Coats Land and Enderby

In the larval stage of certain crustaceans the antennae are used as swimming organs, but in adults and in insects they evidently perform

ANTHEM (Gr. anti, against; phonē, sound or voice). Vocal music with sacred words, with or without accompaniment. In the Church of England its place is after the third collect of morning and evening prayer. Modern anthems are very free as to form; they range from the calibre of a simple part song to the dimensions of a sacred cantata.

ANTHOLOGY (Gr. anthos, flower; logia, to select). Collection of selected poems or prose extracts. The oldest collection is that generally known as the Greek Anthology. It contains selections from 300 Greek poets. There have been several translations into English of selections from the Greek Anthology, notably that of J. W. Mackail.

Anthologies of English poetry are numerous, one of the best known being F. T. Palgrave's Golden Treasury, 1861 and 1897, complete ed. 1909. Another is Sir A. T. Quiller-Couch's Oxford Book of English Verse, 1900. Recent years have seen the production of anthologies on particular themes, something of a new fashion in them being set by E. V. Lucas's The Open Road, 1899. The Great War was responsible for anthologies of war poems.

ANTHONY OF PADUA (1195-1231). Christian saint. He was born at Lishoa of a noble family and entered the Order of Friars Minor (Franciscans) at the age of 25, after he had been for 10 years an Augustinian monk. He was appointed by S. Francis to instruct the order in theology, but he was chiefly famous as a preacher. He died at Vercelli, near Padua, June 13, 1231, and was canonized by Gregory IX in 1232. His tomb is at Padua. Anthony was the friend of all animals, not disdaining to preach to them on occasion. His help is popularly invoked for the recovery of lost goods, and his festival is kept in the Roman Catholic church on June 13.

In medieval times friars of S. Anthony enjoyed the right of allowing their swine to roam at liberty in search of food. Remedy for damage caused by these animals, which were distinguished by a T cross, had to be sought in an ecclesiastical court, and the custom became such a nuisance that many towns compounded with the friars for its extinction.



Antelope. Left the saola antelope, a South African species which is black when adult. Right, the sing, an African waterbuck, grey or reddish in colour. See article below. Gambler Bolton, F.Z.S.

Land; and the Ross Sea, between South Victoria Land and King Edward VII Land. The name Bellingshausen Sea is used for the waters to the W. of Graham Land and N. of Charcot Land. Except in the vicinity of Graham Land there are few islands in the ocean. The Antarctic is the shallowest of all the oceans, the depth averaging 2,000 fathoms.

ANTEATER. Group of animals belonging to the order Edentata. The true anteaters, of which there are three species, all natives of South America, are recognized by the curiously long head and long tube-like muzzle. There are no teeth, and the tongue is long and worm-like, adapted for thrusting into the passages of ants' nests and licking up their inhabitants. The great anteater is about 4 ft. long and 2 ft. in height, with a tail clothed with hair 18 ins. in length, in which it wraps itself when asleep. Another variety, the tamandua, is only half the size and lives mainly in the trees. The pygmy anteater, another arboreal species, is only 6 ins. long.

ANTELOPE. A large group of mammals of the family Bovidae. The term is generally applied to all ruminants that cannot well be described as cattle, sheep, or goats. Most antelopes are graceful and deer-like, bearing horns which are usually long, cylindrical, more or less ringed, and more solid than those of oxen, sheep, or goats. Species are confined to the Old World. In size they range from the hartebeest, which stands about 5 ft. high at the withers, to the little duikers, some of which are no larger than a rabbit with long legs.

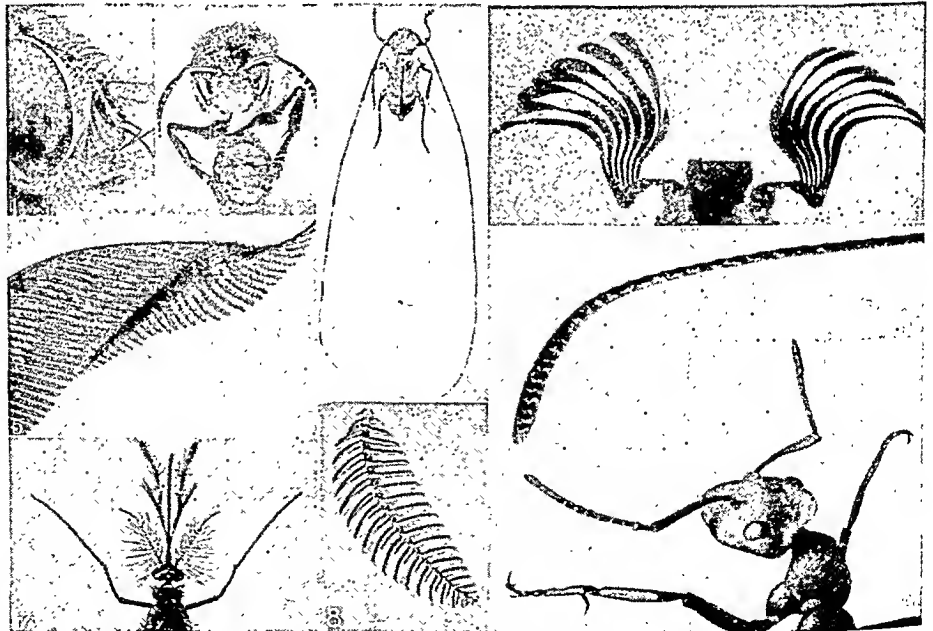
sensory functions. Ants appear to recognize one another and possibly communicate by means of these organs.

Antenna is the name given to the aerial wire of a wireless telegraphy sending or receiving station.



Anteater. One of the great anteaters Myrmecophaga jubata, of S. America.

ANTHELION (Gr. anti, against; helios, sun). Concentric rings, halo, or colourless mock sun seen round the shadow of an observer, who, standing with his back to the sun, is gazing upon a moist surface, such as a clond, fog, or dewy grass. The phenomenon is produced by diffraction of light, and is observed when the moist surface has the same angular altitude as is possessed by the sun.



Antenna. Highly magnified feelers of diverse kinds of insects. 1. Antennae of the blow-fly. 2. Whip-like antennae of the hornet. 3. The long antennae of the North European timberman beetle. 4. Antennae of the male cockchafer. 5. Antenna of the silkworm moth. 6. Antenna of a butterfly. 7. Antennae of the male goat. 8. Antenna of the male emperor moth. 9. Whip-like antennae of a worker wood ant. Great care is taken by insects to keep the antennae clean.

ANTHONY OF THEBES (about 251-356). Christian saint, generally known as S. Anthony the Great. Born at Koma in Upper Egypt of Christian parents, he devoted himself to a religious life, and lived as a hermit until 305. By this time his fame had spread, and many wished to live under his guidance. He therefore established the first Christian monastery near Memphis, which ultimately comprised about 15,000 monks. The community included a number of hermitages, the monks living in solitude in scattered cells. In extreme old age S. Anthony travelled to Alexandria to oppose the Arians. S. Anthony's temptations in the desert have no foundation in history. The main facts of his life are derived from the writings of S. Athanasius. See Monasticism.

ANTHOZOA (Gr. antbos, flower; zoon, animal). A large class of marine organisms, including corals and sea-anemones. See Coral.

ANTHRACENE (Gr. anthrax, coal). Solid hydrocarbon obtained from coal-tar, symbol $C_{14}H_{10}$. Anthracene is employed for the manufacture of alizarin, which on this account is known as anthracene red.

ANTHRACITE. Variety of coal containing a high percentage of carbon. Anthracite burns slowly with very little smoke or flame, and throws out great heat. It is therefore much used by warships and for certain kinds of household stove, notably in New York, where only anthracite is burned. It is found in great quantities in the western portion of the South Wales coalfield, in Pennsylvania, and in Canada. See Coal.

ANTHRAQUINONE. Substance occurring in the form of yellow needles, symbol $C_{14}H_8O_2$. It is used in the manufacture of artificial alizarin. For industrial purposes anthraquinone is manufactured by treating sublimated anthracene suspended in water with a mixture of sodium dichromate and sulphuric acid.

ANTHRAX (Gr. anthrax, coal, carbuncle). Disease which mainly affects sheep and cattle, but also at times human beings. The disease is extremely rapid, death occurring in a few hours, with rapid decomposition, although cases of recovery are recorded. The temperature rises to a high point; there is progressive weakness, with difficulty of breathing; and blood escapes from the external orifices. In Great Britain horses and sheep are rarely affected, the disease being more common in pigs.

Human beings usually become infected with anthrax as the result of their occupation, e.g. skinning and dressing carcasses, carrying hides, or manipulating wool. The symptoms in human beings vary with the way in which the organisms find an entrance to the body.

Prevention of the disease is exceedingly important, since infection is most often due to germs on pasture. The body of an animal which has died from anthrax should not be dragged over a field, but buried promptly, unopened, in a deep pit surrounded by quicklime; all straw and material known to have been in contact with the animal must be burned; yards should be thoroughly cleaned, and stalls and byres limewashed. Men who have handled the carcass must thoroughly disinfect their hands, and clothes soiled with blood, etc., must be steamed or boiled.

A case of anthrax occurring in a factory or workshop must be notified to the Home Office under the Factory and Workshops Acts

ANTHROPOGEOGRAPHY (Gr. anthropos, man; geographia, geography). The study of physical environment as a factor in the history of mankind. It is concerned with the terrestrial influences underlying human migration in all ages and the variation of man's physical and mental characters. With the aid of physiography it studies differences of stature, pigmentation, muscular energy, viability, capacity for progress, and mental retardation. See Anthropology. Ethnology.

ANTHROPOID APE (Anthropomorpha). The animal that comes nearest to man in form and structure, and is included, together with monkeys and lemurs, in the same natural order (Primates). These apes are tailless, have a single curve to the backbone, and the breast bone is broad and flat as in man.

The fore-limbs end in hands that are larger than the feet; and the thumb and great toe are set at an angle to the other digits, and are opposable to them.

The group includes the gibbons (Hylobates), the orangs (Pitheciens), and the chimpanzees and gorillas (Trogloides). They are natives of the Old World—Africa, Asia, and the islands of the E. Indies. See Animal; Monkey.

ANTHROPOLOGY.

The term anthropology (Gr. anthropos, man; logos, science) was used by Otto Casmann, 1594-5, to denote the mutual relationship of human physiology and human psychology, and it bore that meaning until it acquired a wider one under the impulse given by the appearance of Charles Darwin's *Origin of Species* in 1859. Its two main divisions are (1) physical, the natural history of the human animal. (2) cultural, the study of civilization.

PHYSICAL ANTHROPOLOGY. The student begins by considering the place occupied by man in the animal kingdom. The comparative zoologist points out the similarity of man's physical structure to that of the anthropoid or man-like Primates, and endeavours to trace the course of human evolution.

The oldest fossil bones for which any human characters have been claimed are those of *Sivapithecus indicus*, discovered by Dr. Guy Pilgrim in 1915. The earliest known form in which the lower limbs were adapted for walking on the ground is the Java ape-man, *Pithecanthropus erectus*, of the Pliocene age. To that age, therefore, the origin of two handed, two-footed man is, on our present evidence, to be attributed. That there were Miocene precursors is a necessary inference, but they were probably essentially pre-human.

Existing races have never passed beyond the stage of inherited breeds or zoological varieties. There is to-day but one human species, known as *Homo sapiens* (Lat. man the knowing). The biological test is conclusive—any inter-racial union produces fertile offspring. All breeds, however, are not equally educable, because mental culture is conditioned by brain development. The repugnance of the highest races for mating with the lowest is based upon a reasoned psychology.

CULTURAL ANTHROPOLOGY. Man became differentiated from the brute creation—with its unthinking subservience to environment—when first brain and hand began to react upon each other. His erect posture was inherited from arboreal precursors; when he descended to the ground and walked firmly upon the earth, the hands were released for manual uses, and man the tool-maker began.

In that primeval age which we might call pre-archaeologic family life was already foreshadowed. The theory of a primal promiscuity of intercourse does not accord with the implications of arboreal life, not to speak of anthropoid usage. The restrictions entailed upon childbearing by considerations of food and shelter fostered maternal care. There was correspondingly imposed an ever-increasing need for the physical and mental nurture which we call education.

The modification of the ape-like jaw proceeded side by side with the introduction of tools in connexion with food, and with the need for eating sparingly and often, due to the position of the abdomen upon a bipedal support. This made it possible for the organs connected with the mouth to utter articulate sounds. Under the guiding intelligence of the brain these came to possess a fixed communicable meaning, and so gave birth to speech, which was aided though not necessarily preceded by gesture.

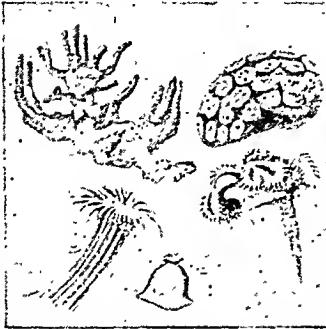
During the Stone Age, if not before, man acquired the power of producing fire, one of the mightiest events in his history. In that age, too, his inventiveness was displayed in such forms as the spear, the detachable barpoon, the poisoned arrow. He introduced personal adornment as a social no less than a magical device. In tropical lands clothing may have been at first a contrivance for attaching to the person the fool equipment. The protective use of leaves and skins, out of which modesty arose, was also an early institution. When the forest was exchanged, as in palaeolithic Europe, for river valleys and open plains, the camp stations were but seasonal and transient. There is, however, pictorial evidence for the early invention both of the hut and of the tent.

Towards the close of the older Stone Age some progress was made in turning to account the animal herds amid which man lived. This may have been at first the unforeseen and unintended result of the segregation of selected animals for religious purposes. The dog may have domesticated itself by living in companionship with man under conditions of mutual toleration and helpfulness. The taming of other animals for flesh, milk, and locomotion slowly followed.

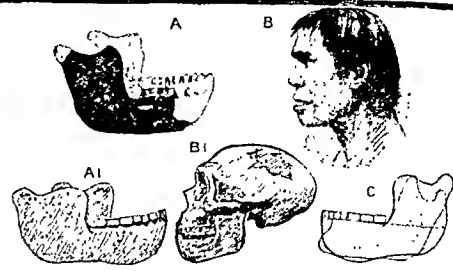
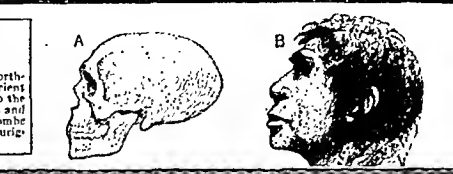

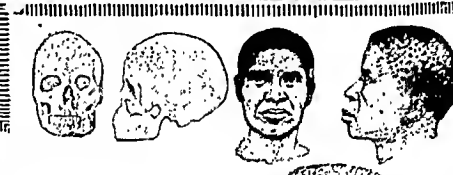
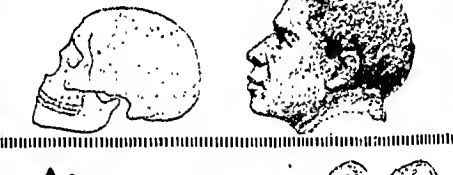




The human family was now able to enter upon a settled existence, and permanent homesteads arose. Around these the women collected their household stuff and their stores of edible grasses and roots. Experience gradually showed that the cereal and fruit supply could be ensured and increased by planting. The domestication of plants meant also the domestication of human life, and turned the hunter into a farmer.

A vigorous crop of inventions now sprang up. The word culture itself denotes in Latin the tillage of the soil. The grinding of corn introduced the staff of life. The digging-stick, still used in Australia, became in tropical Africa the hoe, and in Europe the plough, which in its turn led to the wheeled cart. The use of natural objects (shells, nuts, gourds) for utensils was followed by the invention of basketry, which developed in two directions. From the plaiting of bark and rushes it advanced to weaving. The encasement of the basket in clay for cooking food was one of the contrivances that gave rise to pottery. Lastly, the discovery of the art of smelting and metal-working ushered in the modern world. The practice of pasturage and agriculture brought in its train a new order of social ideas. It led to the practice of food-storage, the parent of capital.

There are chairs of social anthropology in Oxford and Liverpool, of ethnology in Cambridge and London. The Natural History



Anthozoa. 1. *Montipora* (coral). 2. *Coenopiasammia Willeyi* (coral). 3. *Vidiata* (sea-anemone). 4. *Actinoloba Dianthus* (sea-anemone). 5. *Miniata* (sea-anemone).

GEOLOGICAL EPOCH	IMPLEMENTS	RACES	TYPES	SKULLS & RECONSTRUCTIONS
A.—EARLY PLEISTOCENE Epoch of the Hippopotamus A.—Eolithic Age Period I.— <i>Benelian</i> Period II.— <i>Maffian</i> Period III.— <i>Messinian</i> From <i>Reuil, Maffie, and Messin</i> — <i>Belgian Sites</i> No dules not designedly chipped. Flint held directly in hand, not used as a "chopper."	A and B.—Eoliths from the Cromer Forest Bed. C.—An eolith from Messin.	Heidelberg SUSSEX MAN (or Woman); Remains found in a gravel deposit near Pittdown Common, Sussex. HEIDELBERG: The lowest race known. Represented by the Mauer jaw, from the Mauer Sands, near Heidelberg; Maffian Period.	Homo Heidelbergensis A.—The jaw of the Sussex Man (or Woman). B.—A reconstruction of the Sussex Man of the same period as <i>Homo Heidelbergensis</i> . A1.—The Mauer jaw. B1.—An adaptation of the Mauer jaw to a Neanderthal skull (the man of Chappelle aux Saints); by Professor Boule. C.—A tracing of the Mauer jaw and of a modern European jaw (the thin line) after Schoetensack.	
B.—Palaeolithic Age Period I.— <i>Strepyan</i> (After <i>Strepy</i> , Belgium) Very roughly worked flints, marking a transition from the Eolithic to the Palaeolithic form. Nodules generally flaked at the point.	A and B.— <i>Strepyan</i> implements from the lower gravels of St. Acheul. C.—A pointed nodule from Strepy.	Galley Hill Superior to, and co-existent with, the Neanderthal race. Earlier than some of the Neanderthal type. Probably developed into the Cro-Magnon type.	Galley Hill Man A.—The skull. B.—A reconstruction. From Galley Hill, near Northfleet, Kent. Found in ancient river gravel. Belongs to the same group as the Engis and Neanderthal skulls and the Combe Capelle Man (Early Aurignacian).	
Period II.—Chellean (After <i>Chelles</i> , near Paris). Hand-axes, called "bouchers" by Professor Sallas; often pear-shaped or flat ovals; coarsely flaked.	A.—A Chellean "boucher" from front and side views. B.—A Chellean scraper.			
Period III.—Acheulean (After St. Acheul, near Amiens). Almond-shaped implements, finely flaked and often twisted.	A.—"Amande," or "ovate boucher." B.—Scraper. C.—Flint pick.			
II.—MIDDLE PLEISTOCENE (Epoch of the Neanderthals) Period: <i>Mousterian</i> Scrapers made of flakes worked on one face.	A. Mousterian flake showing the face (A); the convex (A1); and the profile (A11). B.—A Mousterian lance-head.	Neanderthal (After the Neanderthal Cave, near Düsseldorf).	Mousterian Man The Skull and a Reconstruction From Le Mouster rock-shelter, Vézère Valley, Dordogne, France. Belongs to a group less human than the Heidelberg Man can be supposed to have done.	
III.—LATER PLEISTOCENE (Epoch of the Reindeer) Period I.— <i>Aurignacian</i> (After Aurignac Cave, Haute-Garonne, France). Tartar points, Aurignac points. Advanced Mousterian types. Bone and ivory largely used. Sculpture, painting, and engraving begin. Flakes and tanged spear-heads. Flint bouchers cease.	A.—A curved, pointed flake; known as the Chatelperron point. B.—A beaked burin. C.—A carinated (keeled) scraper. D.—A bone straightener. E.—A bone smoothing implement. F.—A bone pointed implement with a split end; possibly a predecessor of the needle.	Aurignacian (Also called <i>Lüssing</i>).	Homo Aurignacensis Top Row: Negroid type from the Grotte des Enfants, Mentone, France. Prognathism; steatopygous; allied to the Bushmen of South Africa. Second Row: From Combe Capelle Cave, Dordogne, France. Early Aurignacian. Belongs to the same group as the Engis (Belgium), Brunn (Czechoslovakia), and Galley Hill Men. Superior to, and earlier than, some of the Neanderthal type.	
Period II.—Solutrean (After Solutre, near Macon). Flint points with notches. Leaf-shaped blades, finely chipped. First needle.	A and B.—Ivory lance-heads. C.—A leaf-shaped spear-head (lance leaf). D.—A leaf-shaped arrow-head (willow leaf). E.—A point with notch (pointe à cran). F.—A tanged arrow-head. G.—A two-pointed barter. H.—A two-edged scraper.		Aurignacian Statuettes (Showing two different races) A and B.—Figures showing an steatopygous. C.—Difficult to identify, but showing the steatopygous and the tully hair of the Bushmen. D.—Heads showing plaited hair. E.—Paintings of women from a group at Coudé, Spain; the head-dress resembles that of the women of the Somalis and the Galias (F). G.—A "disguised hunter"—engraving on bone.	
Period III.—Magdalenian (After La Madelaine Rock-Shelter, Vézère Valley, France). Long blades; very small tools.	Flint: A.—A scraper. B.—Hand C.—Penknife. D.—An awl. E.—A lateral burin graver. F.—A burin. J.—Flint for rounding needles. K.—Bone. G and H.—Barbed harpoons. L.—Needles. M.—Harpoon-heads; perforated for thongs. N.—An arrow-straightener. O.—A reindeer bone; perforated and used as a whistle. P.—A fish-hook. Q.—Supposed "writing."	Magdalenian	Cro-Magnon (A) From Cro-Magnon Cave or rock-shelter, in the Valley of the Vézère, also from the Grimaldi Cave, near Mentone. Men of high stature; Mongoloid. Related to, though distinct from, the Algonkian Indians. Chancelade (B) From the Commune of Chancelade, Dordogne, France. Men of low stature; showing the characteristic Eskimo form.	
Period IV.—Azilian (After the Grotto of Las d'Azil, in the Ariège, France). Disappearance of the reindeer and its replacement by the red deer; serrated harpoons, perforated for the attachment of a cord; pebbles painted with characters resembling letters of the alphabet.	A.—Serrated harpoons. B.—Painted Pebbles.	Azilian Braheocephalic related to the Neolithic (pile-dwelling) races.	Spread all over Europe.	

Museum at South Kensington contains a department of physical anthropology. The British Museum possesses at Bloomsbury, besides its prehistoric collections, an ethnographical gallery which urgently needs expansion before the opportunity for its completion is irrevocably gone. The Anthropological Institute at 52, Upper Bedford Place, London, W.C., is the British headquarters of the study. See Man; consult Antiquity of Man, A. Keith, 1925.

ANTHROPOLOGICAL CHART. The chart on the opposite page illustrates the improvements of the weapons made in successive periods and the changing types of human beings as these have been "reconstructed" from remains found in the earth. The periods covered by the plan bring the story of man to the Azilian time, which is regarded as that when the Palaeolithic Age was merging into the Neolithic—the age of polished stone weapons, of cromlech and stone circle builders and of pile-dwellers.

ANTHROPOMETRY (Gr. *anthropos*, man; *metron*, measure). Measurement of the human body. In modern research it is a branch of biometrics, which embraces the measurement of mental as well as physical characters. Measurements derived from every part of the bony skeleton are utilised by anatomists for comparison with similar data of the anthropoid apes in elucidating the physical evolution of mankind. Anthropometric methods are employed by ethnologists for the comparison and classification of races. The principal instrument employed is called an anthropometer.

The most important branch of this science is the measurement of the head and its organs, especially the skull. This includes the relation of head-length to head-breadth and the classification of races into long-heads, medium-heads, and short- or round-heads; the projection of the upper jaw; the shape of the nose; eye-colour; the form of the ear, the chin, the teeth. In regard to the capacity of the brain-cavity, it is known that large skulls are consistent with low mental development.

ANTHROPOMORPHISM (Gr. *anthropos*, man; *morphē*, form). Term used for the ascription to God of a human form and qualities. Anthropomorphism represents a definite stage in the evolution of religion. In the earlier phases of religious thought the gods were construed in terms of the natural world, and the great forces of nature, e.g. the sun, the moon, the winds, the rainstorm, etc., were deified.

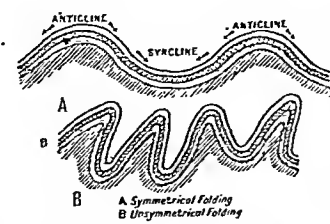
The gods of ancient Greece represent anthropomorphism in its most pronounced form. They were men and women endowed with human passions and qualities on a grander scale. The Iliad of Homer may be described as the Bible of anthropomorphism.

ANTHROPOPHAGI (Gr. *anthropos*, man; *phagēin*, to eat). Tribes of man-eaters described by Pliny and others as dwelling N.E. of the Caspian. Of nomadic habit, they observed the custom of eating the flesh of aged parents. This bonorific form of cannibalism, designed to preserve the ancestral soul from decay, survived in some places until recent times. See Cannibalism.

ANTIBES. Seaport and holiday resort of France in the dept. of Alpes-Maritimes, it is 13 m. by rly. S.W. of Nice. Its chief industries are fishing and the making of perfumes. The ancient Antipolis, it was probably founded by Greeks in the 4th century B.C., and, as remains show, was later a Roman settlement. Pop. 12,768.

ANTICHRIST (Gr. *anti*, against or in place of; *Christos*, Christ). Term used in the N.T. (1 John 2 and 4; 2 John) to denote

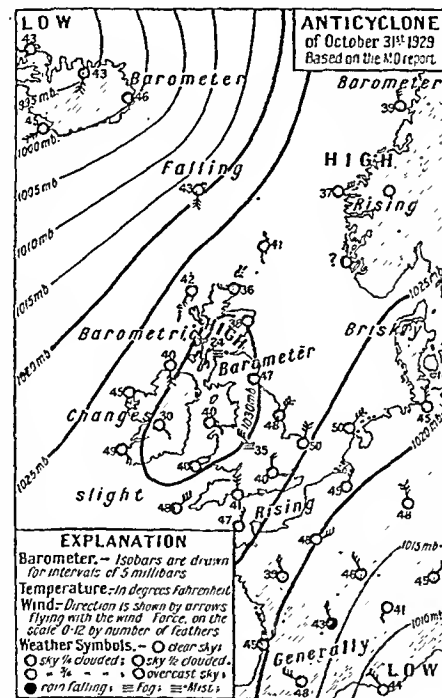
one who originally denies that Jesus is Christ, and, teaching falsehood, claims to teach the truth. Allusion to the coming of Antichrist may also be found in the Gospels (Matt. 24; Mark 13; Luke 21).



Anticline. Diagram illustrating this form of stratification

ANTICLINE (Gr. *anti*, against; *klinein*, to lean). Convex fold in stratified deposits, due to lateral pressure on a portion of the earth's crust. The fold may be symmetrical or otherwise, as in illustration above.

ANTICOSTI. Island of Quebec, Canada. Situated in the Gulf of St. Lawrence, it is 122 m. long by 30 m. broad, and has an area of 2,600 sq. m. The island was discovered in 1535. In 1895 it was acquired by M. Menier, who stocked it with wild animals. Pop. 450.



Anticyclone of Oct. 31, 1929, over Western Europe

ANTICYCLONE. Meteorological term for a type of pressure distribution in which the isobars form closed curves, as a rule circular or oval in shape. Atmospheric pressure is highest at the centre and diminishes towards the margins, so that the movement of air is in a direction opposite to that in a cyclone. Towards the centre of the system the air is usually very still, but nearer the margins the winds—generally light ones—blow outwards in a clockwise direction. Anticyclones, generally regarded as the bringers of fine or fair weather, are marked by an absence of rain, although in a sea-girt land rain may occasionally fall in small amounts.

ANTICYRA. Name of two towns in ancient Greece. One was in Thessaly on the Malian Gulf, another (Aspra Spitia, white houses) was in Phocis, on the Corinthian Gulf. Both were famous for hellebore, a supposed remedy for lunacy; hence a person suspected of insanity was told to sail to Anticyra.

ANTIGONE. In Greek legend, the daughter of Oedipus, king of Thebes. When her father, blinded by his own hand, had to leave Thebes, Antigone was his faithful companion until his death at Colonus. For her disobedience in burying the corpse of her brother Polynices, which had been forbidden by Creon, king of Thebes, Antigone was immured in a cave, where she hanged herself. She figures in plays by the Greek dramatists Sophocles, Aeschylus and Euripides.

ANTIGONUS (c. 380–301 B.C.). General of Alexander the Great. After the death of Alexander in 323 his ambition led to wars against the other generals of Alexander. Though by 306 Antigonus felt sufficiently sure of his position to assume the title of king of Asia, he was defeated and slain at Ipsus in Phrygia five years later. He is not to be confused with his grandson, Antigonus Gonatas, king of Macedonia. 276–239 B.C.

ANTIGUA. Island of the British W. Indies. It has an area of 108 sq. m. and is, with Barbuda and Redonda, one of the five presidencies of the Leeward Islands. It has an irregular coast, fertile soil, and several good anchorages, the best being English Harbour and St. John, the capital. It is the seat of government of the Leeward Islands, and produces sugar, cotton, pineapples, molasses, and rum. Discovered by Columbus in 1493, it was settled in 1632 by the British. Pop. of presidency 32,269. See Leeward Islands.

A small town of Guatemala is also called Antigua. Pop. 12,000

ANTILLES. Name applied to the West Indies exclusive of the Bahama Islands. The Antilles are divided into two groups—Lesser and Greater—the former including Antigua, Barbados, Barbuda, Dominica, Granada, Guadeloupe, Martinique, St. Vincent, Tobago, and Trinidad, and the latter consisting of Cuba, Haiti, Jamaica, Porto Rico, and a number of smaller islands. The Lesser Antilles are subdivided into the Leeward and Windward groups. See West Indies.

ANTIOCHUS. In Greek legend, son of the venerable Nestor. He accompanied his father to the siege of Troy, where he was killed by Memnon or Hector.

ANTIMONY (symbol Sb, Lat. *stibium*). Metal having a bluish-silvery colour and a flaky crystalline structure, showing beautiful facets on fracture. It is a chemical element. Its atomic weight is 120; specific gravity 6.72–6.86; and melting point 1,166° F. (630° C.). Stibnite, or grey antimony ore, is the principal source. It is found principally in France, Sweden, Borneo, Bolivia, Mexico, China, and Japan. The world's output of ore in 1927, expressed in metal content, was approximately 12,000 tons, about one-third of this quantity being produced by Bolivia.

The principal uses of antimony are in the preparation of alloys, particularly Britannia metal, type metal, pewter, and anti-friction metals. Antimony is also used for pigments and in the vulcanizing of rubber. During the Great War it was largely used with lead for shrapnel bullets.

ANTIMONY COMPOUNDS. Three oxides of antimony, the trioxide (Sb_2O_3), the tetroxide (Sb_2O_4), and the pentoxide (Sb_2O_5), are known. From the trioxide is prepared tartar emetic, used in medicine and as a mordant. Antimony trisulphide (Sb_2S_3) somewhat resembles graphite in physical properties. As kohl, this native form has been used in the East from time immemorial for colouring the eyebrows and skin.

ANTINOMIANISM (Gr. *anti*, in place of; *nomos*, law). Term, first employed by Luther against Jobannes Agricola, to express the

doctrine which the reformer denounced, that Christians being saved by faith alone are bound by no obligation to keep the law of God. An exaggerated view of S. Paul's teaching on justification by faith (Romans), and a reaction from Judaism, the tendency to antinomianism is found in early Gnostic sects and in later mystics. It was maintained in Germany in the 16th century, and was rife in England at the time of Charles I and the Commonwealth. See Anabaptists.



Antinous, favourite of the Roman emperor Hadrian. Vatican, Rome

ANTINOUS (d. A.D. 122). Favourite of the Roman emperor Hadrian. He was born at Claudiopolis, in Bithynia, and drowned himself in the Nile at Besa. Hadrian enrolled Antinous among the gods, built temples and statues in his honour, and put his name on coins and gems. His name was also given to a constellation.

ANTIOCH. Town of Syria. Called by the Turks Antakia, it stands on the left bank of the Orontes, about 60 m. W. of Aleppo. It was founded by Seleucus Nicator in 300 B.C. in memory of his father Antiochus, one of the 13 kings of Syria of this name, and for a time rivalled Rome in greatness. It lay in a fertile plain 14 m. from the sea, and at its zenith had a population of 500,000.

It played a leading part in the early days of Christianity, and here the followers of Christ were first called Christians (Acts xi, 26). Captured and destroyed by the Persians in A.D. 538, it was rebuilt by Justinian, and conquered by the Saracens about 638, from which time its decline dated. It prospered again under the Christians, but after 1268, when it was taken by the Egyptian Bibars, another period of decline began. Since then it has remained in the possession of the Mahomedans. The modern town, which is of slight importance, has remains of the old Roman walls. Pop. 30,000.

ANTIOCH. Ancient city of Iisidia. Founded, like Antioch in Syria, by Seleucus Nicator in memory of his father Antiochus, it was a free city under the Romans. It was colonised under Augustus and received the name of Caesarea. The place, which was visited by S. Paul, is mentioned in Acts 13 and 14. Its site is about 200 m. E. of Smyrna.

ANTIOPE. In Greek mythology, mother by Zeus of the twins Amphion and Zethus. She afterwards married Lyeus, king of Thebes, but owing to the jealousy of Dirce, his former wife, Antiope was cruelly treated. When her sons reached manhood they avenged her by killing Lyeus and Dirce.

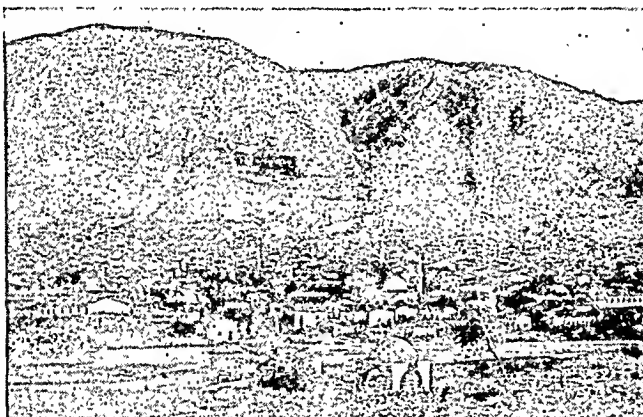
ANTIPATER (d 310 B.C.). Macedonian general. When Alexander the Great embarked

on his Persian campaigns he left Antipater behind as regent, and after the conqueror's death Antipater shared the government of Macedonia with his son-in-law Craterus. The change inspired the Greeks with the hope of regaining their freedom, but he decisively defeated their forces at Crannon in 322. After the murder of Perdiccas (321) he was declared regent of the empire.

ANTIPHILUS. Greek painter. Born in Egypt, he flourished about 330 B.C. Crossing to Macedonia, he lived at the capital, Pella, and is said to have painted the portraits of Philip and Alexander the Great. He later returned to Egypt, where he enjoyed the favour of Ptolemy I. He was jealous of Apelles, against whom he made a discreditable accusation, but the result was that he was given to his rival as a slave.

ANTIPHON (480-411 B.C.). One of the ten Attic orators. Born at Rhamnus in Attica, he conducted a school of rhetoric which Thucydides the historian is said to have attended. Antiphon enjoyed a great reputation, but his only known public speech is his own defence when arraigned after the fall of The Four Hundred at Athens. Despite this, he was condemned and executed.

ANTIPHONAL (Gr. anti, opposite; phonē, voice). Music in which effects of response are



Antioch, Syria, on the Orontes, about 60 miles west of Aleppo. Known as Antioch the Beautiful, it once rivalled Rome in its greatness

used. Officiant and choir, soloists and choir, or a divided choir, may be employed with this object. Antiphonal singing is heard in the chanting of the Psalms in Anglican and Roman Catholic Churches. Alternate verses or half-verses are allotted to opposite sides of the choir.

ANTIPODES (Gr. anti, against; podes feet). Geographical term meaning directly opposite each other. Points are antipodal to each other when they are at opposite ends of a straight line joining the points and also passing through the centre of the earth. Thus one point is as far N. of the equator as the other is S., while each is separated from the other by 180° of longitude. Australia and New Zealand are, roughly speaking, the Antipodes of Great Britain.

A group of uninhabited rocky isles in the S. Pacific are called the Antipodes Islands. They are about 480 m. S.E. of New Zealand, to whom they belong. The largest is about 5 m. in length.

ANTIOPE. Pope set up in opposition to the canonically elected pontiff. The Roman Catholic Church recognizes an unbroken series of true popes; any opposition popes for whom that title is claimed are accounted antipopes. The Great Schism began in 1378 with the election of the antipope Clement VII in opposition to Urban VI. Clement's successor bore the name of Benedict XIII. See Papacy.

ANTIQUARIES, SOCIETY OF. English learned society. It was reconstituted in 1717, and granted a royal charter in 1761. Its president is an official trustee of the British Museum. The offices are at Burlington House, London, W. Its library is rich in examples of early printing, heraldry, pageantry, and numismatics, and is available for fellows (F.S.A.). Its publications are *Archæologia*, since 1770; and *Proceedings*, since 1849. There is a Scottish society, founded in Edinburgh in 1780. Its fellows are described as F.S.A.Scot.

Antirrhinum. Alternative name for the snapdragon (q.v.).

ANTI-SEMITISM. Modern term for that open hostility to the Jews which has existed in varying degree in every country where they have been found since the 4th century A.D. The word Semite is commonly regarded in Europe as equivalent to Jew, the only Semitic people who have found a permanent home in Europe being the Jews.

As an organized political movement anti-semitism dates from the latter half of the 19th century. In Germany, France, Austria, and Holland it was directed to excluding the Jew from political rights; in Russia, Rumania, and Poland it was displayed in violent attacks upon his life and property. See Jews.

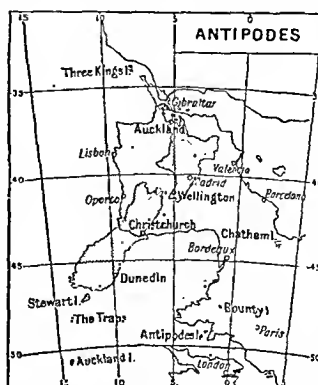
ANTISEPTICS. An antiseptic (Gr. anti, against; septikos, putrefying) is any substance that destroys bacteria or arrests their growth. As Pasteur showed, putrefaction and fermentation are always due to micro-organisms, as is also the group of diseases termed infectious. Antiseptic properties are exhibited by certain physical agencies, such as ultra-violet rays, moist heat, etc., and by a variety of substances, but the term is usually restricted to definite chemical compounds which act in high dilutions.

The general employment of antiseptics in surgery dates from the discovery, in 1862, by Lister that Pasteur's work on putrefaction applies also to sepsis in wounds, i.e. a wound will heal without the occurrence of suppuration, provided that it is not contaminated with virulent bacteria. The attempt to destroy micro-organisms in the living tissues without damaging the latter is termed chemotherapy.

Substances which have come into wide practical use as surgical antiseptics are salts of the heavy metals (e.g. mercury and to a less extent silver), as well as iodine, hypochlorites, chloramines, iodoform, peroxide of hydrogen, formaldehyde, alcohol mixed with 30 to 50 p.c. of water; also various organic compounds of the benzol series, e.g. phenol and the cresols, certain triphenylmethane dyes (brilliant green and crystal violet), and salts of diaminoacridine (acriflavine, and proflavine).

Antiseptics differ greatly in their potency measured by the dilution in which they are effective, and also as regards the rate at which they kill bacteria.

Many antiseptics fail because they are neutralised by the tissues and body-fluids



Antipodes. Map indicating the antipodal relation of London and W. Europe to New Zealand and its Southern islands

before reaching the bacteria, or because, like phenol or mercuric chloride, they are tissue poisons. Hence the value, in wounds, of acriflavine, cusol, Dakin's solution and other antiseptics which are both non-poisonous and unaffected by blood serum. Outstanding examples of chemotherapeutic agents in diseases are quinine in malaria and mercury and arsenical compounds in syphilis.

Antiseptic agencies are largely employed in industry, especially in the purification and preservation of food. See Bacteriology; First Aid; Surgery, etc.

ANTISTHENES (c. 440-370 B.C.). Founder of the Cynic school of Greek philosophy. Born at Athens, originally a pupil of the rhetorician Gorgias, he became a follower of Socrates, after whose death he founded a school. He chiefly devoted himself to the ethical side of his master's teaching, and held that virtue consisted in doing without all but the barest necessities of life and in the avoidance of evil; that the man who wanted little was most like the gods, who wanted nothing.



Antisthenes,
Greek philosopher

ANTITHESIS (Gr. anti, against; thesis, placing). In rhetoric, a sharp contrast or opposition between sentence and sentence, or sentiment and sentiment. It is used much in the forming of maxims or moral sayings. Macaulay's writings are full of antitheses, e.g.: "He had covertly shot at Cromwell, he now openly aimed at the Queen."

ANTITOXIN (Gr. anti, against; toxikon, poison for smearing arrows). Medical term for a substance which has the power of neutralising the action of a bacterial poison or toxin. It consists of the serum obtained from the blood of a living animal which has been rendered immune from the disease to be cured, or prevented, by injections of the toxin of that disease. Antitoxin has been used successfully in the treatment or prevention of diphtheria, lockjaw, etc. In botany the term is used of a secretion in plants which secures them from injury by microbes.

ANTIUM. One of the oldest cities and ports of Latium. It stood 33 m. S.E. of Rome, and was a stronghold of the Volscians and the haunt of pirates until conquered by the Romans. Antium became a favourite watering-place, and numerous remains of villas and art treasures have been found. The seaport of Anzio now occupies this site.

ANTIVARI. City of Yugo-Slavia. It is 3 m. from the Adriatic Sea and 16 from Scutari. It has a wireless station, and its buildings include the citadel built by the Venetians. On the coast is New Antivari, the terminus of a railway from Sentari. In the Middle Ages Antivari belonged to Venice, and there are some remains of a Venetian castle. It was afterwards a possession of Turkey, but in 1878 it was transferred to Montenegro. During the Great War it was occupied by the Austrians in 1916, and by the Italians in 1918. At the Peace of 1919 it was given to Yugo-Slavia. Pop. 2,500.

ANTLER Lat ante, before; oculus, eye). Outgrowth from the frontal bone of the deer, usually in the male

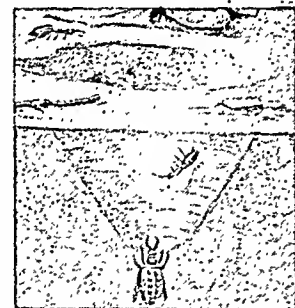
only. Antlers are shed and renewed annually. During the period of growth they are covered with a soft hairy skin called the velvet, which is well supplied with blood vessels. When the antlers are fully developed the supply



Antlers. Annual development of the antlers of the male fallow deer, from the unbranched horn of its second year to the many-tined one of its tenth. Above: Similar development of the antlers of the red deer

of blood is cut off. The skin then dries up and is rubbed off against the branches of trees. Year by year the number of tines or branches on the antlers commonly increases and indicates the approximate age of the animal. Antlers are used by the males when fighting during the breeding season.

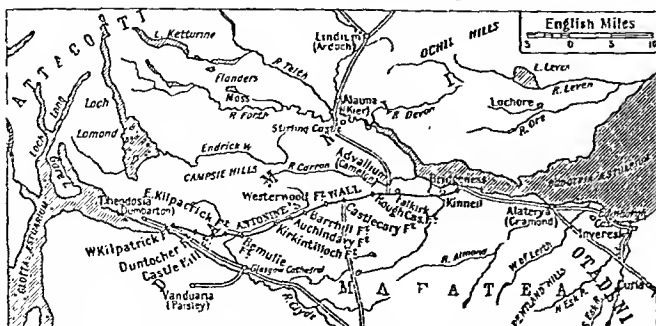
ANT LION (Myrmelcon). Larval form of a neuropterous insect, common to temperate and tropical regions. After making a conical pit in the loose sand, it buries itself at the bottom with only its head showing. When some



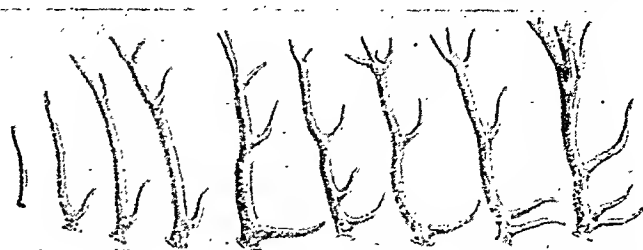
Ant Lion waiting at the base of its trap. Above, perfect insect of a species which hunts its prey

passing insect, such as an ant, slips over the edge of the pit, the ant lion throws sand at it to hasten its fall, and then seizes it. After sucking the juices of its prey, the captor hurls the body out of the pit. The ant lion passes through its pupal stage in the sand beneath its pit, and the perfect insect resembles a dragon-fly.

ANTOFAGASTA. Seaport of Chile. The capital of Antofagasta province, it is the ter-



Antonine's Wall. Map showing the line of this Roman rampart from the Forth to the Clyde, and the positions of some of its forts. See text

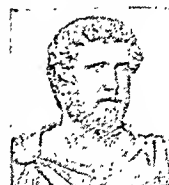


minus of the Antofagasta and Bolivia Rly. Ships lie in the roadstead and discharge by means of lighters. Much of the trade of Bolivia passes through this port, which is the commercial centre for an extensive mining district. It is a wireless station. Pop. 51,500. The province, the largest in Chile, includes the desert of Atacama, which is rich in nitrate and other minerals.

ANTONINES, AGE OF THE. Period in the history of the Roman Empire covered by the rule of the emperors Antoninus Pius (A.D. 138-161) and Marcus Aurelius Antoninus (A.D. 161-180). An era of peace and prosperity, it came to be regarded as the Golden Age of the empire. Consult E. Gibbon, *Decline and Fall*.

ANTONINE'S WALL. Roman rampart, 36 m. long, between the Forth and the Clyde. Erected by Lollius Urbicus in A.D. 140-1, during the reign of Antoninus Pius, it became the northernmost outpost of Roman Britain. Mainly of turf flanked by a ditch, it was protected by from 10 to 20 forts, some of which, e.g. Camelon and Barrhill, mark the site of Agricola's temporary works of about A.D. 80. The stone-ramparted Castlecary is well preserved. The wall was known in early Scottish history as Grime's Dyke and later as Graham's Dyke.

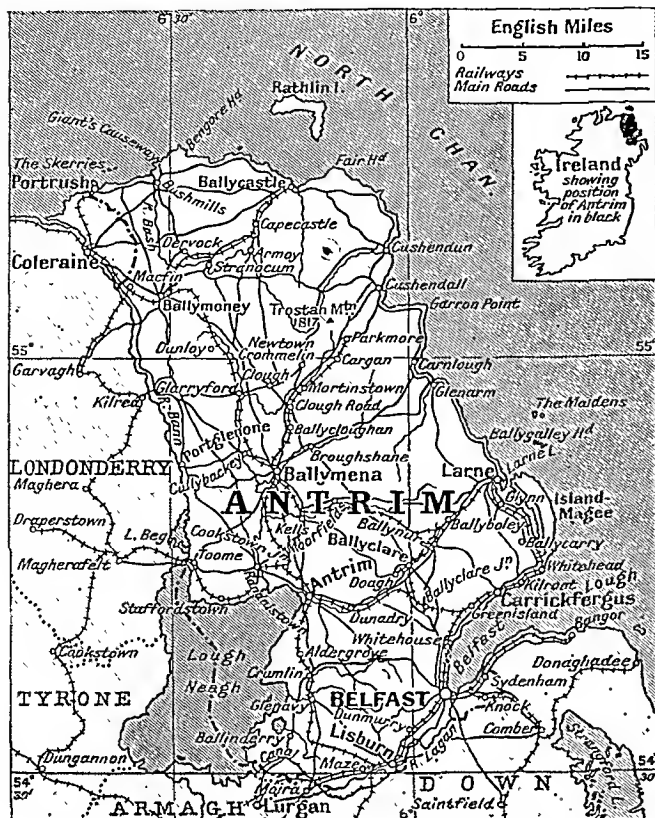
ANTONINUS PIUS (A.D. 86-161). Roman emperor, 138-161. He held with credit several administrative posts and enjoyed the friendship of Hadrian, who adopted him and designated him his successor. During his reign the only serious military operations were those carried on in Britain. Under Antoninus, reforms were introduced into the Roman system of law, and the harsh code which governed the relations between freemen and slaves was mitigated. The provinces were well governed, the arts and sciences encouraged, and persecutions of the Christians checked.



Antoninus Pius,
Roman Emperor
British Museum

A memorial, known as the Antonine Column, was erected to him in Rome, the marble pedestal of which is preserved in the Vatican. Another Antonine Column, which is still standing in Rome, was set up to commemorate the victory of the emperor Marcus Aurelius Antoninus over the Marcomanni in 176.

ANTONIO, ANTONELLO D' (c. 1414-93). Venetian painter, called Antonello da Messina. After study in Rome and Naples he went to Bruges to learn from Jan van Eyck the new method of painting in oils. He settled in Venice, where he died. He introduced oil painting among the Italians, and happily blended the somewhat hard manner of the



Antrim, the most populous county of Ireland. It is on the N.E. coast and in its most northerly part is the Giant's Causeway

Flemish school with the softness and suavity of the Italian. His S. Jerome in his Study, in the National Gallery, London, is perhaps his masterpiece, and the Portrait of a Young Patrician, at Venice, is also remarkable.

ANTONOMASIA (Gr. anti, instead; onomazein, to name). Use of a descriptive epithet in place of a proper name. Examples are "His Grace of Canterbury" for the archbishop, and "the swan of Avon" for Shakespeare.

ANTRIM. County of Northern Ireland. It has an area of 1,176 sq. m. Rathlin Island and the Skerries, off the N. coast, and the Maiden rocks with two lighthouses, off the E. coast, form part of the co. The chief rivers are the Bann and Lagan, and Lough Neagh is the largest lake. The surface is hilly in the N. and E., and attains its highest alt. in Trostan Mt. (1,817 ft.); much of the interior is bogland. On the N. coast is the Giant's Causeway. Oats, potatoes, flax, and cereals are grown in considerable quantities. Good rock salt is obtained near Carrickfergus.

Belfast, the metropolis, Lisburn, Carrickfergus, Ballymena, Ballymoney, Larne, Antrim, and Portrush are the principal towns. Two members are returned to the British Parliament for the county apart from Belfast, and seven to the Parliament of Northern Ireland. The population, exclusive of Belfast, is 191,618.

EARLS OF ANTRIM. Derived from the county is the title borne by the family of McDonnell since 1620. Randal McDonnell (d. 1636), who obtained land in Ulster from James I, was made a viscount in 1618 and an earl in 1620. A descendant, Randal, the 6th earl, was made a marquess, and for him in 1785 a new earldom was created, which passed on his death in 1791 to his daughters in turn. The younger of these, Charlotte, married Lord Mark Kerr, and their sons, taking the name of McDonnell, became the 4th and 5th earls of

the second creation. The earl's eldest son is called Viscount Dunluce, and his residence is Glenarm Castle, Antrim.

ANTRIM. Market town of Antrim, Northern Ireland. It is 22 m. by rly. N.W. of Belfast, on the Northern Counties (L.M.S.) and G.N.I. Rlys., and lies near the shore of Lough Neagh. In the vicinity are Antrim Castle, Shane's Castle, and a round tower. Market days, Tues. and Thurs. Pop. 1,979.

ANTUNG. Treaty port in Manchuria. It stands on the Yalu river, 7 m. from its mouth in Korea Bay, and is connected with the Korean rly. system. It is the port of entry into Manchuria for coolies from Shanghai. In the Russo-Japanese war a battle was fought near here, 1904. Pop. 75,500.

ANTWERP. Antwerp is the second city and most important port of Belgium, as well as one of the great world ports. Situated on the right bank of the Schelde, here a great tidal

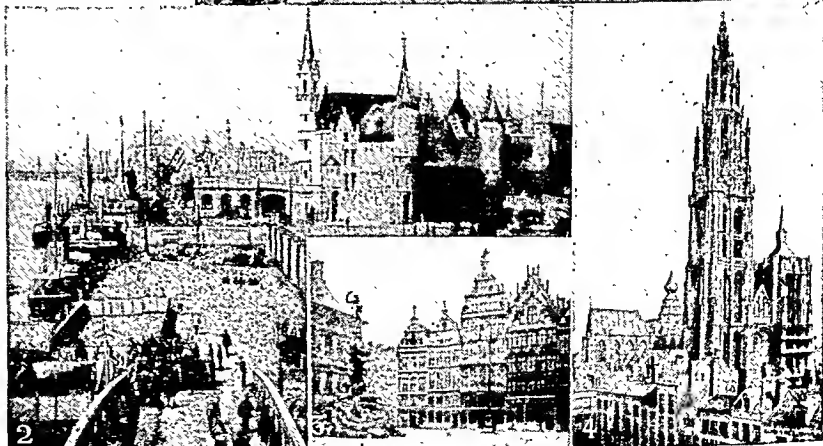
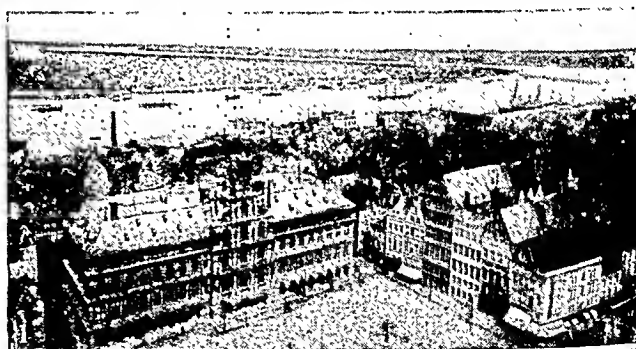
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The most famous of the old buildings is the magnificent cathedral of Notre Dame, completed in 1518 and containing masterpieces of Rubens. Among other old churches is that of S. Jacques, in which is the chapel of the Rubens family. The Guild Houses, the Hôtel de Ville, and the Plantin Museum all date from the 16th century. The numerous fine modern buildings include the Royal Museum, which contains a wonderful collection of Flemish art, both old masters and works of modern painters. Great extensions and improvements in the harbour works were undertaken after the Great War.

SIEGE OF ANTWERP. Antwerp was besieged by the Germans early in the Great War. On Sept. 27, 1914, their big howitzers started to shell the outer forts, which quickly fell. The Belgian commander then made ready to evacuate the city. On Oct. 3 a force of British marines arrived, followed by 6,000 of the Royal Naval division. Their aim was to delay the fall of the city, and so help the retreat of the Belgian field army. Meanwhile, the defenders were compelled to retire to the inner line of forts, which the Germans bombarded continuously, at the same time shelling the city itself. As further resistance



Antwerp. 1. The Square of the Hôtel de Ville, looking across the Schelde. 2. Part of the quays, with the Steen, a restoration of the old castle and now a museum. 3. The Grand Place, with Lambeaux's celebrated Brabo fountain. 4. Cathedral of Notre Dame, which contains masterpieces of Rubens and much old glass

was impossible, on Oct. 9 the last troops withdrew and the city surrendered and remained in German occupation until Nov. 1918. The British loss was 37 killed, 193 wounded, 1,568 interned in Holland, and nearly 1,000 missing (500 captured); the Belgian loss was more serious, 400 officers and 35,000 men interned in Holland. The movement of the British force to Antwerp prolonged by some days its resistance and at a critical moment of the war detained a large German force which otherwise might have captured the French Channel ports.

ANU. Principal deity of Babylonian and Assyrian myths. His name is found in the earliest of transcribed inscriptions. He was the chief of the upper triad of deities, representing heaven, while Bel or Ellil, and Ea represented the earth and the lower regions.

ANUBIS. Egyptian deity. The reputed son of Osiris and Nephthys, the rising and the setting sun, he was primarily a twilight god.

He is represented as jackal-headed, was the sombre guardian of the dead, and presided over embalmings. He was later identified with the Greek Hermes. Under the New Empire he watched the scales at the weighing of souls before Osiris in the underworld. See Amenti.

ANURADHAPURA.

Ruined city of Ceylon. It is 84 m. N. of Kandy on the rly. from Colombo. The capital of Ceylon from 437 B.C. to A.D. 750, it is famed for its ancient monuments and its Bo tree. It covered 250 sq. m. and in the number and beauty of its temples vied with Babylon and Nineveh.



Anubis,
Egyptian deity
British Museum

ANVIL. Commonly a block of iron having a flat steel surface upon which metals are forged or wrought by hammering, as by blacksmiths, goldsmiths, etc. The block has at one end a substantial conical projection termed a head or horn, for use in bending operations. The anvil is provided with holes for the reception of tools.

ANZAC. Popular designation of the troops from Australia and New Zealand. The word was generally supposed to have been derived from the initial letters of the words Australian (and) New Zealand Army Corps. It seems to have had an earlier origin in an Arabic word meaning "to cause to jump," possibly suggested by the nickname Kangaroos applied to Australian troops when quartered in Egypt. The name was also given to the cove, N. of Gaba Tepe, Gallipoli, where they landed in April, 1915.

The word was officially adopted by the War Office in 1916, and so popular did it become that in Nov., 1916, a bill was passed into law prohibiting its use for trade purposes.

Anzio. Seaside resort of Italy. It is 33 m. from Rome and occupies the site of the ancient Antium (q.v.).

AOMORI or **AWOMORI.** Seaport of Japan, on the N. shore of Hondo island. It stands at the S.W. angle of Aomori Bay, 22 m. by rly. N.E. of Hirosaki, is connected by rly. with Tokyo, and has a steamer service to Hakodate. Pop. 58,800.

AORTA (Gr. *aerein*, to raise). Main artery of the body. It originates or arises, hence the name, from the left ventricle of the heart, and, having passed over the root of the left lung, descends in front of the vertebral column into the abdomen. There it ends by

dividing into the two common iliac arteries. See Anatomy; Artery.

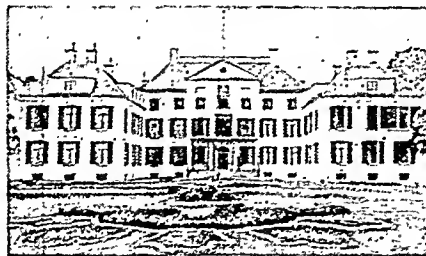
AOSTA. City of Italy. It is 49 m. direct and 80 m. by rly. N.N.W. of Turin. Its position at the junction of the routes over the Great and Little St. Bernard induced Augustus to found a military camp here in 25 B.C., and it was called Augusta. Its Roman walls and gates are well preserved. It has a 14th century cathedral, the church of Sant' Orso, dating from the 5th but rebuilt in the 12th century, and ruins of a Roman theatre, amphitheatre, bath., bridges, etc. The beautiful Val d'Aosta is noted for its pine trees and mineral springs. S. Anselm was a native of Aosta. Pop. 6,200.

AOSTA, EMMANUEL PHILIBERT, DUKE OF (b. 1869). Italian prince and soldier. Eldest son of Amadeus, king of Spain, 1870-3, and grandson of Victor Emmanuel II, king of Italy, he was born at Genoa, Jan. 13, 1869. He was married in 1895 in England to a Bourbon princess, and, entering the Italian army, rose to a high command. In the Great War he led the Third Army against the Austrians.

APACHE. Group of N. American Indian tribes formerly occupying parts of New Mexico, Arizona, and Texas. Of Athapaskan stock, their name (Zuñi, enemy) properly denotes their Navaho neighbours. They number about 6,500. The name was assumed by Paris hooligans, who became obnoxious by resorting to murder and outrage. See p. 73.

APATITE (Gr. *apatē*, deceit). Calcium fluo- or chloro-phosphate. It is an hexagonal mineral occurring chiefly as segregations from plutonic igneous rocks and in metamorphosed phosphatic limestones. As the name shows, it is deceptive in appearance, and is often confused with other minerals. See Rocks.

APE. Term applied to anthropoid or man-like monkeys, e.g. the gorilla and chimpanzee, and to tailless or short-tailed monkeys. e.g.



Apeldoorn, Holland. Castle of Het Loo, summer residence of the Dutch sovereigns

the Barbary ape. Until the 16th century it was the general word for a monkey (q.v.).

APELDOORN. Town of Holland, in Gelderland province. It is 26 m. by rly. from Amersfoort, and is served by canals. It has numerous paper mills and other industries. The Oranje and Wilhelmine are the finest of several attractive parks. Near is Het Loo, the summer residence of the Dutch sovereigns, and once the favourite hunting lodge of William, prince of Orange. Pop. 51,400.



Aorta, cross section, showing the valves

APELLES. Greek painter. He flourished in the latter half of the 4th century B.C., and was probably born at Colophon in Asia Minor. He painted on panels and not on the wall. His portrait of Alexander the Great wielding a thunderbolt and his Venus rising from the Sea were two of the most famous works of art in antiquity. None of his works has survived.

APENNINES. Mountain range of S. Europe. The mountains traverse the entire



Aphrodite. Bronze head from an ancient colossal statue. See below
British Museum

length of Italy, reappear in Sicily, and have a length of about 800 m. Geographically they are divided into three sections, viz. northern, central and southern. As they traverse the peninsula they bear various local names, e.g. Etruscan, Roman, Neapolitan, and Calabrian Apennines, and form the watershed between the Mediterranean and Adriatic Seas. Always steep where they approach the sea, in central Italy the Apennines broaden out into parallel chains, terraces, and plateaux. They have their greatest height in Abruzzi e Molise, where the E. of the two parallel chains of the Gran Sasso d'Italia attains an altitude of 9,560 ft. in Monte Corno.

The Apennines lack minerals, though they contain various mineral springs. Over most of their area the vegetation is poor, only near the coast is it rich. In some parts wolves and bears are found. Many passes cross the mountains, some following Roman roads, and railway lines run along some of them.

APHASIA (Gr. speechlessness). Disorder of speech due to haemorrhage into the brain from the bursting of a blood vessel or disease of the brain. In this condition the patient's muscles of speech are not affected, and he may show that he quite understands what is said to him, but he is incapable of expressing his thoughts in words. Sometimes there is merely a hurring of speech or hesitancy in utterance; in other cases words are mixed up and wrong words used; and in severe cases the patient may be completely dumb. See Brain.

Aphelion (Gr. *apo*, from; *helios*, sun). Point in an orbit of a planet or a comet farthest from the sun.

Aphis. A family of plant lice of the order Hemiptera, popularly known as green fly (q.v.). See Insects.

APHONIA (Gr. *a*, not; *phonē*, voice). Loss of voice. In the majority of cases this condition is due to either hysteria or neurasthenia. Aphonia may occur in persons who are overworked, worried, or distressed, or it may be the result of sudden severe shock, mental or physical. Rest and freedom from worry are essential in the treatment, and sometimes a sudden stimulus, such as the unexpected receipt of good news, will effect a complete cure. See Voice.

APHORISM (Gr. *apo*, from; *horos*, boundary) Brief definition of a principle, artistic, moral, or scientific, in the most concise terms, e.g. Life is short; art is long. Greek literature contains many aphorisms and Bacon's Essays abound in them.

APHRODITE. In classical mythology, goddess of love and of the fruitfulness of nature. Her Roman counterpart was Venus. According to some she was a daughter of Zeus; according to others she rose from the foam of the sea, near Cyprus; hence the name Aphrodite (Gr. *aphros*, sea-foam).

Aphrodite's husband was Hephaestus (Vulcan), but she had amours with Ares, Hermes, Dionysus, and Poseidon among the gods, and with Adonis and Anchises among mortals. From her connexion with Ares she is also somewhat curiously regarded as a goddess of war, who takes special interest in arms and armour. By Ares she was the mother of Eros or Cupid. During the Trojan War she favoured the cause of the Trojans and constituted herself the guardian of Paris and Aeneas. The worship of Aphrodite appears to have been of Eastern origin, introduced by the Phoenicians. See Adonis; Venus.

APIA. Chief town and seaport of the Samoan Islands. On the island of Upolu, it is the commercial centre of the group and a wireless station. Stevenson died here, Dec. 3, 1894. The town was surrendered to a New Zealand force in 1914. Pop. 1,500, including 400 Europeans. See Samoa.

APICIUS, MARCUS GAVIUS. Roman epicure. He lived under the emperor Tiberius, 1st century A.D., and apparently spent the

growing out of, the Old and New Testaments, but of a different character from the books generally accepted as inspired or canonical. From this to the meaning spurious or heretical the transition was easy. In common speech the Apocrypha denotes the Old Testament Apocrypha. The Apocrypha of the New Testament are not so well known nor so well defined, while most of them are very fantastic.

The Apocrypha Proper are included in the Greek (Septuagint) and Latin (Vulgate) Versions, but not in the ordinary English Bible. The Church of Rome at the Council of Trent (1546) accepted them as "sacred and canonical." The Protestant Churches rejected them, but some of the Reformed Churches, e.g. the Church of England, use them for purposes of edification.

APOLLINARIS. Mineral spring of Germany, in the Rhine province. In the Ahr valley, 10 m. by rly. N.W. of Remagen, its waters are alkaline and contain carbonate of soda. They are beneficial in cases of diabetes and as an aid to digestion. Discovered in 1851, the spring waters average a temperature of 94° F. This and other springs in Germany and Hungary are owned by a British company, which bottles the waters.

APOLLINARIUS

OR APOLLINARIS. Founder of the Apollinarian heresy. Son of an Alexandrian rhetorician and a friend of Athanasius, he transformed the Gospels and canonical Epistles into dialogues in imitation of Plato, defended Christianity against Porphyry, and strenuously opposed

Arianism. In 302 he was made bishop of Laodicea in Syria. His opposition to Arianism, which denied the complete divinity of Christ, led him to put forward the heresy known as Apollinarianism. This denied the complete humanity of Jesus Christ. To do otherwise would be to assume in His nature the possibility of sin and so to negative the Atonement.

APOLLO. One of the greater deities of ancient Greece. The son of Zeus and Leto (Latona), he was born in the island of Delos. In the writings of Homer Apollo is not identified with the sun, but in later mythology became the sun god. He was the god of disease who sent pestilences among men, and, by a not unnatural transition, he was also the healing god. Aesculapius, the god of medicine, was represented as his son. The power to foretell the future was attributed to Apollo in an eminent degree, and there were many oracular shrines of Apollo, notably at Delphi. Probably on account of his gift of prophecy he was the patron deity of colonies, no colony being founded except after consultation with the oracle. Apollo is represented as a tall, handsome, beardless youth, holding in his hand sometimes a bow and sometimes a lyre. As the supreme type of manly beauty, he was the patron deity of athletes. Apollo was also extensively worshipped at Rome.

The Apollo Belvedere is a statue of Apollo discovered in 1503 in the ruins of Anzio. It was acquired by Pope Julius II, who placed it in the Belvedere gallery of the Vatican.

The Apollo Club was a society founded by Ben Jonson about 1616 at the Devil Tavern, No. 2, Fleet Street, London. The rules, written in Latin by Jonson, bade the dullard, the ass, the sad-faced, and the lewd fellow keep away,

and provided that choice women should not be excluded. See Delphi; Oracle.

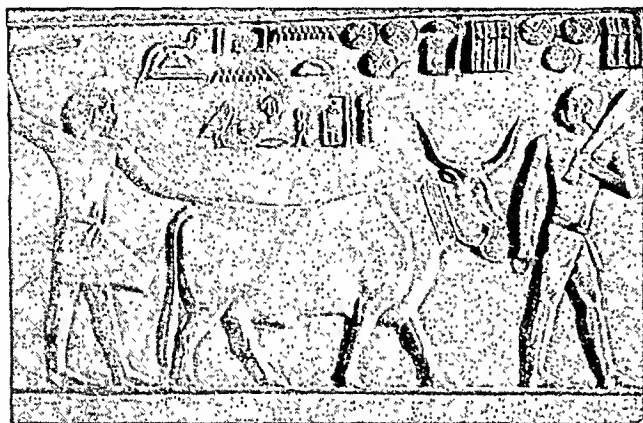
APOLLODORUS. Greek grammarian. He was a pupil of the grammarian Aristarchus and the Stoic philosopher Panactius. All his works have perished except his *Bibliotheca*, a well-arranged collection of stories connected with the mythical and heroic ages of Greece, based upon the writings of the cyclic poets and the logographers. He also wrote a chronological history of the world in iambic verse, much used by the Romans.

APOLLONIA. The name of several ancient cities. One in Illyria, near the mouth of the river Aous, was founded by emigrants from Corinth and Coreyra. Another, founded in Thrace by the Milesians, was famed for its temple and its statue of Apollo by Calamis. Afterwards called Sozopolis, it is now known as Sozeboli. A third town, the modern Marsa Susa, was the harbour of Cyrene, in N. Africa.

APOLLONIUS OF RHODES (c. 295-215 B.C.). Greek poet and grammarian. He was born at Alexandria, and was a pupil of Callimachus. Later he went to Rhodes, where the people received a revised version of his poem *Argonautica* with great applause, and bestowed upon him the rights of citizenship. According to the story, he returned to Alexandria, where he acquired great popularity, and was appointed chief librarian. In his epic, which describes the voyage of the Argonauts in quest of the Golden Fleece, he strives to imitate the style of Homer.

APOLLONIUS OF TYANA (c. 4 B.C.-A.D. 97) Greek philosopher. He was born at Tyana in Cappadocia, travelled extensively, and spent some time in Rome. He was accused of high treason against Domitian, but suddenly disappeared during his trial. He died at Ephesus while head of a Pythagorean school. Apollonius was looked upon as a magician, and wonderful tales are told of him in the story of his life by the sophist Philostratus, written in the 3rd century A.D. His life and reputed miracles were often compared with those of Christ.

APOLLOS. Name of an early convert to Christianity mentioned in the N.T. He was a Jew of Alexandria converted to Christianity by



Apis, the sacred bull. Figure in relief found in the tomb of Ephoto Stopte at Sakkara

whole of his time and fortune in inventing and eating new and tasty dishes. Then, his money gone, he hanged himself.

APIS. Sacred bull worshipped at Memphis throughout dynastic Egypt. Symbolising the second life of Ptah, he bore a white forehead mark upon a black hide. At death he became, like human souls, one with Osiris, and his embalmed remains were enshrined in a huge sarcophagus. The Sakkara mausoleum contains 24 Apis tombs. See Animal Worship.

APOCALYPSE (Gr. unveiling). Name given to a particular type of religious literature very popular in later Judaism and early Christianity. The Book of Revelation is the best known example. These works anticipate a time when by divine intervention a new social order shall arise.

Apocalyptic first took shape in the writings of Ezekiel, and found its fullest expression, as far as the Old Testament is concerned, in the Book of Daniel. In the subsequent period between 170 B.C. and A.D. 100 many Jewish Apocalypses were written, e.g. The Book of Enoch. The Book of Revelation represents an attempt to Christianise the Apocalyptic movement. Other attempts of a similar nature were also made, one being The Apocalypse of Peter, fragments of which were discovered in 1892. This is known to have been the source from which Dante derived much of his imagery for the Paradiso and Inferno.

APOCRYPHA (Gr. apokryphos, secret). Term applied first to writings which were kept secret because they were supposed to contain truths which might be imparted only to the duly initiated. Apocryphal then came to denote certain writings connected with, and



Apollo Belvedere. Famous statue supposed to have been sculptured nearly two thousand years ago at Veii, Rome

Aquila and Priscilla at Ephesus. Later, at Corinth, he preached the Gospel, and is mentioned by S. Paul. (See Acts 18; 1 Cor. 1, 3.)

APOLLYON. Greek term in the N.T. for the Hebrew Abaddon. It means the Destroyer (Rev. 9), and is applied to Satan. In this sense it was used in The Pilgrim's Progress.

APOLOGETICS. The accepted designation of that department of Christian theology which is entrusted specially with the defence of the Christian religion. Alike in theory and in practice, there has been infinite diversity in apologetic method.

In the first age Jewish, Greek, and Roman polemics were met by Clement of Alexandria, Tertullian, Origen, and Augustine. In the Middle Ages Judaism and Islam and free thinking philosophy were dealt with by Abelard and by Aquinas. In the Reformation period and its sequel Islam and cultured freethought had still to be combated. In the 18th century Deism and scientific scepticism were met by Butler and others on behalf of revealed religion.

In the 19th century attacks on a vastly wider front and on a far more comprehensive scale were countered by an apologetic correspondingly widened, so that apologetics in a systematic sense came at last to its own. Then Christian thinkers dealt for the most part with the foundations of religion and cleared the ground for that higher apologetic which consists of a reasoned constructive statement of Christian truth and life.

APOLOGUE (Gr. *apologos*, tale). Short story in which animals, trees, etc., are used as characters, from whose doings a moral lesson is to be deduced. A celebrated apologue is that of the trees called upon to choose a king (Judges 9), while another, of the bee and the spider, is to be found in the early part of Swift's *Battle of the Books*.

APOLOGY. Word derived from the Greek, meaning to take back speech (*logos*). In English law a defendant in an action for libel may in certain cases apologise and plead the apology as a defence or in mitigation of damages. In the same way a newspaper defendant in such an action may plead an apology and pay money into court as amends.

In literature the word is used in a somewhat different sense, meaning rather a plea for a person or thing. In this sense it is employed by Plato in his *Apology for Socrates* and by J. H. Newman in his *Apologia pro Vita Sua*.

APOPHTHEGM (Gr. *apo*, forth; *phthengesthai*, to speak). A terse, sententious expression of philosophic thought, e.g. Cowards die many times before their deaths; the valiant never taste of death but once.

APOPLEXY (Gr. *apo*, from; *plēssein*, to strike). Condition of sudden loss of consciousness and sensation due most frequently to the bursting of a blood vessel in the brain. It is often referred to as an apoplectic stroke. Apoplexy is commoner in men than in women, and occurs often after the fiftieth year of life. Syphilis, alcoholism, and heavy muscular work are predisposing factors. The attack is usually without previous warning symptoms, and occurs while the patient is engaged in his ordinary occupations, though sometimes it is precipitated by extra exertion. Paralysis is a frequent result of an apoplectic stroke.

The treatment during an attack is to keep the patient absolutely at rest with the head slightly raised. Hot bottles may be placed at the feet and an ice bag applied to the head.

APOSTASY (Gr. *apo*, away; *stasis*, standing). Term originally meaning the desertion of a military post. Its later and general application is to the complete and voluntary renunciation of the Christian faith, either in favour of another religion or of none. The persecution of the 3rd century under the Roman Empire induced a considerable apostasy, and in the Middle Ages in Spain many abandoned Christianity to become Jews and Mahomedans. The emperor Julian was the most remarkable apostate.

APOSTLE (Gr. *apo*, from; *stellein*, to send). Name applied specially to the twelve followers

selected by Jesus to be His close and constant companions and to carry on His work after His departure (Matt. xxviii, 16-20). These were Simon, also called Peter; Andrew; James and John the sons of Zebedee; Philip, Bartholomew, Thomas, Matthew; James the son of Alphaeus; Thaddaeus; Simon the Canaanite and Zealot; and Judas Iscariot. Later Jesus appointed seventy others and commissioned them (Luke x, 1). The title was extended to Barnabas. Paul applied it to himself. In later times the term apostle has been applied to missionary founders of the Christian Church in various lands, e.g. S. Boniface, the apostle of Germany. See Christianity.

An apostle jug is a jug with the surface divided into 12 panels, each containing the figure of an apostle. An apostle spoon is a spoon bearing the figure of an apostle. They were usually made in sets of 13, one for each apostle and one bearing the figure of Christ.

APOSTOLIC FATHERS. This is the name used to distinguish those disciples and contemporaries of the Apostles who wrote in the cause of Christianity. They include Clement, bishop of Rome; Ignatius, bishop of Antioch; Polycarp, bishop of Smyrna, and others.

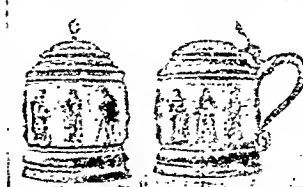
APOSTOLIC SUCCESSION. The term for the doctrine that the mission given to the Apostles by Christ (John 20; Matt. 27) must extend to their legitimate successors in an unbroken line until the end of the world. The Roman Catholic interpretation of this doctrine is that the method of preserving the succession and thereby preserving the Apostolic faith is through the episcopate alone. Many Anglicans hold this view also. It means that only those clergy who have been ordained by bishops who are themselves in the succession can administer the sacraments and perform the other duties of the priesthood.

APOSTLES' CREED (Lat. *credo*, I believe). Confession of the Christian faith. The Creed has been continuously retained in the baptismal service of the Catholic Church since the 7th century, and is part of the order of baptism in the Roman ritual and of the baptismal service of the Book of Common Prayer. It is also recited daily in the morning and evening offices of the Roman Breviary and the Anglican Prayer Book. The Council of Trent endorsed its authority as an essential statement of Catholic belief, and it is required to be believed in the Church of England. The title Apostles' Creed is so given because the belief expressed is the faith of Christendom from the days of the Apostles.

APOSTROPHE (Gr. *apo*, from; *strophē*, turning). A rhetorical figure. If a speaker interrupts his general discourse to address a particular individual who is present, or more generally a real person or personification as though present, this is called an apostrophe. Thus, in Scott's *Marmion* (canto vi), the story is interrupted by the apostrophic "O woman, in our hours of ease."

APOTHECARY (Gr. *apothēkē*, store). One who mixes drugs. The art of mixing drugs for medicinal purposes and of prescribing and administering them is of ancient origin, and those who practised it were recognized as a distinct class as early as the 12th century. At a later stage they became incorporated with the company of grocers, but retained their title of apothecaries and practised as such.

The Society of Apothecaries, which has a charter dating from 1617 and is a city company, conducts examinations for the degree of L.S.A., which allows men and women to practise as doctors. It has a beautiful old hall, which contains valuable portraits and other treasures, in Water Lane, Blackfriars, London, E.C.4.



Apostle Jug. Front and side view of a 17th century specimen made at Kreussen, in Bavaria



Apostle Spoon. Examples of a complete set of 1628 Goldsmiths' Company, London

APOTHEOSIS (Gr. *apo*, apart; *theos*, god). Elevation of human beings to the rank of gods. The practice existed among most ancient peoples — Egyptians, Assyrians, Greeks, and Romans.

APPALACHIANS. Mountain system of the E. United States. It stretches in a series of parallel ridges and valleys from Georgia to Maine, gradually approaching the Atlantic coast. The western ridge—the Allegheny Mts., includes the Catskills at its N. end. The eastern ridge—the Blue Mts.—rises sharply from the Atlantic coastal lowlands. The Black Mts., which include the culminating peak of the system, Mt. Mitchell, 6,711 ft., form the highest part of the eastern ridge. See Allegheny

APPEAL, COURT OF (Lat. *appellare*, to call upon). Court of law in which, if desired, the decisions of lower courts are reviewed and, if necessary, reversed.

In England there is a court of appeal manned by lords justices, in which are heard appeals from the Chancery, King's Bench, and Probate, Divorce and Admiralty Divisions of the High Court of Justice, and from certain other courts and judicial bodies. From this court there is the right of appeal to the House of Lords. In Scotland the inner house of the Court of Session is the court of appeal to which cases from the outer house are taken. From this there is a final appeal to the House of Lords. These courts deal only with civil cases, but for criminal cases England has a court of criminal appeal established in 1907, and Scotland one set up in 1926. From the lower courts there is also the right of appeal. From courts of summary jurisdiction cases can go to quarter sessions, and from quarter sessions and county courts to a divisional court. There is a like sequence in Scotland.

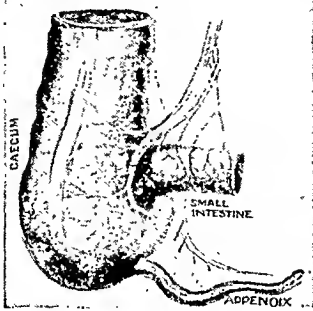
Since 1922 there have been two systems of appeal in Ireland. In Northern Ireland the court of appeal is part of the supreme court, and from this there is the right of appeal to the House of Lords. The constitution of the Irish Free State states that the decisions of its court of appeal are final, but persons can petition the King for leave to appeal to the Judicial Committee of the Privy Council.

Canada and Australia, being federal governments, have each a court of appeal to which cases from the provincial courts are referred: the various provinces have also their courts of appeal. From the supreme courts in Canada and Australia, and also from those in India, South Africa, New Zealand, and other parts of the Empire, the final court of appeal is the Judicial Committee of the Privy Council.

APPEARANCE. A term used in English law. Proceedings in the High Court of Justice are begun by a writ or an originating summons, which is served personally on the defendant or on his solicitor. The defendant, if he wished to defend the action, must file, at the appropriate office in the High Court, a paper which says, "Enter an appearance for the above-named A. N. (defendant)," and must serve a copy on the plaintiff or his solicitor.

APPENDICITIS. Inflammation of the vermiform appendix, a small blind prolongation of the caecum or large intestine. The immediate cause of appendicitis is a bacterial infection of the wall of the appendix, leading ultimately to suppuration and gangrene of the organ. Appendicitis occurs more frequently in the young than in the old, more than 50 p.c. of the cases occurring before the twentieth year.

In acute appendicitis the symptoms usually begin abruptly with severe pain in the lower part of the right side of the abdomen, fever, and gastro-intestinal disturbance—nausea, vomiting, and often constipation. The symptoms somewhat resemble those of an attack of severe colic, but unless they abate within a very few hours medical advice should always be sought, since prompt treatment is of the greatest importance. Usually the diseased appendix is removed, but sometimes the best treatment is merely to open and drain an abscess, if one has been formed. When the disease is taken early the outlook for complete recovery is good.



Appendix, or vermiform appendix, showing its position at the base of the caecum

Ben Vair (3,362 ft.). Port Appin is a port of call for steamers.

The Appin murder is the name given to the murder of Colin Campbell of Glenure, May 14, 1752. For it, James Stewart was arrested, tried by a jury of Campbells and hanged. He was, however, innocent, and the real murderer was never discovered.

APPLE. Tree of the genus *Pyrus malus*. The apple is a native of Britain and is the most easily grown of all cultivated fruits. There are over 1,600 known varieties, mostly developments from the wild crab apple.

Apples are divided into two main classes, kitchen or culinary, and dessert or table. Some are suitable

for either purpose. When grown in orchards, or upon cultivated market land, the standard tree is the usual form. Where land is cheap and plentiful, and space is not of importance, this is the most economical form; but standards are inadvisable in small gardens, since they not only extract much nourishment from the soil to the detriment of other growths, but at least five years must elapse between planting and fruiting.

The best situation for the formation of an orchard is on the slope of a hill with a S.W. aspect. In gardens, and against walls, the aspect is not so important, though it is never wise to plant fruit trees on the N. side of a wall or fence. Oct. or March is the best month for planting, according to the condition of the soil. Apples require pruning, and are propagated by grafting.

The chief pest of apples is the American blight. Among other enemies is the apple weevil, which lays eggs in the young blossoms



Apple. Above, trees sensibly planted with adequate space for sun and air. Below, laecheing, an elaboration of grafting, the usual method of propagation

trade was the opening of packing stations, one being at Cottenham, near Cambridge.

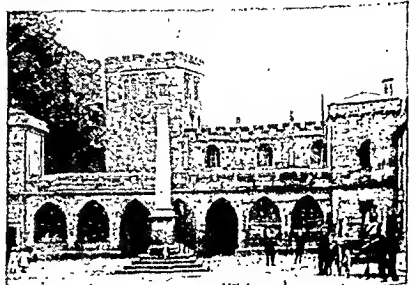
APPLEBY. Borough and market town of Westmorland, England, being the county town. It is picturesquely situated on the Eden, 30 m. S.W. of Carlisle by the L.M.S. and L.N.E. Rlys. It has a town and a shire hall, a grammar school, and a castle with a Norman keep. It returned two members to Parliament from about 1300 until 1832. Market day Sat. Pop. 1786. See illus below.

APPLETON, WILLIAM ARCHIBALD (b. 1859). British labour leader. Born at Nottingham, Dec. 31, 1859, he worked at the lace trade until 1896, when he became secretary to the lace-makers' trade union. In 1907 he was made secretary of the General Federation of Trade Unions. He has written a good deal on industrial topics.



W. A. Appleton
British labour leader

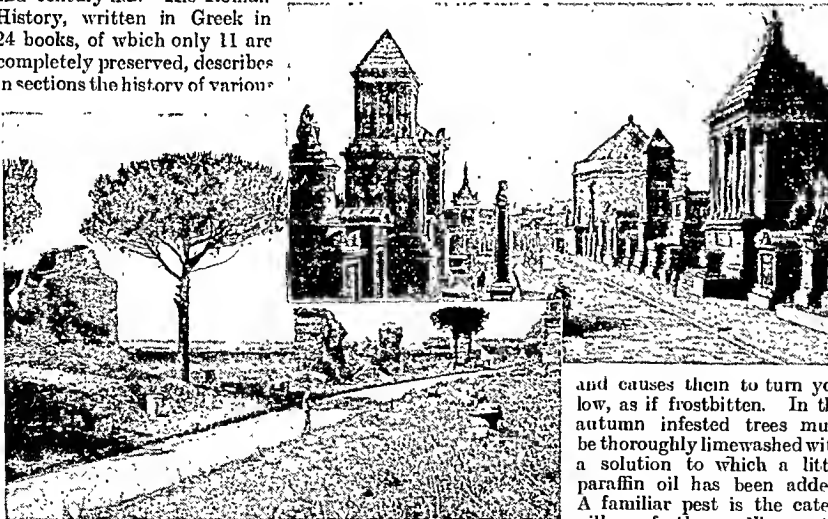
APPLIQUE. In architecture, any decorative feature applied to an object or structure. In decorative art generally it is a piece or pattern of one material set upon or applied to the surface of another for decorative effect.



Appleby. View in the town showing the cloisters and church of St. Lawrence. See article above

APPERLEY, CHARLES JAMES (c. 1778-1843). Writer on sport under the pseudonym of Nimrod. His chief publications were: *Nimrod's Hunting Tours*, 1835; *The Chase, the Turf and the Road*, 1837; *Memoirs of the Life of the late John Mytton, Esq.*, 1837; and *The Life of a Sportsman*, 1842. The first editions of these works, with illustrations (hand-coloured) by Alken and others, are scarce. Apperley died in London, May 19, 1843.

APPIAN. Roman historian. Born at Alexandria, he flourished in the middle of the 2nd century A.D. His *Roman History*, written in Greek in 24 books, of which only 11 are completely preserved, describes in sections the history of various



Appian Way. Below, part of the ancient highway near Rome. Above, reconstruction as it appeared in the day of Rome's greatness

peoples until their incorporation in the empire. The account of the civil wars of Rome is based on authorities no longer available.

APPIAN WAY. Highway of ancient Rome. It separated the twelfth from the second and first districts, and was begun by the censor Appius Claudius in 312 B.C. Issuing from the Appian Gate, it went from Rome to the port of Brundisium, the modern Brindisi.

APPIN. Mountainous district of Argyllshire, Scotland. It is bounded E. by Glencoe and W. by Loch Linnhe. The highest point is

and causes them to turn yellow, as if frosted. In the autumn infested trees must be thoroughly limewashed with a solution to which a little paraffin oil has been added. A familiar pest is the caterpillar of the codlin moth, which eats its way out of, and not, as is generally supposed, into, ripe apples. All affected fruit should be collected and destroyed, and all windfalls from infested trees treated in the same way. The remedy is to give the trunk and branches a good spraying with paraffin in the autumn, when the leaves have fallen.

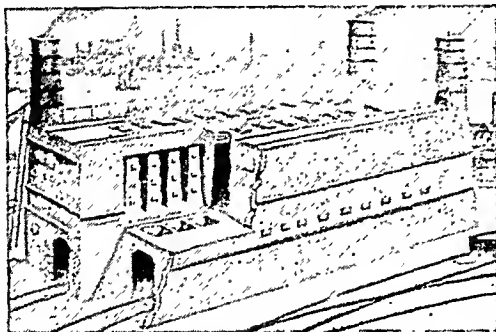
In Canada and the U.S.A. great attention has been paid to the grading of apples according to their qualities for the market. In 1928 a scheme of this kind was introduced into Great Britain, and English apples were graded and marked. Another incentive to the

APPOINTMENT (Lat. ad, to; punctum, point). Term used in English law. Where property is settled so as to give someone called the appointor the right to dispose of it, though the appointor is not the owner, an exercise of this right is called an appointment.

APPOLT OVEN. Appliance used for the production of coke from coal for metallurgical purposes. It was devised by the brothers Appolt, and consists of a series of vertical retorts arranged in two rows in blocks of 24 or more. Each retort is about 3 ft. 8 ins. high, 13 ins. wide at the top, and 18 ins. at the bottom, thus tapering to permit the finished coke to be discharged easily through the bottom. The charge for each is usually one ton of coal, and is put in through hoppers in the top. The process of coking usually takes about 24 hours. The retorts are heated by the gases evolved from the coal undergoing the process; these are consumed in chambers surrounding the retorts. No air enters the latter, and there is therefore no combustion of the solid carbon of the coal in the retort. Thus the yield of coke is high.

APPOMATTOX. River of Virginia, U.S.A. It rises in Appomattox county and flows E. to the James river at City Point. About 150 m. long, it is navigable by small steamers to Petersburg, 15 m. from its mouth, and by smaller vessels to Farmville, which is over 100 m. up.

Appomattox Court House is a village of Virginia, U.S.A. Here the Confederate army under Lee surrendered to Grant, April 9, 1865, thus ending the American Civil War.



Appolt Oven. Portion cut away to show arrangement of retorts

APPONYI, ALBERT, COUNT (b. 1846). Hungarian politician. Born May 29, 1846, he entered the chamber of deputies in 1872, and in 1878 became leader of the national party. From 1901-04 he was president of the chamber, after which he restored the fortunes of the national party and again acted as its leader. From 1906-10 he was minister for education, and he was again in office in 1917, but in 1918 he retired. In 1920 Apponyi, as head of the Hungarian peace delegation, went to Paris and took part in the negotiations, but he retired, as a protest against its terms, before the treaty was actually signed. In his own country he opposed a restoration of the monarchy.

APPRAISER (Lat. appretiare, to set a price on). One licensed to appraise or value property, real or personal. In English law an appraisement must be made by two sworn, licensed appraisers of goods seized under a distress for rent before the goods can be sold. The cost of the yearly licence is £2, and the stamp duty payable in the appraisement varies from 3d. for £5 value to 20s. for £500 or over. Appraisers are usually also auctioneers and valuers. See Auctioneer.

APPRENTICESHIP. System of training for all skilled trades. It was successfully maintained by the guilds without any statutory sanction behind it from about 1350. When the power of the guilds had begun seriously to decline, the system received definite statutory sanction by the passing of the Statute of Apprentices in 1562. The effect of this statute was to erect into a national system, obligatory on all desirous of entering a skilled trade, that which had previously flourished merely as a guild custom.

The statute of 1562 remained nominally in force for about 250 years, not being finally repealed until 1814. It enacted that a uniform term of seven years' apprenticeship must be served as a condition precedent to the right to practise any manual trade, and until well into the 18th century this was rigidly enforced.

The traditional form of apprenticeship practically placed the master in loco parentis towards the apprentice. This relationship almost necessarily resulted so long as it was customary for the apprentice to board and lodge with his master. Under these conditions the apprentice practically became for the



Apricot. A twiz bearing fruit

time being a member of his master's household. The system had the virtue of imposing a most salutary discipline and restraint on the apprentice during the most difficult period of a boy's life.

The indenture was from the earliest times a feature of the system, and there were certain definite covenants entered into by the contracting parties which have endured, with but little alteration, to the present time. In recent years the term apprentice is applied to lads working either under a loose form of agreement of doubtful legal validity, or under no written agreement at all.

After the Great War the Ministry of Labour conducted an inquiry into the training of apprentices, and its conclusions have been published by H.M. Stationery Office in seven volumes.

APPROPRIATION (Lat. ad, to; proprius, own). Term in English law. Where a debtor owes more than one debt to a creditor and makes a payment, he may appropriate the payment to whichever debt he pleases. If the debtor does not appropriate, the creditor may do so; and he can even apply it to paying a debt which he could not sue for, e.g. a debt barred by the Statute of Limitations.

In Parliament the Appropriation Act is passed at the end of each session, stating the purpose to which the money voted must be applied. Appropriations in aid are cash receipts used by the various Government departments towards meeting their gross expenditure. They are

sums received by one department from another for services rendered.

APPROVER (Lat. ad, to; probare, to test, prove). Legal term used to describe one who has turned king's evidence. Carey, the Fenian, was a noted approver.

APRICOT. A fruit tree of the natural order Rosaceae, genus Armeniaca. A native of Asia, it was introduced into England in 1652. The culture is the same as for peaches, but warm south walls are needed to develop and ripen the fruit. The best soil is loam mixed with sand. Trees should be planted in autumn, and the best system of propagation is by budding in June or July. Under glass the apricot should be planted out in a soil consisting largely of lime and burnt wood ashes, and in such a position that light and air can be regulated easily. Sudden currents of icy wind are fatal to proper ripening.

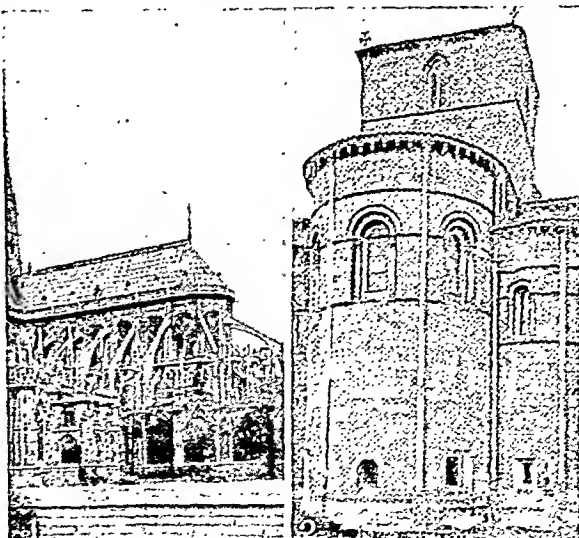
APRIES. Egyptian king of the XXVIth dynasty (c. 589-570 B.C.). The Greised form of the native name Uahabra, it appears as Pharaoh-hophra in Jer. 44. Capturing Sidon by a sea battle, he entered into a league against Nebuchadrezzar II. He was deposed in favour of Aahmes If by a military revolt in Libya. He was then interned at Sais and finally strangled. See Memphis.

APRON. Cloth or piece of leather worn to protect the garment beneath, or as part of an official dress, as by Freemasons, bishops of the Anglican Church, etc. It is of ancient origin, was mentioned by Chaucer, depicted in 14th century illustrations, and later became a decorative adjunct to a woman's dress.

In engineering, an apron signifies a protective covering, such as the sloping masonry platform at the foot of a dam which prevents water that passes over or through the dam from injuring the foundations.

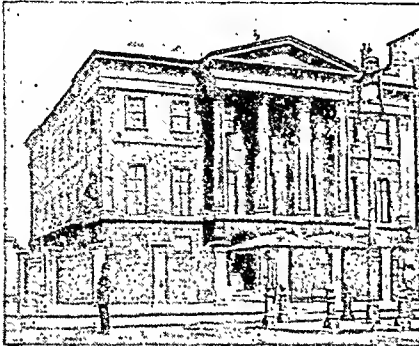
APSARAS. In Hindu mythology, two classes, divine and mundane, of nymphs and fairies. Sometimes as insubstantial cloudy creatures, or as water sprites, they are regarded as Oriental parallels to the swan maidens of western tradition, or the nymphs of the Greeks. They are also spoken of as attendants on heroes, like the hours of the Mahomedan paradise.

APSE (Gr. apsis, fastening, circle). In ecclesiastical architecture, the semicircular or polygonal termination of the nave or of the aisles of a basilica. In medieval churches it was the space reserved for the altar, and



Apse. 1. The apse of Notre Dame, Paris, notable for its flying buttresses. 2. Romanesque style, as exemplified at the church of S. Vicente, Avila, Spain

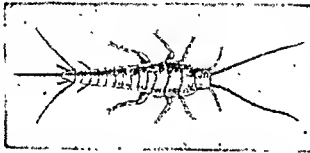
usually vaulted. Some Norman churches in England retain semicircular apses at the E. end, for example, Peterborough Cathedral, while the apse of Lichfield Cathedral is a polygon. The apse often had a diameter equal to the width of the church, allowing for aisles to surround the altar, forming what is known as the ambulatory. The apse was revived by Wren in S. Paul's, and the church of S. Mary-le-Strand, London, shows an example, balanced at the W. end by a semicircular portico.



Apsley House, Hyde Park Corner, London. It is the residence of the duke of Wellington, having been presented by the nation to the first duke in 1820

APSLEY HOUSE. London residence of the dukes of Wellington. It is in Piccadilly, at the western or Hyde Park end, and was built in 1771-8 by the Adam brothers for Lord Apsley on the site of Hercules' Pillars Inn. It was presented by the nation in 1820 to the Iron Duke.

APTERA (Gr. apteros, wingless). Order of wingless insects, including the sub-orders collembola (spring-tails) and thysanura (bristle-tails). In many respects they suggest that they have remained in the larval stage and failed to develop into perfect insects. They are all very small.



Aptera. Specimen, much enlarged, of the bristle-tail *Lepisma saccharinum*

APTERYX. A genus of ratite birds found only in New Zealand. The native name is kiwi. The wings are small and rudimentary, hidden beneath the feathers and useless for flight. The feathers are long and narrow, giving the bird the appearance of being covered with coarse hair. The beak is long, and the nostrils are at the tip. The bird is about the size of a domestic hen

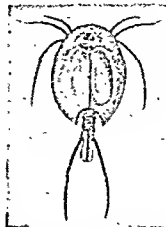
APULEIUS, LUCIUS. A Roman writer who flourished in the latter half of the 2nd century A.D. An African by birth, after travelling extensively he settled down as a rhetorician in Carthage. His best known work is *The Golden Ass*, a prose romance, the forerunner of the modern novel, purporting to describe the experiences of one Lucius, whom an enchantress had transformed into an ass. The most interesting episode is the story of Cupid and Psyche. Some philosophical writings and his defence against a charge of sorcery are also extant. Eng. trans. of *The Golden Ass*, 1566, reprinted 1913.

APULIA (Italian Puglia). Territorial division of S.E. Italy. It includes the provinces of Foggia, Bari, and Lecce, and has an area of 7,376 sq. m. The highest point is Monte Gargano, 3,464 ft., and the only large river is the Ofanto, about 100 m. long. The

chief industries are pastoral and agricultural. Marble is worked, and olive oil exported. The chief ports are Bari, Brindisi and Barletta, on the Adriatic, and Taranto on the gulf of that name.

Originally civilized by Greek colonists, Apulia submitted to Rome in 317 B.C., and suffered severely in the Punic wars and also in the Social War of 90-88 B.C., after which it never recovered its ancient prosperity. It became part of the Two Sicilies in 1734 and of the kingdom of Italy in 1861. Pop. 2,344,314.

APUS (Gr. apous; footless). A small freshwater crustacean of the order of Phyllopodas, related to the brine shrimps. It is often nearly an inch in length, with a carapace covering the head and part of the thorax, the abdominal appendages being exposed. It swims on its back, using the legs as paddles.

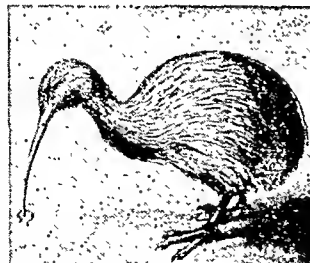


Apus. *Lepidurus*, or scale-tailed apus (enlarged)

AQUAMARINE.

Popular name of the bluish-green varieties of beryl, topaz, and apatite. The word comes from Latin aqua marina, sea water, in allusion to the colour, and is also used as an adjective to denote bluish green. The aquamarine is found in the Ural Mts. and in Brazil, the latter country also yielding pretty aquamarine chrysolite of a yellowish-green hue.

AQUARIUM (Lat. aquarius, pertaining to water). Vessel constructed as a cage for the observation of living aquatic animals and plants in fresh or salt water; the first known as the fresh-water aquarium, the second as the marine aquarium. It usually takes the form of a four-sided tank, constructed of glass and slate or of glass and zinc. The best form has the front of plate glass, and the bottom, back and ends of slate. The term is also used for a building housing these tanks. Examples are in the Zoological Gardens, London, in Brighton, and at the Battery, New York.



Apteryx australis, or kiwi, known as the wingless bird of New Zealand

AQUARIUS. One of the oldest constellations. The name signifies the water bearer, and from time immemorial the constellation has been represented as a man pouring out a stream of water from a pitcher, apparently on Pisces, the Fish. The water bearer's right arm is stretched backwards so as to reach over almost the entire length of Capricornus. The stream of water trickles down to the star Fomalhaut, one of the four ancient royal stars and the mouth of the Fish. See Constellation.

AQUATINT (Lat. aqua tineta, dyed water). The name applied to a mode of etching on copper with a resin ground resulting in close imitations of water-colour and Indian ink drawings. Aquatints were first produced in France in 1750, and in England by Paul Sandby in 1775. See Etching.

AQUEDUCT (Lat. aquae ductus, conveyance of water). Conduit in which water flows or is conveyed from one point to another. In the generally accepted sense of the word an aqueduct is an artificial channel in which water flows by gravity, at least for a considerable portion of the distance, between the source of supply and the destination.

The most famous builders of aqueducts were the Romans, and many of the ruins of their structures exist in Italy and elsewhere on the Continent. Roman aqueducts followed a uniform slope throughout, the water flowing by gravity. To reduce tunnelling to a minimum, hills were skirted and the water was carried in stone and cement-lined channels cut in the earth and covered over.

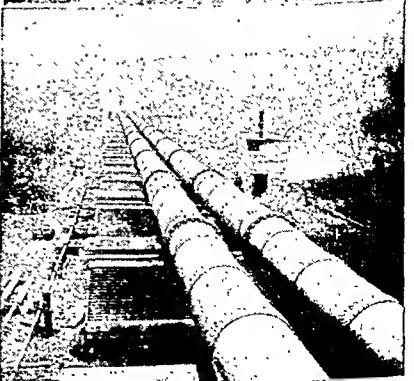
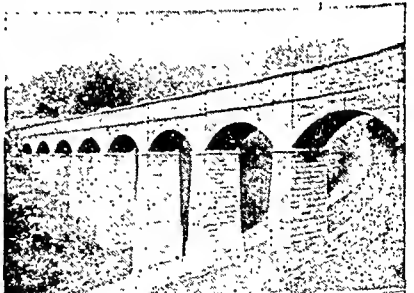
In modern practice the original type of aqueduct has for most purposes been superseded by the use of pipes, which are now usually



Aqueduct. Remains of the Roman aqueduct at Pont du Gard, Nîmes, France

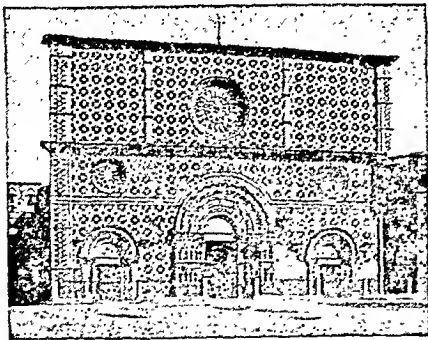
of cast iron or steel, or by closed conduits constructed of reinforced concrete. In some cases, however, where the natural slope of the ground permits of the requisite fall, a trench is dug, an inverted arch of concrete is formed on the bottom, side walls are raised on this, and an arched roof is added to exclude polluting matter. The trench is then covered with the excavated earth, which affords protection from heat and cold.

Tunnels are usually lined to promote ease of flow. In undulating country and across valleys sections of pipe line are interposed. Narrow and deep depressions are sometimes spanned by girder troughs. In the Severn



Aqueduct. Above, part of the Birmingham aqueduct. Below, pipes carried across the Storr Valley

siphon of the Birmingham aqueduct the pressure is at one point 250 lb. to the sq. in., the greatest in any British aqueduct



Aquila, Italy. The 13th century facade of the church of S. Maria di Collemaggio

AQUILA. City of Italy. The capital of Aquila province, and a summer resort, it is on the Aterno, 50 m. direct and 145 m. by rly. N.E. of Rome. It has a 13th century cathedral and a citadel built by the Spaniards in 1534. several palaces and old churches, and a 13th century museum. Notable among its churches are S. Bernardino di Siena, dating from 1472, and S. Maria di Collemaggio, built 1280. It was founded by the emperor Frederick II about 1240. Pop. 24,184.

AQUILA (Lat. eagle). Name of a constellation in the northern hemisphere. Figured as an eagle carrying a harp about its neck, it is to the east of the star Vega. Its chief star is Altair, occupying one of the angles of an equilateral triangle, the other two points being Vega and the star Alpha Ophiuchi. See Astronomy. Constellation.

AQUILA. An early convert to Christianity mentioned in the N.T. The husband of Priscilla, with whom he is always associated, he is referred to by S. Paul (Rom. 16. 1 Cor. 16; 2 Tim. 4). Born in Pontus (Acts 18) and a Jew, Aquila was driven from Rome, and with Priscilla entertained S. Paul at Corinth. Later they saved the life of the apostle at Ephesus. A late tradition makes Aquila one of the seventy sent out by Christ.

AQUILEGIA. Genus of perennial herbs of the natural order Ranunculaceae. Native of the N. temperate zone, it contains a few species and numerous hybrids. The leaves are broken up into stalked leaflets, which are again divided into three lobes. A familiar type is the common columbine (*A. vulgaris*), a native of Europe, Asia, and N. Africa, whose inverted flower is supposed to resemble a nest of five doves (Lat. columbae) or eagles (*aquila*).



Aquilegia vulgaris, or columbine

AQUILEJA. Small town of Italy, standing near the Adriatic, 26 m. by rly. N.W. of Trieste. From its foundation as a frontier fortress about 200 B.C. until its destruction by Attila in A.D. 452, Aquileja was one of the great cities of the Roman Empire. Excavations have proved its importance, and the museum contains a valuable collection of antiquities. The bishop of Aquileja attained the rank of patriarch and was one of the most important dignitaries of the medieval Church. The cathedral, dating from the 11th century, occupies the site of an earlier edifice.

Since Roman times the sea has receded and the city is now about 6 m. away, lagoons having been formed in front of it. It was included for centuries in the Holy Roman Empire, and was acquired by Austria in 1806 and by Italy after the Great War. Pop. 2,600.

AQUINAS, THOMAS (1227-74). Saint and theologian. A son of the count of Aquino, he was born near Naples, and at the age of 16 became a friar of the Dominican order. He graduated in theology at Paris in 1248, returned to Cologne, and was ordained to the priesthood, lecturing and teaching in that city for the next four years.

In 1252 Paris was the scene of bitter controversy between the friars and the secular clergy, and the friars, heavily attacked by the latter, called Thomas and S. Bonaventura, the Franciscan, to their assistance. The cause was argued before the pope, and Thomas's brilliant defence broke up completely the case against the mendicant orders. Thomas received the doctorate in 1257. From that time until his death he was teaching, writing, and regulating the theological studies of the Dominican friars, refusing all high appointments in the Church, and remaining a simple friar. He was canonised by Pope John XXII in 1323, his festival being kept throughout the Roman Catholic Church on March 7.

The influence which Thomas Aquinas has exercised on both theological and philosophical thought is enormous. The greatest of all his works, the *Summa Theologica*, is a compendium of all human knowledge in its relation to religion. He taught that for the human soul there were two sources of knowledge, divine revelation (supernatural) and human intellect (natural); and that all our knowledge begins with the senses. With Aristotle, to whom he owed much, Aquinas maintains that ethics is the science of directing the will to the real good, but he makes charity or love the central unity of the virtues. With a literary style marvellously clear and concise, he covers the whole ground of human knowledge, and leaves no question unsolved. To-day his great work is as essential to all students of theology as it was in the 13th century. See Scholasticism.



S. Thomas Aquinas, scholastic theologian

AQUITAINE. Name given nearly 2,000 years ago to the district between the Pyrenees and the river Garonne. Gradually the name spread farther N., and under the Romans Aquitania, as they called it, was divided into three parts, and in the time of Augustus it reached as far as the Loire.

After the fall of the Western Empire it fell into the hands of the Franks and eventually, through Eleanor, wife of Henry II of England, became united with England, in whose possession it remained until the days of Henry VI. By then the name Aquitaine had almost fallen into disuse, the S. part being known as Gascony and the N. as Guienne. See France.

The name Aquitania was given to a Cunard liner, launched in 1914 and burning oil fuel. Her gross tonnage is 45,647 tons, and her length 868 feet.

ARABESQUE. Style of pictorial or plastic ornament, with some suggestion of the fanciful or grotesque. It is seen in Moorish and Arabic architecture, and lent itself to beautiful patterns. Christian artists introduced into it human forms. See Alhambra; Architecture.

ARABI, AHMED (c. 1839-1911) Egyptian nationalist known as Arabi Pasha. He served in the army and became an officer in 1862, winning increasing popularity by his speeches against the employment of foreigners and Turkish ministers in Egypt, and in 1882 he forced the Khedive, Tewfik Pasha, to reconstruct the ministry, himself being made war minister. His hostility to all forms of European control led the British to bombard Alexandria, and on Sept. 12, 1882, Sir Garnet Wolseley defeated Arabi's forces at Tel-el-Kebir. Arabi was condemned to death, but the sentence was commuted to exile in Ceylon. In 1901 he returned to Egypt, where he died Sept. 21, 1911. See Alexandria.

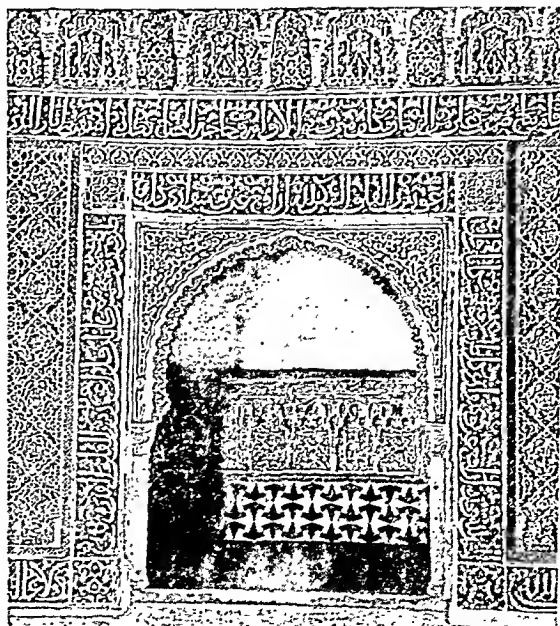


Ahmed Arabi, known as Arabi Pasha

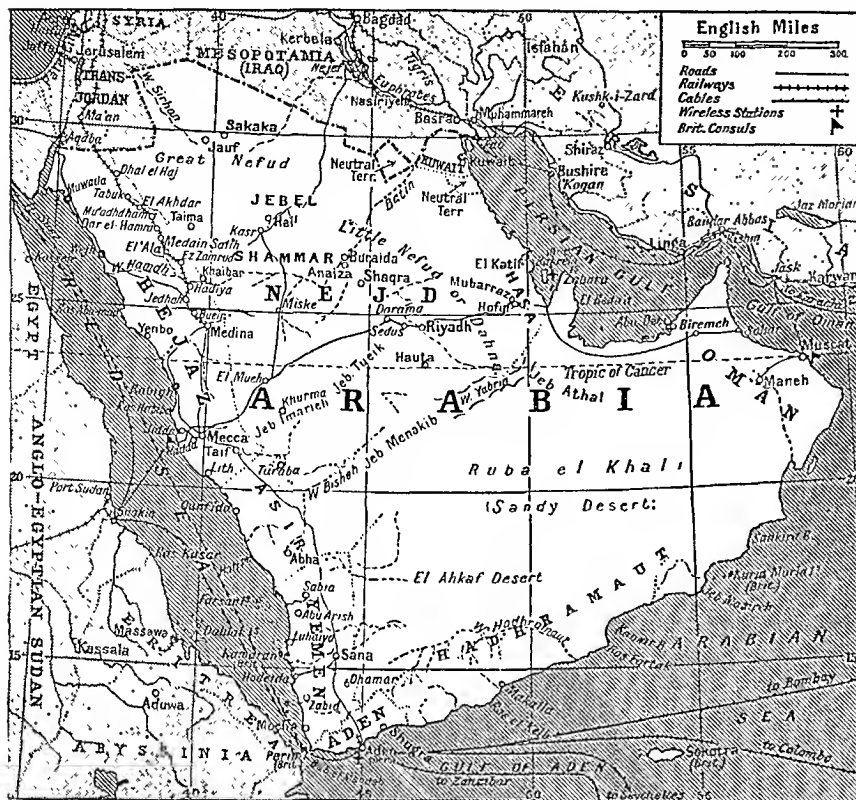
ARABIA. Arabia is the great peninsula forming the S.W. part of Asia and lying between the Persian Gulf and the Gulf of Oman on the E. and the Red Sea on the W. Its area is approximately 1,200,000 sq. m., vast portions of which consist of sandy wastes, rendering about half the country uninhabitable. Except in the north-central part, inhabited Arabia consists of a series of more or less well defined territories lying on the shores of the Red Sea, the Arabian Sea, the Gulf of Oman, and the Persian Gulf. The population is about 7 millions, consisting for the most part of nomadic Beduin tribes, who fit from oasis to oasis, and of Arabs who live in settled communities. There are many Jews.

The low-lying coastal region to the W. produces cereals, cotton, coffee, sugar, tobacco, and indigo, and abounds in aromatic trees and plants. Elsewhere the date palm supplies the chief means of subsistence. Arabia is famous for its horses and camels, and for the pearl fisheries of the Persian Gulf. The climate has extremes of heat and cold, the coastal tracts being in summer among the most torrid regions of the world. The country is almost destitute of means of communication: there are only the pilgrim roads, and, in the W., the Hejaz rly. and a short line in the Yemen.

HISTORY. The Arabs are undoubtedly of ancient race, one strain being Ishmaelite, the other derived from the descendants of Shem,

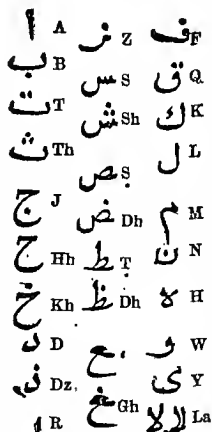


Arabesque. Part of the elaborate Moorish decorations of the Hall of the Ambassadors in the Alhambra, Spain



Arabia. Map of the peninsula which lies between the Red Sea and the Persian Gulf, and forms in its northern portion the land link between the continents of Asia, to which it properly belongs, and Africa

but until the development of Islamism Arabia figures hardly at all in history. Her greatest prosperity was during the reigns of the first three caliphs. With the removal of the seat of Mahomedan government from Damascus to Baghdad, Arabia's importance gradually declined, until in the 16th century Hejaz and Yemen came into the hands of the Turks. During that period and in the following century the Portuguese took Oman and acquired a footing in the Persian Gulf, which they virtually lost to the British, who took Ormuz, on the Persian side of the gulf, from 1801 to 1822. The Wahab movement for reform in Arabia of the 18th century saw the Turks and Islamism. Arabia held of the secure, any part of pilgrims never very Mecca and for the in the traffic to railway; and, to consolidate her interests the latter century, Turkey built the Hejaz 1914 Ibn Saud, setting Damascus with Medina, captured the Hejaz being reached in 1908. In 1916 Hussein province from the Turks, adopted the title of grand sheriff of Mecca, with his son Feisal, and prince of the Hejaz and the British. His army, organized by Col. Lawrence, repeatedly defeated the Turks, who were ejected from the Hejaz, and the Turkish-Yemen. After the Great War, and in the end of the century, the language of which provided Mahomet with his model. The language of the poets came to be regarded as classical Arabic, and it was this language that was spoken and written by cultured Moslems until the 13th century, when it had to give place to a number of colloquial dialects.



Arabic alphabet. Form of unconnected letters

overthrown by Ibn Saud of Nejd, who united Hejaz to his own state.

To-day Arabia comprises a number of independent states and protectorates, the largest of which is the State of Nejd and its dependencies. The Hejaz rly. runs from Medina through the desert to Damascus and Beirut, and is connected with the projected Baghdad Railway at Aleppo. Subsidies were paid by the British Government to King Ibn Saud during 1917-1923, in the first instance in consideration of assistance in the war against Turkey, and later subject to conditions in regard to his relations with other Arab countries. (See Feisal; Hejaz; Hussein; Lawrence. T. E.; Nojd.)

LANGUAGE AND LITERATURE. The Arabic language is an offshoot of the original Semitic speech. The earliest Arabic writings that can be described as literature are the productions of the Arabian poets and minstrels. The oldest poems (5th century A.D.) were preserved for centuries simply by oral transmission.

The custom of writing poetry did not begin until about A.D. 700 (i.e. towards the end of the first century after the Flight), when it was felt to be important to collect and preserve the utterances of the famous pre-Islamic poets. Several collections of these have come down to us.

The earliest prose work is the Koran. To preserve and explain the text of the sacred book bequeathed to the Moslems by Mahomet, it was necessary to invent a science of grammar and lexicography, and to collect the pre-Islamic poems,

the language of which provided Mahomet with his model. The language of the poets came to be regarded as classical Arabic, and it was this language that was spoken and written by cultured Moslems until the 13th century, when it had to give place to a number of colloquial dialects.

The reigns of the caliphs Mansur (754-775), Harun-al-Rashid (786-809), and Mamun (809-833) were marked by a kind of Oriental Renaissance. Literature, art, and science began to receive great encouragement, with the result that during some centuries a vast number of important and original works in all fields appeared, and many translations were made into Arabic from Greek, Syriac, and Persian. The fact that the words alchemy and algebra are Arabic indicates the great part that was played by the Arabs in the cultivation and spread of certain sciences.

The book so well known to Europeans as *The Arabian Nights* (Arabic *Alf Layla wa-Layla*, Thousand and One Nights) seems to have been based upon an old Persian book, *Hazar Afsana* (Thousand Tales).

ARCHITECTURE. Before the time of Mahomet the Arabs possessed no architecture of their own, and later they relied largely on Byzantine and Persian workmen for their buildings. Hence the so-called Architecture arabic in these countries can hardly be considered to have been evolved from purely Arab inspiration. In its earlier stages it was distinguished by the use of the pointed arch; later the horseshoe arch was developed, and as the Mahomedan influence spread, this became the characteristic mark of the several groups of Oriental architecture classified under the heading of Mahomedan Architecture.

Consult: *Travels in Arabia Deserta*, C. M. Doughty, new ed. 1923; *Revolt in the Desert*, T. E. Lawrence, 1927; *Arabia Deserta*, A. Musil, 1927; *Arabia of the Wahabis*, H. St. J. B. Philby, 1928; *Holy Cities of Arabia*, C. E. Rutter, 1928.

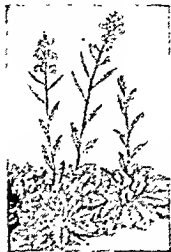
ARABIAN SEA (anc. Mare Erythraeum). That part of the Indian Ocean lying between Arabia and India. Its N.W. extension is the Persian Gulf through the Gulf of Oman, and its S.W. arm is the Gulf of Aden, connected with the Red Sea by the strait of Bab-el-Mandeb. It contains the Laccadives, the Kuria Muria Islands and Socotra, and receives the river Indus.

ARABIN OR ARABIO ACIN. Chief constituent of gum arabic. It occurs combined with calcium, magnesium, and potassium. It is prepared by adding hydrochloric acid to a mucilage of gum arabic, and alcohol afterwards, when the arabin is precipitated.



Arabia: two native types. Left, a peasant woman, living amongst the ruins of Petra, turns her primitive hand mill. Right, camel breeder from the Thana (Tehama) desert, a region peopled by warlike Aboosiyah tribesmen. Photos: D. McLeish and Maj. Meek.

ARABIS OR **ROCK-CRESS**. Genus of herbs of the natural order Cruciferae, natives of the N. temperate zone. The hairy root-leaves are spoon-shaped, and the four petals of the flower usually white or purplish. The

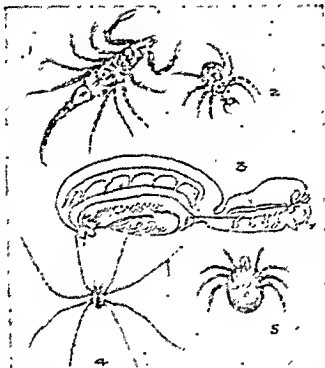


Arabis. The Alpine rock-cress

ARABLE (Lat. arabilis, fit for ploughing). Land which can be tilled or cultivated. It includes, therefore, permanent grass and a good deal of waste land which could be brought under the plough by suitable treatment.

In official reports the term is restricted to land which, apart from permanent grass, is actually under cultivation. In Great Britain the amount of arable land is steadily decreasing. In 1928 it was 13,241,000 acres, while for the ten years 1901-10 the average was 15,106,928 acres. See Agriculture.

ARACHNIDA OR **ARACHNOIDEA** (Gr. arachnē, spider; eidos, form). Class of the Arthropoda. It includes spiders, scorpions, harvestmen, mites, and certain other animals. They have usually six pairs of limbs, four pairs being walking legs, and the others being used for seizing food. The head and thorax are fused together, and the eyes are generally simple. The abdomen is in some genera segmented, and may bear appendages. In the scorpion its extremity is developed into a sting. The sexes are separate, and nearly all arachnids are carnivorous. See Spider.



Arachnida. 1. Scorpion. 2 and 3. Common garden spider, and enlarged section of same. 4. Harvestmen. 5. Water-mite. 4 and 5 greatly enlarged

ARAD. Two towns of Rumania. Both are on the Alföld, and before 1918 belonged to Hungary. Arad, the capital of Arad county, is a municipality on the right bank of the river Maros, 74 m. by rly. E. of Szeged. It is an important rly. and trade centre. Pop. 63,166, of whom 70 p.c. are Magyars and 15 p.c. Rumanians.

Uj-Arad or New Arad, in Temes county, now called Aradul Neo, is on the left bank of the Maros and connected with Arad by a wooden bridge. Pop. 6,000.

ARAGON. Name of one of the kingdoms into which Spain was divided before its union under Ferdinand and Isabella in 1479. It was bounded N. by the Pyrenees, E. by Catalonia and Valencia, S. by Valencia, and W. by Castile and Navarre. To-day it is covered by the provinces of Huesca, Saragossa, and Teruel. The Ebro flows through it, and in it are the highest summits of the Pyrenees. In a general sense the name is still retained by the district. Its capital is Saragossa.

The constitutional history of Aragon is of interest, for one reason because it anticipates that of England. In the 12th century or earlier it had its Cortes, in which the communes were represented, and its justiza was an official whose powers included the right to review the king's actions in certain cases. The nobles, especially the more powerful of them, claimed that their privileges were independent of the king's grant or favour, while the people as a whole appealed, often with success, to their ancient customs or fueros. See Spain.

ARAGONITE. Carbonate of calcium. It is of similar composition to calcite, but differs in having orthorhombic crystalline form. It is

found in nature deposited from solutions and is secreted by marine mollusca and other organisms to form their calcareous shells and skeletons. It was first found in Aragon.

ARAGUAYA. River of Brazil. Rising in the Serra do Cayapó, it flows for 1,100 m. to the Tocantins, whose chief tributary it is, entering that river at São João. Known in its upper reaches as the Rio Grande, it bifurcates towards the middle of its course, the two branches, which form the island of Bananal with an area of 8,000 sq. m., uniting again about 100 m. lower down. Navigation is obstructed by rapids.

ARAKAN. River of Burma, better known as the Kuladan (q.v.). It gives its name to a division of the country and to a range of mountains, the Arakan Yoma.

ARAL, **SEA OF**. Large inland sea or lake of Russian Central Asia. It derives its name from the Khirgiz-Aral Denghiz, meaning the island sea. It has a greatest length of 235 m., extreme breadth of 180 m., and a depth varying from 50 ft. to 220 ft. It covers an area of 26,000 sq. m., which is continually decreasing through evaporation. Only slightly saline, it contains a variety of fish, sturgeon, carp, and herring abounding. Seals are caught. It is fed by the Amu-Daria and Syr-Daria, but has no outlet. It contains many islands, the largest being Kug Aral.

ARAM OR **ARAMAEA**. Semitic name for Mesopotamia and part of Syria. Its vernacular was Aramaic or Aramaean. Originally spoken by the inhabitants of Aram, in early times Aramaic extended over a wide area. In Babylonia, Assyria, and part of Persia it was the official language, and was used in Syria, Cappadocia, and also in Palestine. The Galilean dialect, not the cultivated literary language of Jerusalem, was used by Christ and the disciples.

There are two main dialects: (1) Western, comprising Palmyrene and Nabataean, known only from inscriptions; Biblical Aramaic (wrongly called Chaldean), in which parts of Daniel and Ezra were written; the dialect of the Targums and the Samaritan version of the Pentateuch; (2) Eastern, including Syriac, the literary language of the Syrian Christians of Edessa, which split up into Jacobite and Nestorian; of the Gnostic Mandaeans in lower Babylonia; and of the Babylonian Talmud.

After the rise of Islam Aramaic mainly gave place to Arabic, and is now only spoken near Damascus, in part of Mesopotamia, by the Nestorians of Mosul, and on the banks of Lake Urmia in Persia.

ARAM, **EUGENE** (1704-59). English philologist and murderer. Born at Ramsgill, York-



Eugene Aram, English murderer

shire, he was the son of a gardener. He became a schoolmaster, and while so engaged at Knaresborough had to leave the town in 1745 under suspicion of being associated with frauds perpetrated by Daniel Clark. Subsequently a man named Houseman was arrested for the murder of Clark, and on stating that Clark had been murdered by Aram and his body hidden in S. Robert's Cave, Knaresborough, search was made and the skeleton was found. In 1758 Aram, then an usher at

Lyme Regis, was apprehended. Brought to trial in 1759, Aram defended himself with great skill. He was condemned, and executed on Aug. 6, before his death confessing his participation in the crime, though maintaining that Houseman was the principal murderer.

In his spare time Aram had acquired an amazing knowledge of languages, especially of Latin, Greek, Hebrew, French, Arabic, and Celtic, which he intended to utilise in the compilation of a comparative dictionary. His case is the subject of Lord Lytton's novel and of Thomas Hood's *Dream of Eugene Aram*.

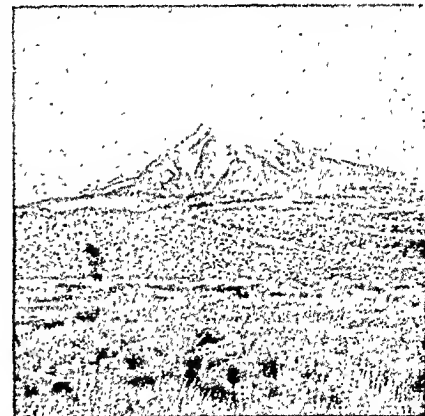
ARAN ISLANDS (OR **ARRAN**). Three small islands of Galway, Irish Free State. Known also as South Aran Islands, they stretch across the entrance to Galway Bay and have an area of 18 sq. m. The largest and northernmost is Inishmore or Aranmore, the middle island is Inishmann, and the smallest is Inisbeir. Archaeological remains abound, the most noteworthy being Dun Angus, a remarkable round cyclopean fortress on Inishmore. Pop. 2,679.

ARANJUEZ (Lat. Ara Jovis, Jupiter's altar). Town of Spain. It stands on the Tagus, 29 m. S.S.E. of Madrid, on the rly. to that city. Its palace, standing in one of the most beautiful parks in Europe, was a favourite seat of several Spanish sovereigns. The scene of Schiller's *Don Carlos* is laid here. Aranjuez has a wireless station. Pop. 13,550.

ARAN MAWDDWY. Mt. of Merionethshire, Wales. It is the summit of the Berwyn range, and is 2,970 ft. high. To the N. is Aran Benllyn, 2,901 ft. high.

ARANY, **JANOS** (1817-82). Hungarian poet. The son of peasant folk, he joined a company of strolling players, and then became a notary. In 1845 he obtained with his satire *The Lost Constitution* the prize offered for a poem on current events, and two years later the prize for the best Magyar epic with the first part of his trilogy *Toldi*. He became secretary to the Hungarian Academy in 1865, and died Oct. 24, 1882. His later works include *The Siege of Murany*, the second and third parts of *Toldi*, *King Buda's Death*, an epic, and hallads, all reflecting nationalism.

ARARAT. Region in Armenia watered by the river Aras (Araxes). The name has been erroneously applied to the highest mt. in the



Ararat. Culminating point of the Armenian plateau, known to the Persians as the Mountain of Noah

district, on which the Ark is supposed to have rested, but the Bible (Gen. 8) speaks of the "mountains of Ararat." The double-peaked volcanic summit of Ararat is known to the Armenians as the Massis, to the Turks as the Aghri Dagh, and to the Persians as the Koh-i-Nuh, or Mountain of Noah. The first complete ascent was made in 1829. See Noah.

ARARAT. Town of Victoria, Australia. It stands near Hopkins river, 130 m. by rly. W.N.W. of Melbourne, surrounded by a region

given over mainly to growing wheat and rearing sheep. Pop. 5,100.

ARATUS OF SIOXON (271-213 B.C.). Greek general and statesman. From 245 he was many years general of the Achaean League, which he strengthened by securing several new members. Unfortunately he alienated Sparta, and sought alliance with the Macedonians, depriving the league of its distinctive character as the champion of Greek freedom.

ARAUCAIAN (Quichua, rebels). Group of S. American Indians inhabiting S. Chile. The name shows their independent character.



Araucanian woman from S. Chile

Caupolicán, a warlike chief of the Araucanians, offered so fierce a resistance to the Spanish until his capture and execution in 1558, that his name and exploits became legendary, and were made the theme of a fine Spanish epic, *La Araucana*, by the poet Ercilla. The figure of Caupolicán, typifying his race, is a favourite and much copied sculpture in Chile. After an attempt by a French adventurer to found an Araucanian kingdom in 1861, the Araucanians formally acknowledged Chilean rule in 1870. They number about 100,000 and give their name to Arauco, a province of Chile. See American Indians.

ARAWAK. Tribe of S. American Indians, inhabiting parts of British and Dutch Guiana. They are in general a weak-bodied, peace-loving people, who at one time extended from Bolivia to the W. Indies and Florida, where they were in process of displacement by the Caribs at the Spanish conquest. They use bows and arrows and blow-guns. Their dress is little more than an apron; ornament is furnished by feathers, seeds, and shells. See American Indians.



Arawak. Types of S. American Indians inhabiting British and Dutch Guiana

ARBACES. Median chieftain. The statement of Ctesias that he revolted against the Assyrian king Sardanapalus, destroyed Nineveh about 876 B.C., and founded the Median empire, is unhistorical. Xenophon mentions a Median satrap Arbaces in the army of Artaxerxes Mnemon at Cunaxa in 401. Arbaces is the name of a character in Lytton's *Last Days of Pompeii*.

ARBALEST (Lat. arcus, bow; ballista, projectile machine). Ancient weapon, also known as a cross-bow, for discharging short arrows, stones, or bullets, which obtains its power from a spanned bow of spring steel. It is believed to have been introduced into England by William the Conqueror, and began to assume military importance during the Crusades. In England it was almost completely superseded by the long bow in the 14th century; in most other countries it was displaced by firearms towards the end of the 15th. Its last appearances were in 1807, against Napoleon in Poland, and by the Chinese at Taku in 1860. The ordinary type of weapon was sufficiently powerful to kill a man or horse at 250 paces and had a maximum range of 400 paces. There were also larger ones which were fixed on the walls of forts and castles and discharged arrows 12 ft. long.

The arbalest was used in hunting long after firearms had been greatly improved, owing to the absence of noise and smoke

ARBELA. Ancient town of Assyria. Known to the Assyrians as Arbailu, the city of four gods, it lies 40 m. S.E. of Mosul. It gave its name to the battle in which Alexander the Great defeated Darius, 331 B.C. The small town of Arbil or Erbil in Iraq occupies the site.

ARBER, EDWARD (1836-1912). English man of letters. He was born in London, Dec. 4, 1836, was for over 20 years in the Civil Service, and Professor of English at Mason College, Birmingham, 1881-94. He died Nov. 23, 1912. Arber is known as the editor of literary works hitherto almost inaccessible to the general public, chief of which is the series known as *English Reprints*, 1868-71. He also edited *British Anthologies*, 1899-1901; and *An English Garner*, 1877-96.

ARBINO. Mountain of Switzerland near Bellinzona. In Sept., 1928, this mountain mass began to move, and on Oct. 2 its top crashed into the valleys below. Three peaks disappeared completely and many buildings were destroyed, as was the Gesno highway for about two miles.

ARBITRATION. In English law, the decision of a matter in dispute, not by a judge sitting in a law court, but by a person called an arbitrator. The general law relating to arbitration is contained in the Arbitration Act, 1889, which forms a code. Under it two kinds are provided for: (1) voluntary, (2) compulsory.

Certain statutes, e.g. the *Friendly Societies Act*, provide for the settlement of disputes by arbitration, and arbitration is frequently employed in cases when the price of land required by railway companies and other public bodies is in dispute.

Industrial arbitration is an arrangement of industrial differences between employers and employed, to prevent strikes, lock-outs, etc. It is of two kinds, voluntary and compulsory, and is usually distinguished from conciliation, which tries to settle these difficulties without the intervention of an arbitrator. The essential principle of voluntary arbitration is that the disputing parties agree to submit their case to an arbitrator or board of arbitrators, and to abide by his or their decision. Compulsory arbitration means that, under certain conditions, they must take this step or incur penalties for breaking the law.

Industrial arbitration in Great Britain actually dates from 1896. The Conciliation Act of that year was concerned only with voluntary arbitration, and by it all the previous Acts of the kind were repealed. It gave the Board of Trade power, as soon as a dispute arose, to take steps to bring the parties together, and, if desired by them, to appoint an arbitrator. In 1908 a further step was taken by the appointment, under the Board of Trade, of a permanent court of arbitration.

This consisted of three panels, one of chairmen, and one each of representatives of employers and employed. The work is supervised by the Chief Industrial Commissioner, who is an official of the Ministry of Labour.

Compulsory arbitration was introduced in 1894 into New Zealand, where all industrial disputes must be referred to courts of arbitration presided over by a judge, those unwilling to accept the award being fined, both as associations and as individuals. Australia took compulsory arbitration from New Zealand, New South Wales in 1901 being the first state to adopt it, and in 1904 a law made it obligatory throughout the Commonwealth.

Canada proceeded rather upon English lines the Acts passed there being meant to encourage voluntary arbitration. But the Act of 1907, known as the Lemieux Act, made it illegal for a strike or lock-out to take place before the dispute has been investigated.

INTERNATIONAL ARBITRATION. At the first Hague Conference (1899), which met to consider the reduction of armaments and the methods of averting war, the 26 Powers represented agreed to a convention for the pacific settlement of international disputes, comprising provisions for the use of the mediation and good offices of third Powers, for the institution of international commissions of inquiry, and for the adoption of arbitration.

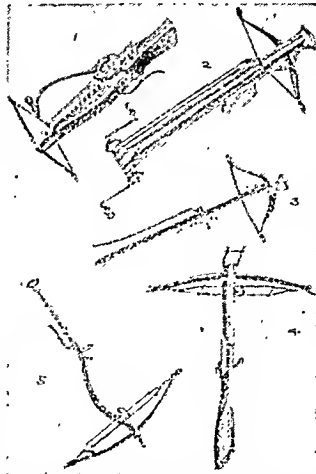
At the second Hague Conference (1907), to which 44 States sent delegates, this convention was amended and renewed. It amounted, however, to nothing more than this: the Powers recognized the equitable character of the procedure, when diplomacy failed, in questions of a legal nature, especially those arising out of the interpretation or application of treaties; they recommended its adoption so far as circumstances permit, and left it open to themselves to conclude special agreements for compulsory arbitration so far as possible.

Since 1919 many arbitration treaties have been signed, especially by the countries of Europe and S. America. In 1927 the general arbitration treaty between the United States and France was renewed.

The court of international arbitration was set up at the Hague, 1899. For its members each of the Powers appoints four persons for six years, who are inscribed on a list notified to all the other Powers. The arbitrators are chosen from this list. Failing agreement, each appoints two arbitrators, who choose an umpire; if they cannot agree as to the umpire he is to be chosen by a third Power agreed upon by the parties. See *Hague Tribunal*.

ARBOGAST (d. A.D. 394). Frankish general. Under the emperors Gratian and Valentinian II he distinguished himself by victories over the Goths and by overthrowing the usurper Maximus. He is said to have contrived the murder of Valentinian in 392 and set up Eugenius, a puppet of his own, as emperor. Theodosius, the emperor of the East, then intervened and Arbogast was defeated near Aquileia, in 394.

ARBOR DAY (Lat. arbor, tree). Day officially appointed in the U.S.A. for the annual planting of trees, especially by school children. The custom seems to have been suggested in 1865, and in 1872 a day was set apart in Nebraska for the purpose, and now in almost every state and territory Arbor Day is



Arbalest. 1. Lever arbalest, a cross-bow fitted with a cranequin. 2. Arbalest with windlass and compound pulley-gear. 3. Simple arbalest. 4. Bullet arbalest. 5. Arbalest for stones (16th century)

recognized as a legal or school holiday. The date varies in different localities. Arbor Day is kept in Canada and New Zealand.

ARBORETUM. Term applied specifically to a collection of growing trees and shrubs arranged for purposes of scientific study or picturesqueness, and less strictly to a park or wooded pleasure ground.

ARBOR LOW. Megalithic structure near Bakewell, Derbyshire. A circle of 30 stones, now overturned, enclosing a megalithic ruin, is surrounded by a fosse and rampart 250 ft. across. It is of late Neolithic age.

ARBOR VITAE (Lat. tree of life). Popular name for cypress-like evergreen coniferous trees, of which the principal species are the American (*Thuja occidentalis*) and the Chinese (*T. orientalis*). The leaves are minute scales which overlap one another and are closely pressed to the twigs and branches. Their under-surface is coated with wax. Both species have a strong aromatic odour.



Arbor Vitae, or the tree of life

ARBROATH OR ABERBROTHOCK. Burgh and seaport of Angus, Scotland. It stands on the river Brothock, near its mouth, about 17 m. N.E. of Dundee, on the L.N.E. and L.M.S. Ryds. The industries are chiefly concerned with shipping, and the educational establishments include an art school. The harbour is accessible to vessels of 1,000 tons: the old harbour is now a wet dock. There are ruins of an abbey. It is a popular holiday resort, with good sands, golf links, etc. Arbroath, the Fairport of Scott's Antiquary, has a signal tower, 50 ft. high, in communication with the lighthouse on Bell or Incheape Rock, 12 m. S.E. Market day, Sat. Pop. 19,499.

ARBUTHNOT, SIR ROBERT KEITH, BART. (1864-1916). British sailor. Born March 23, 1864, he entered the navy in 1877. In 1889 he succeeded his father as 4th baronet in a Scottish title dating from 1823. In 1913 he commanded part of the 2nd Battle Squadron; in 1914 he took over the 1st Cruiser Squadron and led this to the battle of Jutland. About 6.15 p.m. on May 31, 1916, his ship, Defence, was sunk while fighting some German light cruisers, and Sir Robert Arbuthnot and all his crew lost their lives. See Jutland, Battle of.



Sir Robert Arbuthnot, British sailor

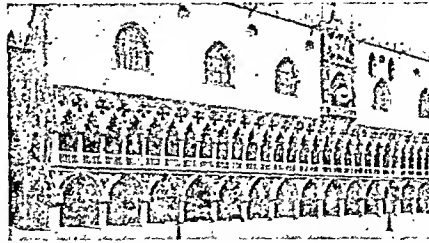
ARBUTUS (Lat. wild strawberry). Genus of evergreen trees and shrubs of the order Ericaceae. Natives of the N. temperate regions, they have alternate leaves, and bell-shaped or globular white or reddish flowers. *A. unedo* is the strawberry tree of S. Europe, which bears large orange-red, edible fruits.



Arbutus unedo, or the strawberry-tree

ARCACHON. Town of France. On the Bassin d'Arcachon, a shallow opening of the Bay of Biscay, it is 34 m. by rly. S.W. of Bordeaux. A pleasure resort in summer, it is also popular for invalids in winter. The dunes are covered with pine woods and the sands and bathing are good. Arcachon is a fishing centre and has extensive oyster beds. Pop. 10,266.

ARCADE (Lat. arcus, bow, arch). Range of arches standing on piers or columns, either free-standing or attached as decoration to the



ArCADE. Front of the doge's palace at Venice, showing the open colonnades, which form two long loggias. The building, dates from the late 15th century

surface of a wall. In the latter sense the arcade was a feature, though a rare one, of Greek architecture, but it assumed no real importance until Roman times. The Romans transmitted it to the Italians, and the Italian cities are still rich in this feature.

Araedes are usually built round public courts or squares, market places, and in other situations where they can serve a utilitarian purpose. Medieval ecclesiastical architecture abounds in instances of the arcade as an ornamental dressing to the wall, taking the form of moulded arches supported by colonnettes. A more modern application of the term is to covered streets of the type of the Burlington Arcade in London, or the Royal Arcade at Newcastle.

ARCADIA. Country of ancient Greece. It occupied the centre of Peloponnesus and, a very mountainous country, its physical characteristics enabled the inhabitants continuously to preserve a semblance of independence. The chief towns were Mantinea, Tegea, and Orchomenus. According to ancient tradition the inhabitants were racially the oldest in Greece. They were devoted to pastoral pursuits and fond of music; hence the poetic identification of Arcadia with romantic simplicity. The modern Arcadia forms a division of Greece, and has an area of 2,020 sq. m. Pop. 166,141. (See Greece.)

Arcadia was the name given to several pastoral romances, written partly in prose and partly in verse. All owed something directly or indirectly to the Greek romances of Heliodorus (3rd century A.D.) and Achilles Tatius (3rd century A.D.). The most notable of all, that by Sir Philip Sidney, appeared in 1590.

ARCADIUS (377-408). First East Roman emperor. The elder son of Theodosius the Great, on the division of the empire at his father's death in 395 he received the eastern part and his brother Honorius the western. Arcadius played a subordinate part, the real rulers being the prefect Rufinus, who was murdered in 395, the eunuch Eutropius, executed in 399, and Eudoxia, the emperor's wife, who died in 404.

ARCH. Term employed in architecture to denote a structural member spanning vertically an opening or recess. It is divisible into two main species, round and pointed, as exemplified by the Roman and the Gothic, but there are many varieties of each.

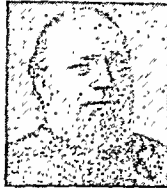
Historically, the arch is identified with Roman building, though the Romans adopted it from the earlier Etruscan architecture. They confined themselves almost exclusively to the semi-circular arch.

A peculiarly Roman product was the triumphal arch. These arches were generally erected to commemorate a victory, but occasionally with other objects, e.g. as entrances to towns or great market places. The triumphal arches erected by Napoleon, and the Marble Arch facing Hyde Park, London, are all based on Roman models.

In Byzantine architecture the round arch was further developed in conjunction with the column. Norman arches are nearly always semi-circular and plainly moulded. Different varieties of the round arch are found in Moorish architecture. Here the horseshoe form is a favourite one, and it frequently occurs also in Buddhist architecture, where it is better known as the lotus-leaf arch.

The pointed arch obtained no considerable footing in western Europe until the 10th century, when it figures very conspicuously in the religion-inspired architecture of both East and West. The lancet form of pointed arch has given its name to the first period of English Gothic, that of the 13th century. See Architecture; illus. p. 114.

ARCH, JOSEPH (1826-1919). British labour leader. The son of an agricultural labourer, he became the organizer and leader of his fellow labourers in their struggle for better conditions. Not until 1872 was he able to establish the National Union of Agricultural Labourers. He was elected Liberal-Labour M.P. for N.W. Norfolk, 1885, 1892, and 1895. He died Feb. 12, 1919. Consult his Autobiography, 1898.



Joseph Arch, British labour leader
Elliot & Fry

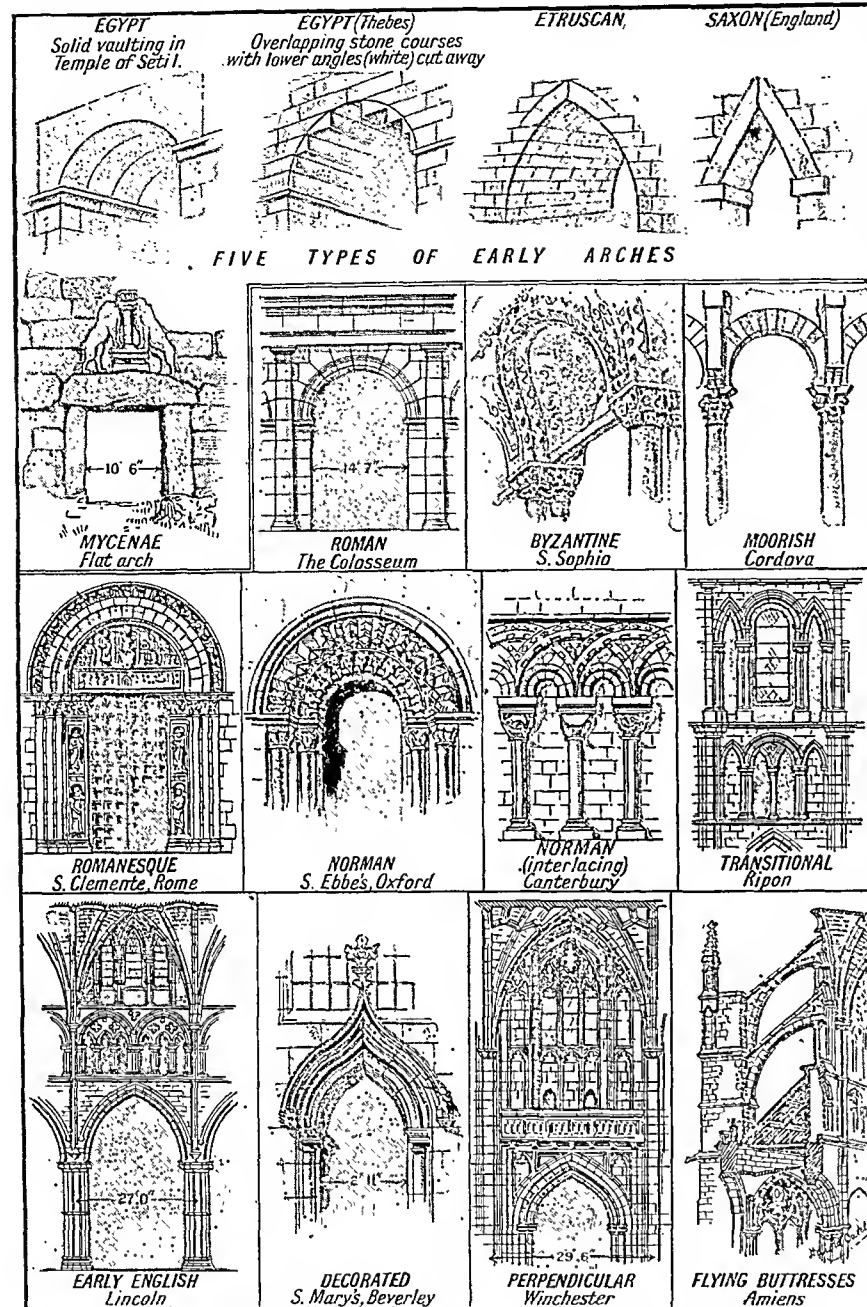
ARCHAEOLOGY. Archaeology, strictly the science of ancient remains, must now be defined, in view of its modern development, as the study of human handiwork of the past.

The science of systematic archaeology owed the first stage of its radical emancipation to the antiquaries of the North. In Sweden and Denmark there was an exceptional wealth of unmixed archaeological remains, which could not readily be explained by the methods current in the classical areas. Application of the processes of induction and new methods of comparison resulted in the fundamental demonstration of a general uniformity in the evolution of primitive culture, of a natural sequence in the use of stone, bronze and iron in the normal development of human experience.

Archaeologists now held a master key which was applied in turn to the locked secrets of other lands with almost unvarying results, exceptions being noticed only where special metals or materials were indigenous or relatively easy of access. But while the principle of the evolution of primitive culture became admitted, the survival of primitive types until recent times in various sequestered spots on the globe indicated that the evolution of human culture was not generally contemporaneous. Meanwhile, the horizon of the archaeologist widened considerably. The discoveries of Layard in Mesopotamia, of Newton in the Levant, of Mariette in Egypt, of Schliemann in Western Asia Minor, and of other pioneer explorers in these fields produced a profound impression, and archaeology became the accepted handmaid of ancient history.

The modern development of archaeology has thus manifested itself in three separate directions. First, expansion of field, leading to the division of the whole science into branches corresponding with known civilizations of culture areas—Assyrian, Egyptian, Hittite, Greek, Roman, Gallo-Roman, Celtic, etc. Secondly, extension of scope, admitting the consideration of the culture-products of historic times and so involving a further subdivision by sections corresponding to the subjects concerned, e.g. architecture, art, coins, cults, etc. Thirdly, improved methods and ever-increasing results in practical investigation, fostering more and more the tendency to specialisation.

The whole function of a practical archaeologist is three-fold: (a) investigation, (b)



Arch. Evolution of this structure from the primitive lintel to the intricate Gothic example. See text p. 113

exposition (c) interpretation. Investigation includes exploration, excavation, examination of material, whether concrete or documentary, comparisons, analyses, and all that contributes to increase of material information. Since 1922 aerial photography has proved of incomparable value in archaeological investigation. Exposition is the making public of the results of investigation. It may be effected by arrangement and classification of material remains in museums, conservation of curios, or publication of plans, photographs and memoranda. Interpretation is the further synthetic treatment of the materials rendered available by investigation and exposition. Such treatment will involve the domains of anthropology and of history, and will demand a preliminary handling by specialists.

In Great Britain the science of archaeology receives much academic encouragement. There are professorships in archaeology at the

universities of Cambridge, of London, of Dublin and of Liverpool, where the foundation of an Institute of Archaeology facilitates collaboration between the staff and representatives of special fields of research. The British Museum maintains an organization proportioned to modern requirements. There is the British School of Archaeology at Jerusalem to promote the study of the archaeology of Western Asia; the British School at Athens; the British School at Rome; the British School of Archaeology in Egypt, under Sir Flinders Petrie, and the Imperial British Institute of Archaeology for Egypt. France, Germany, Italy and America all have similar schools for the promotion of the science.

The British Archaeological Association, with offices at 22, Russell Sq., London, was founded in 1843. The Royal Archaeological Institute of Great Britain and Ireland, whose headquarters are at 18, Queen Anne's Gate, London,

publishes The Archaeological Journal. There is also the Archaeological Society, founded in 1856, with offices at 207, Bath St., Glasgow.

See Anthropology; Bronze Age; Iron Age; Man; Neolithic; Palaeolithic; Stone Age; etc.

ARCHAEOPTERYX (Gr. *archaios*, ancient; *pteryx*, wing). Primitive lizard-tailed bird. It was about the size of a pigeon. The jaws were furnished with conical teeth, showing affinities with the reptilia. The wings were small and exhibited three digits, each terminating in a claw. The hind-limbs were like those of a bird, and the vertebral column extended to form a long tail.

ARCHANGEL (Gr. *archi*, chief; *angelos*, angel). The title of the highest order of angel. The Jews named seven: Michael, Gabriel, Raphael, Uriel, Chamuel, Jophiel, and Zadkiel, the last three being unrecognized in the Christian Church. See Angel.

ARCHANGEL. A popular name given to two common British wild flowers belonging to the genus of labiates known as dead-nettles. They are respectively *Lamium Galeobdolon* and *L. purpureum*, the first with yellow and the other with purple flowers. It is also sometimes given to *L. album*, with white flowers. The names archangel and archangelica are also sometimes given to the angelica (q.v.).



Archangel. *Lamium Galeobdolon*, the yellow blind nettle

ARCHANGEL (Russ. Arkhangelsk). Seaport and city of the Russian Federal Soviet Republic, capital of the province of Archangel. It stands on the Dvina, at the head of the Gulf of Archangel, 696 m. N. of Moscow by the Archangel-Moscow Rly. It has a good harbour, free from ice from June to Sept., shipbuilding yards, wharves, fisheries, and a wireless station. Timber, wheat, flax, pitch, and tar are exported. Pop. 72,634.

Archangel came into prominence in the last year of the Great War (1918), when it was occupied by the Allies. The objects of the expedition were the safeguarding of military stores in the town, and to assist those Russians who were opposed to Bolshevism. On Aug. 2, 1918, Allied warships anchored in the harbour, and the Red troops having fled a British force was landed. The main force of the Reds was defeated some miles S. of Archangel by the Allies, who by the beginning of Oct. had pushed up to Seletskaya 160 m. S.

During the winter the Allied front stretched in a curve which was deepest at Shenkursk, 180 m. S.E. of Archangel. In Jan., 1919, the Bolsheviks attacked and compelled the abandonment of Shenkursk. A British relief force reached Archangel on May 26, in June the Allies advanced up the Dvina, and on Aug. 10 won a brilliant victory, taking 2,000 prisoners. However, the attempt to join forces with the anti-Bolshevist armies W. of the Urals was a failure and evacuation was ordered. On Sept. 27 the British base at Archangel was closed and the Bolsheviks occupied the town.



Archangel. Russian seaport on the Dvina, at the head of the Gulf of Archangel

ARCHBISHOP (Gr. archi-, chief; episkopos, overseer). Principal bishop of a province, who while governing his own diocese, presides



Archbishop. The archbishops of Canterbury and York (Dr. Davidson and Dr. Lang) in their robes at the coronation of King George V and Queen Mary

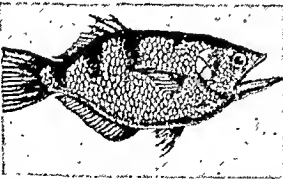
Russell

over the bishops of a group of dioceses. In the Church of England the archbishop of Canterbury is primate of all England and metropolitan. He ranks as a prince immediately after the princes of the blood royal and before all other subjects. He has the right of crowning the sovereign. His brother of York, as primate of England, has precedence of all dukes save those of the blood royal and all officers of state save the lord chancellor, and the right of crowning the queen consort.

The Protestant archbishop of Armagh is primate of all Ireland; the archbishop of Dublin is primate of Ireland. On the disestablishment of the church in Wales, which came into effect in 1920, Wales was constituted a separate province under its own archbishop. The episcopal church of Scotland has no archbishop, but its bishops elect a primus, to whom is given metropolitan authority.

In England and Wales there are four Roman Catholic archbishops; in Scotland, two; and in Ireland, four. See Episcopacy.

ARCHDEACON (Gr. archi-, chief; diakonos, minister). Official of the early Christian Church and existing to-day in the Roman Catholic, but more especially in the Anglican Church. In the former the archdeacons, where they exist, are titular dignitaries, their only duty being to present candidates for ordination.



Archer Fish, which shoots its insect prey with squirted drops of water

In the Anglican Church, on the other hand, the archdeacon is still a prominent official. His duties include the visitation of the parishes, the supervision of church buildings, the hearing of cases in their courts, and the admission of churchwardens. Archdeacons are members of Convocation and almost invariably hold a canonry or other living in the diocese. Archdeacons are appointed by the bishops, and their dress includes gaiters. See Church of England.

ARCHDUKE (Gr. archi-, chief; Lat. dux, leader). Title borne by princes of the family

of Hapsburg, rulers of Austria, until 1918. It was assumed about 1358 by one of the dukes of Austria; later came the practice of calling all the princes of the Hapsburg family archduke, and so we have the archduke Charles, the archduke Francis Ferdinand and others who were not rulers. The title has never been borne by any other family.

ARCHELAUS. King of Egypt. Of the Ptolemaic dynasty, he was a son of the Cappadocian Archelaus, one of Mithradates' generals, and Pompey made him high-priest of Comana in Pontus. In 56 B.C. he wedded Berenice, daughter of Ptolemy Auletes, who had been raised to the throne in place of her father, but after six months both were slain, during an invasion led, at Ptolemy's instigation, by the Syrian pro-consul Aulus Gabinius.

Archelaus was also the name of a son of Herod the Great by the Samaritan Malthace. His succession being disputed by his brother Antipas, to whom Judaea had been assigned by an earlier will, Archelaus appealed to the Roman emperor Augustus, who in 4 B.C. made him ethnarch of Judaea, Samaria, and Idumaea, and appointed Antipas tetrarch of Galilee and Peraea.



Fred Archer, British jockey

ARCHER, FREDERICK JAMES (1857-86). British jockey. Altogether he rode in 8,084 races and won 2,748, heading the list of winning jockeys during the seasons from 1873 to 1885. He was successful in five Derbys, six St. Legers, and was on the back of four Two Thousand Guineas and Oaks winners. He shot himself at Newmarket, Nov. 8, 1886.

ARCHER, WILLIAM (1856-1924). British critic. He was dramatic critic of the London Figaro, 1879-81, and of The World, 1884-1905, and also served in the same capacity on The Tribune, The Nation, and The Star. It is, however, as a disciple of Ibsen that he is best known. He edited Ibsen's prose dramas in five volumes and the complete works in 11 volumes, besides collaborating in a translation of Peer Gynt. He was also the author of a Life of W. C. Macready, 1890; Poets of the Younger Generation, 1902; Through Afro-America, 1910; India and the Future 1917, and other books; also a drama, The Green Goddess. He died Dec. 27, 1924.

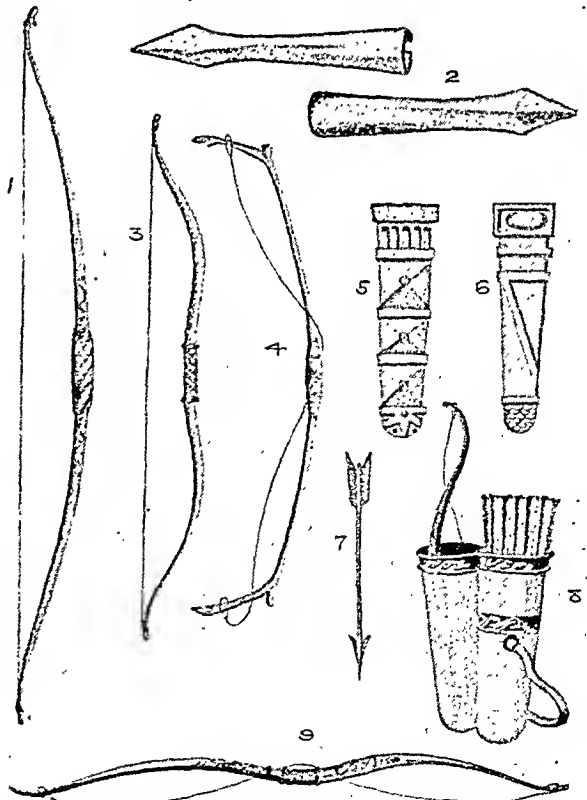
ARCHER FISH. Name given to several small East Indian fishes which catch insects by squirting drops of water at them from their mouths. The true archer fish, *Toxotes jaculator*, has been known to squirt a drop of water as far as five feet.

ARCHERY. Art and practice of shooting with a bow and arrow. Employed from the earliest times in warfare and hunting through-

out the world, until superseded by the invention of gunpowder, it was revived as a pastime in 1780 by Sir Ashton Lever and some friends at Leicester, and in the following year the Royal Toxophilite Society was instituted, which has ever since been regarded as the controlling authority. Its headquarters are in Regent's Park, London. The Royal Company of Scottish Archers, which constitutes the sovereign's bodyguard for Scotland, goes back to about 1650. Its headquarters are in Edinburgh. The Society of Archers, which dates from 1673, still holds an annual archery meeting.

The implements used for the sport in its modern form comprise the bow, arrows, tips for covering the fingers, the bracer or arm-guard, and the target. Bows, if made of one piece of wood, are termed "self"; but if composed of two or more strips of wood glued are described as "backed." The former are invariably made of yew, the latter of various combinations. Arrows are made of deal, of four different shapes according as they are of the same thickness from end to end, or barrelled or tapered in different parts. The target is circular, 4 ft. in diameter, stuffed with straw, having a canvas face on which are painted five rings; the centre or bull's-eye being gold (technically called the gold), then red, blue, black, and white, and counting respectively 9, 7, 5, 3, and 1. The distances shot over vary from fifty to one hundred yards.

ARCHES, COURT OF. English court of law, so named from being held in the church of S. Mary-le-Bow (Maria de Arcubus). It is the appellate court of the archbishop of Canterbury. The presiding officer is commonly called dean of the arches, though his real title is official principal. He must be a judge, or ex-judge, or a barrister of at least ten years' standing. Most important ecclesiastical cases are decided in this court, from which there is an appeal to the Judicial Committee.

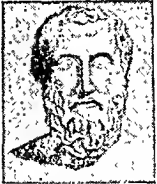


Archery. 1. Early English bow, period Edward IV. 2. Two English arrowheads. 3. Grecian bow. 4. Bow of whalebone and wood, N.W. American. 5. Egyptian quiver. 6. Greco-Egyptian quiver. 7. Egyptian arrow. 8. Theban bow-case and quiver. 9. Etruscan bow

ARCHIL or **ORCHIL**. Purple dye prepared from various lichens of the genus *Rocella*. It appears in commerce as archil, a pasty mass: persis, a drier paste: and eudhear, which is a red-brown powder.

The dye is prepared by treating the finely chopped lichens with dilute ammonia and keeping at the temperature of the air until a dark, violet paste forms. The mass is then thinned with more ammonia and pressed, the liquid obtained being blue archil. Red archil is obtained by heating this solution, when the ammonia is driven off. When carbonate of soda is used, litmus results. After the discovery of aniline dyes archil lost its importance. See Dyes.

ARCHILOCHUS (c. 700 B.C.). Greek lyric poet. He was an Ionian of Paros by birth, and went to Thasos in early life. There he wrote the verses satirising the family of Neobulë, whose father Lycambes had forbidden her marriage with Archilochus after giving his consent. Only fragments of his poetry survive, but he was regarded as one of the great poets of Greece. Although not its inventor, he was the first to perfect iambic verse, especially as a vehicle of sarcasm.



Archilochus,
Greek lyric poet

ARCHIMANDRITE (Gr. archi-, chief; mandra, fold) Title in the Eastern Church for the superior of a monastery, or for an abbot who presides over more than one monastery. It dates from the 4th century. See Greek Church.

ARCHIMEDES (c. 287-212 B.C.). Greek mathematician. Born at Syracuse, Sicily, he wrote on nearly all the mathematical subjects known in his period, and his theory of the lever supported the science of statics for some 1,700 years, until the time of Stevinus (A.D. 1586). His theory of hydrostatics was nearly as long-lived, for little advance was made in it until Stevinus investigated the pressure of liquids. His geometrical discoveries of the quadrature of a parabolic area, and of a spherical surface, as well as of the volume of a sphere, were notable achievements. The Archimedean screw for raising water, and the apocryphal burning glasses which set fire to ships by focussing the rays of the sun on their sails, are attributed to him.

Among his numerous extant writings, consisting of detached essays, are three on plane geometry: on the circle, the parabola, and spirals; two on three-dimensional geometry: on the sphere and cylinder; two papers on arithmetic; and two works on mechanics and hydrostatics.

ARCHIPELAGO (Gr. archi-, chief; pelagos, sea). Name originally given to the island-studded Aegean Sea. It is now applied generally to groups of islands, e.g. the East Indian Archipelago.

The British Isles are strictly an archipelago, which rises above the shallow continental shelf of Western Europe. This fact is an illustration of the circumstance which gives

a geographic unity to an archipelago; the islands are all joined by submarine shelves, banks, or ridges.

ARCHITECT (Gr. archi-, chief; tekton, worker). Term for a master builder in classical and medieval times, and at present for one who designs buildings and superintends their erection.

The divorce of architect from builder has not proved an unmixed benefit, since a century ago it produced a number of architects whose qualifications were mainly academic. But architectural training to-day is well guarded by the various professional institutions, and the tendency is to insist on a practical no less than a theoretical knowledge of building.

The Incorporated Society of Architects was founded in 1884, its aim being to provide a means of association for practising architects and surveyors. In 1925 the society was merged in the Royal Institute of British Architects, the chief architectural society of Great Britain and Ireland. The R.I.B.A. awards a gold medal each year to an architect of distinction, British or foreign, and holds examinations. Associateship follows the passing of the final examination. The offices are at 9, Conduit Street, Hanover Square, London. In October, 1917, the Architectural Association (34, Bedford Square, London, W.C.) opened its school for the first time to women students.

ARCHITECTURE. Architecture is not mere building. It is the result of the artist's knowledge and skill brought to bear on his work, giving it distinctive character and style and raising it to the rank of an art.

The most ancient records of architecture are found in Egypt, the best-known examples being the Pyramids and the Sphinx, near Cairo, over 5,000 years old, the temple of Karnak (c. 2000 B.C.), with its vast pillared hall, and across the Nile more Rameses temples, the colossal Memnons, and the tombs of kings. The last are descending passages cut in the limestone, leaving a smooth face for the biographer to tell his story in hieroglyphics. The temples of ancient Chaldaea were towers rising in steps or stages, and such was the tower of Babel. Assyrian temples also were of this type. The Phoenicians were temple builders, and probably helped in the building and decoration of Solomon's great temple about 1000 B.C.

In India the formulation of the Buddhist religion was the source of much architectural activity. This took the form of monolith

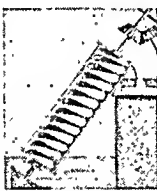
pillars, domed, stonied-covered mounds containing a chamber for the sacred relic, rock-cut temples and monasteries and later temples covered with sculpture. The famed Taj Mahal, a mortuary raised over a favourite wife, is perhaps the most complete example of ideal Indian architecture.

Of all the early civilizations the most refined and most magnificent was that of Greece, which reached its zenith in the golden age of Pericles. Though influenced in many ways by Egypt and Assyria, Greek architecture was nevertheless an original development. Three styles are distinguished, each denoted by its particular form of column: Doric, Ionic, and Corinthian. In a Greek structure, laws minutely defined the exact size of its mouldings and parts. In addition to this study of form, the whole was subjected to colour.

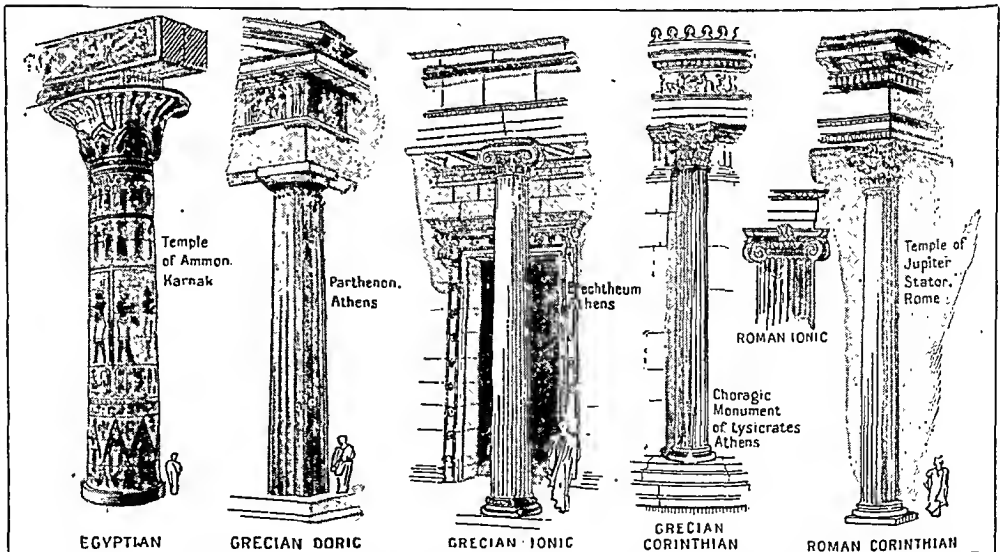
The Etruscans, an Asiatic and nomadic race, migrated through Greece to Umbria, and they and their art spread through Italy. Few of their works remain, but they had a wide influence in the country of their adoption. The Romans borrowed the Doric and Ionic orders from the Greeks, making their own version of the same, while the richer features of the Corinthian were more in favour. The monuments of ancient Rome are of diverse kinds, and include the Colosseum, a great oval circus, adorned on the outside with successive tiers of the different orders of columns; the Pantheon, a beautiful domed building; aqueducts, tombs, triumphal arches and sumptuous baths.

The style of building known as Romanesque prevailed in Europe from the 4th to the 12th centuries. Based on Roman architecture, it followed two lines of development. That of the east was known as Byzantine, two outstanding productions being the early Christian church of S. Sophia at Constantinople, and the shrine of S. Mark at Venice. The western line of development can be traced, for example, in the famous early churches of Ravenna, and in the arcades of the N. Italian and Rhenish towns, the latter feature being the result of Lombard influence combined with Roman.

In England in the 7th century Saxon style was inspired by the remains of the buildings erected during the Roman occupation, and by the work of masons who were brought over from Gaul. In the same way Norman architecture, characterised by the round arch and plain column, was introduced into England by builders and artists from abroad.



Archimedean screw,
for raising water



Architecture. Historical development of the column from the massive Egyptian structure to the tapering Roman shaft

In the 12th century Norman architecture gave way to Gothic, with its lighter character of construction. The round arch was gradually superseded by the pointed arch; the adoption of buttresses did away with the necessity for massive walls; and windows, either single or grouped, filled the spaces between the buttresses. A perfect achievement of this period is Westminster Abbey. Gothic went rapidly through its various changes of Early English, Decorated and Perpendicular.

After the eclipse of Imperial Rome, the Romanesque, Lombard and Gothic prevailed for about a thousand years. Then with the Italian Renaissance there came a new development in architecture which produced palaces and churches in Rome, Florence and other parts of Italy, each stamped with the individuality of the master's hand, until the period culminated with Michelangelo in the great cathedral of S. Peter at Rome.

In France the Italian revival made a strong impression. In England Inigo Jones became imbued with its spirit, and with his pupil John Webb designed for Charles I the palace of Whitehall, of which the Banqueting Hall still remains, and many other buildings of grace and beauty. After the Great Fire in 1666 Sir Christopher Wren, while using elements of Roman origin, developed a treatment distinctly his own, which became the English mode of building for 150 years.

There was no interruption to the continuous order of able designers until, in the 19th century, came a lack of public interest in architecture. A Greek revival produced the stately S. George's Hall, Liverpool, the British Museum and Sir John Soane's Bank of England. In the middle of the century

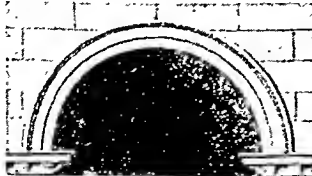
Britain entered upon a Gothic revival, notable buildings of the time being the Houses of Parliament and the Law Courts in London. Modernist interpretation of Gothic principles in ecclesiastical architecture has found expression in Liverpool Cathedral.

To-day revolutionary changes are being effected in modern architecture by the use of concrete and steel in construction. This has produced the American skyscraper, and is being increasingly adopted for commercial and other buildings in Britain and other parts of Europe. See Barry, Sir C.; Scott, Sir G.; Wren, Sir C., etc.

ARCHITRAVE (Gr. archi-, chief; Lat. trahs, beam). A term in classical architecture, signifying a member of the entablature, i.e. the stone beam carried by the capital of the column and supporting the frieze above it. The architrave is essentially a feature of lintel and post construction, and disappears with the rest of the entablature from the matured styles of arch construction wherein the arch springs directly from the capital.

ARCHIVOLT (Gr. archi-, chief; Ital. volto, vault, arch). In Roman and medieval architecture, a term applied to an architrave which is carried round a curved opening. The archivolt's development follows that of the round arch, and in Romanesque, Italian, Gothic, and Mahomedan architecture great attention was paid to its decoration.

ARCHON (Gr. ruler). Name of the chief magistrate in many Greek towns, especially of the nine chief magistrates of Athens. When the kingship was abolished,



Archivolt, or architrave carried round a curved opening

ARCHITECTURE : STYLES, PERIODS, SUBDIVISIONS AND FEATURES

GREEK
7th century B.C. to 3rd century A.D.
Archaic Period, lasting to the 5th century B.C.
The Golden Age, 5th to 4th centuries.
Hellenistic Period, 4th century B.C. to 4th century A.D.

ROMAN
2nd century B.C. to 4th century A.D.

BYZANTINE
4th to 12th centuries.
Neo-Byzantine, 8th to 12th centuries.

ROMANESQUE
9th to 13th centuries.
Norman, 11th to 13th centuries.

GOthic
11th to 15th centuries.
French Gothic.
German Gothic.
English Gothic: (1) Early English or "Lancet" (13th century), (2) Decorated (14th century), (3) Perpendicular (15th century).
Italian Gothic.
Neo-Gothic (English), 1830-1860 A.D.

RENAISSANCE
15th to 18th centuries.
Italian Renaissance.
French Renaissance.
English Renaissance: (1) Tudor (16th century), (2) Jacobean (17th century), (3) Georgian (18th century).

ORIENTAL
6th century B.C. to 18th century A.D.
Mohomedan 7th to 17th centuries A.D. (Syria, Mesopotamia, Persia, Asia Minor, North Africa, Sicily, Spain, Turkey, India).
Buddhist 6th century B.C. to 7th century A.D. (India).

one archon was appointed for life, the term being subsequently limited to ten years and finally to one, when a board of nine was instituted (683 B.C.). As the powers of the democracy increased, their functions became mainly judicial and religious.

ARC LAMP. A form of electric lamp. In it the source of light is a luminous arc produced in a gap between two carbon points by an electric current.

ARCOLA. Village on the Alpone, a tributary of the Adige, about 16 m. from Verona. It is famous for the victory gained by Napoleon, in his invasion of Italy, over the Austrians Nov. 15-18, 1796.

Arcos. Short name for the All Russian Cooperative Society. Its London office is Bush House, Strand, W.C.2.

ARCOT. City of Madras, India. The capital of N. Arcot district, and a military cantonment, it stands on the Palar, 65 m. W.S.W. of Madras, on the rly. to Beyer. Formerly the capital of the Carnatic, it was taken by Clive in Aug. 1751 and was held by him against repeated French attacks. In 1758 it was taken by the French, who lost it in 1760. Hyder Ali captured it in 1780, and it became British in 1801. The

Principal materials: Wood, clay, stucco, and stone. The basis of Greek architecture was lintel and post construction, the use of the arch being practically unknown. The column and capital were of three kinds, known as the orders: Doric, Ionic, and Corinthian. The last was developed, to the exclusion of the others, during the later (Hellenistic) period. The greatest period of Greek architecture was the 5th century B.C., during which the Parthenon was built.

Roman architecture took from the Greeks their three orders: Doric, Ionic, and Corinthian, and added a fourth ("Composite") order of its own. From the Etruscans it borrowed the arch and vault, and these were developed into the outstanding feature of the Roman style. Massiveness and solidity were characteristic of their buildings, which consisted of temples, baths, aqueducts, theatres, etc. The finest monuments were erected during the Imperial regime. Traces of these may be found wherever the Roman power penetrated.

The great feature of Byzantine building is the dome, more particularly the dome fitted on to square or octagonal apartments, by means of pendentives. By means of the "cushion" capital, they were also the first builders to "spring" the arch direct from the summit of the column without the employment of an intervening entablature. Brick is the principal material in Byzantine building. The most notable monument of the style is the Cathedral of S. Sophia at Constantinople, completed A.D. 537.

Romanesque is really the continuation in the North and West of Europe of the Byzantine style, and its development was largely in response to the needs of religious ritual. The cushion capital and the barrel vault are both characteristic of Romanesque, as of Byzantine, and similarly the apse is a prominent feature of the Romanesque church.

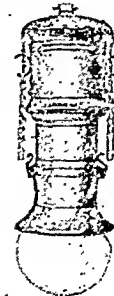
The distinguishing feature is the Pointed Arch, as opposed to the Round Arch. Windows are filled with tracery work, the massive piers of Norman architecture give place to clusters of columns, and capitals are rounded. Verticality is the principle underlying Gothic architecture and the walls and towers of Gothic cathedrals rise to a great height, the buttress often being employed as a support. In English Gothic, the extensive use of ornament was developed during the Decorated and Perpendicular periods.

A reversion to the Classic Principles, modified by the general humanistic influences of the time. Fine planning, proportion, and scale were aimed at, and ornament selected with discrimination.

Assumed a great number of local characteristics, differing according to diversities of climate and material. The cupola, horseshoe arch, and minaret are outstanding features. Construction is mainly light and flimsy compared with Western architecture. Ornamentation is generally very rich and, particularly as regards Indian varieties, fantastic. Colour is freely employed.

siege of 1751 is regarded as the turning point of the British fortunes in India.

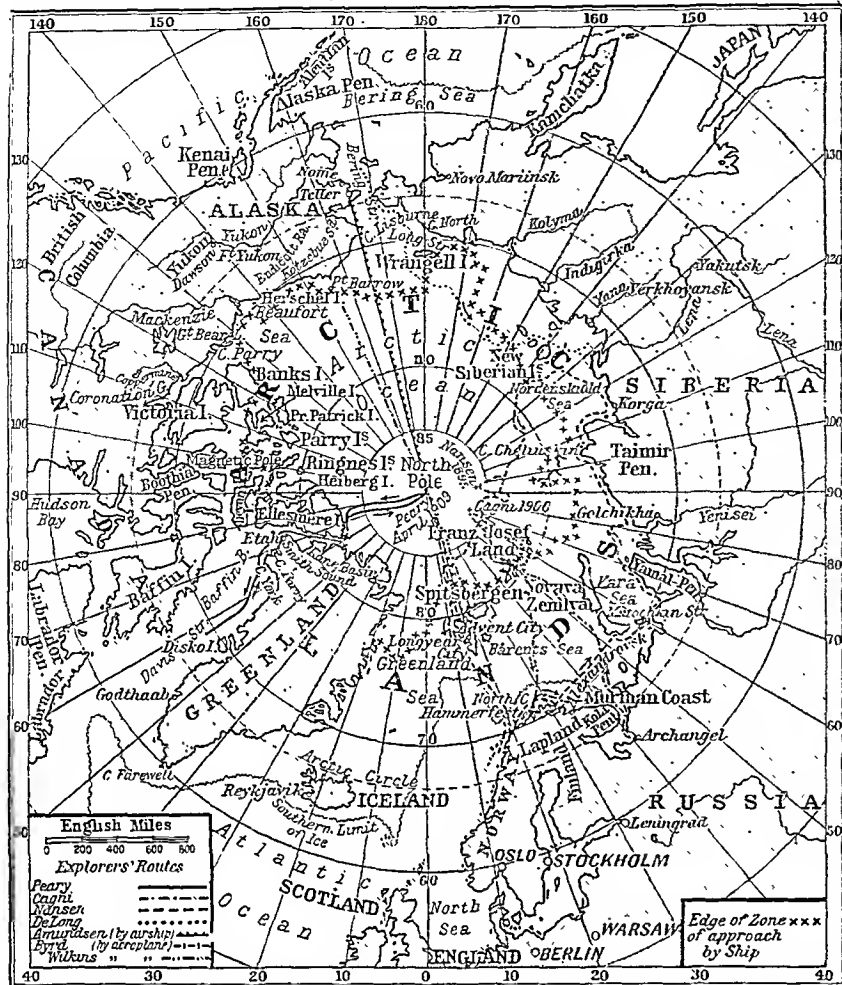
ARCTIC EXPLORATION. The exploration of the North Polar region has been actuated by two motives, the need for new trade routes or new trade commodities and a spirit of geographical inquiry. After the early searches for the N.W. passage and the discovery of Newfoundland by Cabot in 1498, John Davis achieved a farthest north at 72° 41' N., and explored long stretches of the coasts of Greenland and Labrador. Henry Hudson explored the east side of Hudson Bay and was left to his fate by mutineers after a winter in the ice of James Bay, 1610-11. Baffin



Arc Lamp

attained on July 5, 1616, the lat. 77° 45' N., which was a record in that area for 236 years. Parry in 1819 traversed Lancaster Sound and reached 114° W. in 1820 among the Parry Islands, after spending the winter on Melville Island, and by so doing earned a reward of £5,000 offered by the British Government to the explorer who first went westward beyond 110° W.

Other explorers penetrated among the islands north of Canada, and in 1831 James



Arctic Exploration. Map showing the North Polar region and various explorers' routes, including those followed by the Amundsen airship expedition in 1926 and by Wilkins, who in 1928 flew over the Pole in an aeroplane

Clark Ross located the North Magnetic Pole in Boothia Peninsula in $70^{\circ} 5' N$ and $96^{\circ} 44' W$. In 1845 Sir John Franklin sailed with the ships Erebus and Terror, but failed to return.

The search for Franklin marks an epoch in the story of the N.W. passage. On one of the voyages McClure in the Investigator in 1850-3 reached Banks Island, which had been discovered by Parry, and demonstrated that there was a continuous N.W. passage by sea north of Canada. The passage was discovered, but it was not until Roald Amundsen navigated the Gjoa from sea to sea in 1903-5 that a ship made the complete voyage.

The 19th century saw many attempts to reach the Pole, which were chiefly made from the Spitsbergen area on the east and by Smith Sound, north of Baffin Bay, on the west. Parry sailed in the Hecla in 1827 and reached $82^{\circ} 45' N$. north of Spitsbergen, on a sledge journey which kept him 61 days away from the ship. Kane left New York in 1853 in the Advance with the intention of using Eskimo help in a journey to explore N.W. Greenland; he spent two winters in the Arctic, passed through Kane Basin into Kennedy

Channel, and reached $80^{\circ} 10' N$, a record for that region. In 1871 the Polaris in the Hall expedition had the good luck to sail through Kane Basin, Kennedy Channel, Hall Basin, and Robeson Channel into the Polar Sea and to achieve the record for a ship of $82^{\circ} 11' N$.

This success led to the British Nares expedition of 1875; with great difficulty the

ships were taken through the unfavourable ice conditions and the Discovery wintered in Discovery Harbour and the Alert wintered at Floeberg Beach, $82^{\circ} 24' N$. and established a new record; sledge journeys were undertaken and Aldrich beat Parry's farthest by attaining $82^{\circ} 48' N$, and A. H. Markham the next year reached $83^{\circ} 20' N$; coast lands were explored and scientific observations of considerable value were made.

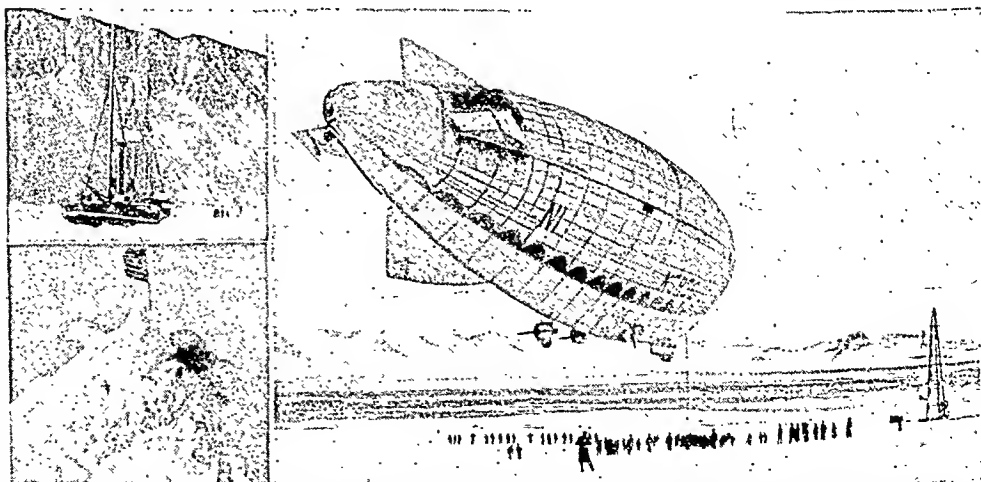
Meanwhile Swedish expeditions had been at work north of Spitsbergen: von Otter took the Sofia to $81^{\circ} 42' N$. in 1868, and Nordenskiöld tried to reach the Pole by reindeer sledging in 1872. In this year Weyprecht and Payer started on an Austrian expedition with the Tegetthof, discovered Franz Josef Land; and reached in 1874 Cape Fligely, $81^{\circ} 51' N$, the nearest known land to the Pole; Leigh Smith in the Eira explored much of this archipelago in 1890-1.

Scientific work in the Arctic received a great impetus by the establishment in 1881-3 of international circumpolar stations. The importance of the scheme lay in the attempt to make throughout a whole year systematic and simultaneous observations by trained scientists at as many spots as possible.

The most notable of these expeditions was that of Greely. Lockwood, his second in command, explored the Greenland coast and discovered Lockwood Island in $83^{\circ} 24' N$, and set up a new record for nearest the Pole; and both made land journeys and explored some 6,000 sq. m. of newly discovered land.

In 1893-6 Nansen made one of the most famous of polar voyages. He had a specially constructed ship, the Fram, and set out deliberately to have his ship beset by the ice in order to drift over the Arctic Ocean and, if lucky, to float over the Pole. Frozen in about $79^{\circ} N$, the Fram drifted along the track shown on the map. Nansen and Jobansen attempted a dash for the Pole over the ice: they reached $86^{\circ} 14' N$. and were ultimately rescued by Jackson in Franz Josef Land. The Fram, under Sverdrup, drifted on, gained $85^{\circ} 57' N$, rounded the N.E. of Spitsbergen and safely reached Norway. In 1899 Sverdrup took the Fram west of Greenland and explored Jones Sound. In the same year the duke of the Abruzzi's expedition sailed for Franz Josef Land, and Cagni reached $86^{\circ} 34' N$. by sledge in 1900. In 1897 a risky attempt to gain the Pole by balloon was made by Andr  ; in it he lost his life.

Robert E. Peary commenced operations in 1886 by a journey on the Greenland ice cap. In 1891-2 and 1893-6 he made journeys



Arctic Exploration. Top left, Peary's ship, Roosevelt, fast in the ice in Robeson Channel. Bottom left, flag hoisted by Peary at the North Pole, April 6, 1909. Right, the airship Norge, used in Amundsen's transpolar flight, 1926, landing at King's Bay, Spitsbergen, en route for the Pole. Rechristened Italia, she was destroyed in Nobile's ill-fated expedition of 1928

across N. Greenland; in 1898-1902 he explored Ellesmere Land, rounded the N. end of Greenland, reached 84° 17' N. He wintered his ship, the *Roosevelt*, in the Arctic Ocean in 1905, and gained 87° 86' N. In 1908 he took the *Roosevelt* to the earlier winter quarters, organized a thorough series of relay expeditions, and gained the Pole on April 6, 1909. Some doubt has been cast upon this exploit, notably by J. G. Hayes in a book published in 1929, but the balance of opinion is that Peary actually reached the Pole.

After the Great War aircraft were much used for polar exploration. In 1926 Amundsen led an expedition in the airship *Norge*, which flew over the Pole on May 11, and landed at Teller, Alaska. Two days before Adm. R. E. Byrd, in an aeroplane flying from Spitsbergen, had also reached the Pole. In 1928 an Italian expedition under General Nobile went out in the *Norge*, renamed the *Italia*. This flew over the Pole, but was forced down on the return journey and destroyed. Several of the crew were lost. In a seaplane Amundsen set out to search for his former colleague Nobile, but was never heard of again. In April 1928 Sir G. H. Wilkins flew over the Pole in an aeroplane, travelling from Port Barrow in Alaska to Spitsbergen, the reverse route from that taken by Nobile.

ARCTIC OCEAN. Term applied generally to the waters N. of Europe, Asia, and America. These include the Greenland or Norwegian Sea between Greenland and Norway, the Barents Sea N. of Europe, the White Sea, the Kara Sea between Novaia Zemlia and Yamal Peninsula, and the Beaufort Sea N. of Alaska. It communicates with the Atlantic by Davis Strait, Denmark Strait, and the sea between Iceland and Norway. Its only connexion with the Pacific is by Bering Strait.

The Greenland Sea and the Barents Sea are the only parts of the ocean which are not blocked by ice in winter. In summer the pack-ice of the Arctic Ocean is more or less loose, but dense enough to prevent navigation except in the Greenland, Barents, and White Seas, along the N. coasts of Europe, Asia, and Alaska, and in Davis Strait and Baffin Bay. For this reason the north-west and the north-east passages, although both accomplished by exploring vessels, are useless for commerce. See Baffin; Novaia Zembla; Spitsbergen; Wrangell, etc.

The Arctic circle is a parallel of latitude drawn 23½ degrees (approximately) from the North Pole. See Antartica.

ARCTURUS OR **ALPHA BOÖTIS** (Gr. arktos, bear; ous, guard). Principal star in the constellation of Boötes, the Herdsman, and the brightest star in the northern sky. Its speed of movement has been estimated at 257 m. a second, and its light must be many hundred times that of the sun. Starting from the pole star, the last star in the handle of the plough leads straight to Arcturus.

ARDAGH. Village of Limerick, Irish Free State. Here in 1868 was found a chalice the sole surviving chalice of Celtic craftsmanship. Of the 8th or 9th century, it is a two handled pede stalled cup, 7 ins. high, 9½ ins. across composed of 354 pieces silver (20½ oz.), bronze, gold, lead, enamel, glass, amber and mica. Its ornament includes scrollwork, filigree interlacings, and the names of the apostles.



Ardagh Chalice. Richly decorated vessel of 8th or 9th century Celtic work. Dublin Museum

ARDECHE. Department of S.E. France. Bounded E. by the Rhône and named after its tributary, the Ardèche, it contains part of the ancient prov. of Languedoc and has an area of 2,144 sq. m. Privas is the capital, Annonay is a manufacturing town, and Viviers is the seat of the bishop, whose diocese is equivalent to the department. Pop. 289,263.

ARDEE. Market town of co. Louth, Irish Free State. On the Dee, 48 m. N.W. of Dublin by the G.N. of Ireland Rly., it has a grain trade, distilleries, and tanneries, and manufactures baskets. Formerly the seat of a Carmelite friary, it has a 13th century castle, now the town hall, and was chartered in 1377. Market day, Tues. Pop. 1,729.

ARDEN, FOREST OF. A district of Warwickshire, England. To the N. of the Avon, it was formerly a much larger forest tract. Still well-wooded, it is known as the woodland country, as distinct from the feldon, or open country to the S. of the river. Shakespeare was well acquainted with the forest, which inspired his description of forest scenery in *As You Like It*.

ARDENNES. A range of wooded hills in France, Belgium, and Luxembourg, on either side of the Meuse. It is the remains of a great forest which, extending probably to the Rhine, is mentioned by Caesar and other early writers. The Belgian Ardennes, i.e. the woods to the E. and S. of Dinant, were, before the Great War, a popular holiday resort. Game and wild animals are plentiful, and include the wild boar, for which the district was once noted. Coal, iron, lead, and other minerals are worked.

A department of France, situated on the Belgian frontier, called Ardennes. Area 2,027 sq. m.

ARDGLASS. Town of co. Down, Northern Ireland, formerly important. Picturesquely situated at the head of a small bay, 6 m. S.E. of Downpatrick, it is served by a branch line of the Belfast and County Down Rly. The harbour is a station for the herring fishing fleet. There are ruins of several old castles or forts, said to have been built as stores by an English trading company in the reign of Henry IV. Pop. 786.

ARDNAMURCHAN. Parish of Argyllshire, Scotland. The estate of Ardnamurchan is noted for its deer forests, beautiful rocky scenery, and salmon fisheries, and contains the ruins of Mingary Castle, the ancient seat of the MacLans. Ardnamurchan Point, with a castle-like lighthouse, is the westernmost extremity of the mainland of Great Britain.

ARDOCH. Village of Perthshire, Scotland. It is 12 m. N.N.E. of Stirling, and has the best-preserved Roman camp in Britain. The camp is 500 ft. long by 430 ft., has huge ramparts and deep ditches, and retains three of its four gates.

ARDRISHAIG. Village and port of Argyllshire, Scotland. It is 19 m. S.W. of Inveraray, on the W. shore of Loch Gilp, near the S. end of the Crinan Canal. A little N. is the port of Lochgilphead, with a large cattle trade and a fishing industry. Pop. 1,285.

ARDROSSAN. Burgh, seaport, and watering place of Ayrshire, Scotland. It is 30 m. by rly. S.W. of Glasgow, on the L.M.S. Rly. Shipbuilding, engineering, and fishing are the leading industries, and chemicals and coal the chief exports. The town owes its rise to the harbour, which was begun in 1806 by the 12th earl of Eglinton and completed in 1833. Ardnassan has ruins of the castle of the Montgomeries. Pop. 7,214.

ARDSLEY. Urban dist. of Yorkshire. It is 4 m. N.E. of Wakefield, by the L.N.E. Rly., has extensive collieries, and manufactures woollens and bricks. It is divided into East and West Ardsley. Pop. 7,058.

ARECA. Genus of lofty tropical palms. They have a crown of long, graceful leaves which are broken up into numerous slender leaflets in two rows. A catechu, of India, produces betel nuts and catechu.



Areca catechu, Indian palm which produces betel nuts

ARENA (Lat. sand). Term specially applied to the sanded circular space reserved for gladiatorial combats in the centre of the ancient Roman amphitheatre. It is also used generally for any space or enclosure in which public contests are held, and figuratively for the scene of action of political or other struggles. The sand was to prevent the combatants from

slipping. See Amphitheatre; Circus

Areng. Fibre of the East Indian palm *Arenga saccharifera*, known in commerce as Gomuti fibre. See Gomuti.

ARENIG. Mountain in N. Wales. In Merionethshire, its highest peak is 2,800 ft. high. The railway station of Arenig, on the G.W. line, is 7 m. from Bala.

The Arenig series, the lowest major subdivision of the Ordovician system, is seen here. It is composed mainly of grits and dark shales, which yield a highly characteristic fauna of graptolites and trilobites. Rocks of this age occur in Western Europe, Bohemia, the Eastern U.S.A., Canada, Australia, and New Zealand. In Britain the Arenig was a period of widespread volcanic activity.

AREOPAGUS (Gr. Hill of Arēs). Hill in Athens, W. of the Acropolis, on which stood a temple to Arēs. It was the meeting-place of the famous council of the Areopagus, an assembly of elders drawn exclusively from the noble classes. Originally the governing body of Athens, its powers were limited by the constitution of Solon, later by that of Cleisthenes, and further reduced by Epialtes in 462 B.C. See Athens.

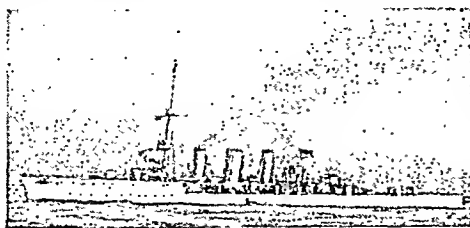
AREQUIPA. City of Peru. The capital of Arequipa department, it is 107 m. by rly. N.N.E. of Mollendo, its port, and stands on the Rio Chile, 7,750 ft. high, at the foot of El Misti or Arequipa volcano. It is the seat of a bishop, and has a university. It was founded in 1540 by Pizarro and has suffered severely from earthquakes. Near are hot mineral springs and an observatory founded by Harvard University. Pop. 58,000.

ARES. In Greek mythology, the god of war, identified by the Romans with the old Sabine deity Mars. Arēs was the son of Zeus and Hera, and the lover of Aphrodite. In the struggle between Zeus and the Titans he was kept prisoner in Hades for 15 months by the giants Otus and Ephialtes. During the Trojan War he sometimes took the field on behalf of the Trojans. He had a temple on the Areopagus, but the original home of his worship is supposed by some to have been Thrace, by others Boeotia. In art Arēs is represented sometimes as a bearded man, sometimes as a beardless handsome youth.

ARETHUSA. In Greek mythology, a nymph of Elis. While bathing she was seen and amorously pursued by the river god Alpheus. At her entreaty, Artemis changed

her into a fountain which disappeared underground, rising again in the island of Ortygia, near Syracuse in Sicily. Alpheus is said to have mingled his stream with that of Arethusa, and it was popularly supposed that anything thrown into the river came up again at Ortygia.

ARETHUSA. British warship, the first of her type of fast, lightly armoured cruisers specially designed to operate against hostile destroyers. She left the dockyard on Aug. 26, 1914, to hoist the broad pennant of Com-modore R. Y. Tyrwhitt, commanding the Grand Fleet destroyer flotillas. Two days later she took part in the battle of Heligoland Bight. She assisted in conveying into Heligoland Bight the seaplanes which raided Cuxhaven on Dec. 25, 1914, and on Jan. 24 following played a creditable part in the Dogger Bank battle. On Feb. 11, 1916, she was mined in the North Sea.



Arethusa. British fast cruiser completed in 1914. She was wrecked by a mine in the North Sea on Feb. 11, 1916

AREZZO. Town of Italy. The capital of Arezzo province and an episc. see, it stands near the junction of the rivers Arno and Chiana, 54 m. by rly, S.E. of Florence. It is the ancient Arretium, and was one of the twelve Etruscan cities. The Gothic cathedral, begun in 1277, contains fine sculptures and the tombs of Gregory X and Tarlati di Pietramala, its warlike bishop. Other buildings are the 11th century church of S. Maria della Pieve, and the museum. The industries include pottery and silk and cloth manufactures. Famous natives are Maecenas, Petrarch, Vasari, and Spinello Aretino, the painter. Pop. 58,296.

ARGAEUS, MOUNT (Turk. Arjish Dagb). Extinct volcano, and the loftiest summit in Asia Minor. It has two craters and is regarded as 11,480 ft. high; one estimate makes it nearly 2,000 ft. higher. On a spur on the Taurus range, a few miles from Caesarea, it has not been in eruption for many centuries but the neighbourhood shows abundant signs of its past activities.

ARGALI. Wild sheep found in the Altai Mts. and on the steppes of Siberia. It is about the size of a small donkey, and has magnificent,



Argali. Wild sheep of the Altai Mountains

closely ribbed horns, which form almost a complete circle. It is pale brown in colour with a white face, and in winter a large ruff of white hair develops round the neck. The argali is found at an altitude of from 3,000 ft. to 4,000 ft., the flocks keeping to the same feeding ground from year to year. The flesh, very dark in colour, makes good mutton.

ARGALL, SIR SAMUEL (c. 1585-1626). English adventurer. He went to Virginia in 1609, and in 1612 he abducted the Indian princess Pocahontas, and held her a willing prisoner as a means to secure peace with the Indians. He was deputy governor and admiral of Virginia, 1617-19, and served in an expedition against Algiers in 1620. He was knighted in 1622.

ARGAND BURNER. Oil lamp and gas-burner, named after Aimé Argand of Geneva (1755-1803). Its cardinal principle was a cylindrical wick and the admission of air below to the inside of the cylinder, thus giving the maximum of contact surface between the

fuel and the flame for the space occupied, and also increased illumination through the admission of air to the inside of the flame. The better class oil lamps of to-day are improvements on the Argand burner.

ARGAUM OR ARGAON. Town in Berar, India, 31 m. N. of Akola. It is notable for the battle fought Nov. 28, 1803, between the British under General Wellesley, afterwards the duke of Wellington, and the troops of the Mahratta chieftains, who were defeated. The name Argaum means the city of wells.

ARGENSON. Name of a French noble family, some members of which were noted politically in the 18th and 19th centuries.

Marc René de Voyer. Marquis d'Argenson (1652-1721), was appointed lieutenant-general of the Paris police in 1697. In 1718 he was made president of the council of finance, but had to resign in 1720.

His elder son, René Louis de Voyer (1694-1757), was made councillor of state in 1719 and in 1744 member of the council of finance and foreign minister. The friend of Voltaire and the philosophers, he endeavoured unsuccessfully to establish a European alliance of nations.

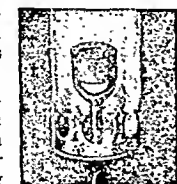
Marc Pierre de Voyer (1696-1764), younger son of the lieutenant-general of police, was made councillor of state in 1724 and minister of war in 1743. He introduced important army reforms. He died Aug. 22, 1764.

Marc René Marie de Voyer (1771-1842), grandson of the minister of war, entered the army in 1789: he supported the Revolution, and was for a time aide-de-camp to Lafayette. In 1809 he was made prefect of Deux-Nèthes (Antwerp), and helped to drive the English from Walcheren. He was deputy for Belfort during the Hundred Days, and in 1830 represented Strasbourg as an advanced Radical. He died Aug. 1, 1842.

ARGENTEUIL. Town of France, in the department of Seine-et-Oise. It stands on the Seine, 7 m. N.N.W. of Paris, of which it is a suburb. In its church is a garment said to be the seamless coat of Christ. Pop. 32,173.

ARGENTINA OR THE ARGENTINE. A vast republic occupying the greater part of the southern extremity of South America. It is separated from Chile by the Cordillera, from Uruguay by the river of that name, from Paraguay by the Paraná and its great affluents. The Brazilian frontier, but for a small intervening stretch, is marked by the rivers Uruguay and Iguaçu and their affluents. The Pilcomayo runs along part of the Bolivian frontier.

The area of the Argentine is 1,153,119 sq. m., and the pop. exceeds 10,000,000, of which about 2,280,000 are foreigners. Most of the population is Roman Catholic. Buenos



Argand burner

Aires is the capital: Rosario, Córdoba, and La Plata are the next largest cities. In 1919 the country became a member of the League of Nations.

Apart from the Pampa, or prairie, which contains the chief towns, the greater part of the population, and the bulk of the commerce

and industry, Argentina extends N. into the tropical forests and S. to the shores of the Antarctic Ocean. Westward, it climbs to more than Alpine heights, where the summits of the Cordillera divide it from Chile. Thus, within its limits are to be found every conceivable variety of climate, altitude, and physical features: the towering volcanic snow-clad peaks of the Andes, rivers winding through the tropical forests and swamps of the Chaco, the sub-tropical wooded region of Andine slopes and spurs, the lofty desert plateau embraced between the mountain chains, the irrigated vineyards of Mendoza, the salt deserts and lakes which border upon the Pampa, with their peculiar basins of inland drainage and disappearing rivers, and finally the windy terraces of Patagonia stretching away to the islands and rocky capes of the Southern Ocean.

The population of Argentina is more distinctly European in origin than that of any other Latin-American country. At the epoch of independence the people were chiefly of Spanish race, and the flood of later immigration has come chiefly from the Latin countries of S. Europe. More than half the people have been born in Europe or of European parents settled in Argentina. Spanish is the official language, the tongue of the bulk of the people, of the press, and of literature.

The outstanding fact in Argentine conditions is the prodigious recent economic development, the great creation of new wealth.

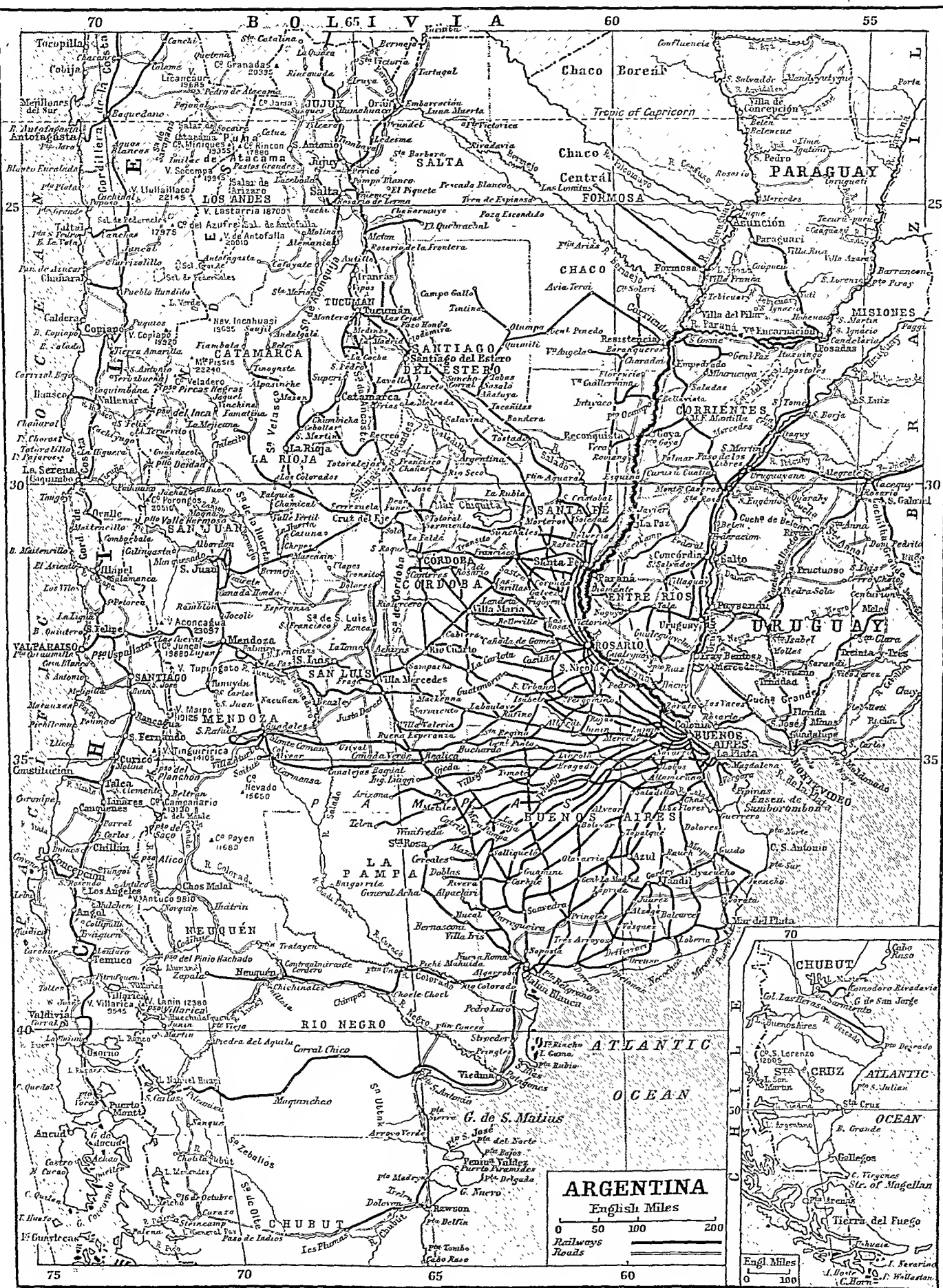


Argentina. Left, types of one of the few native Indian races. Right, a Gaucho, Spanish-American horseman of the Pampas

To-day Argentina is in the forefront among countries producing and exporting food and raw material. Wheat, oats, maize, linseed, wool, chilled or frozen meat, hides—these spell her wealth and prosperity. Cotton, sugar, and tobacco are also cultivated. The principal industry is meat refrigeration, and flour milling ranks next. Exports consist largely of live stock products and agricultural products, while textiles, iron and steel, foodstuffs, glassware, and oil are the chief articles imported. On Jan. 1, 1928, there were 22,971 miles of railway lines in the republic, of which 4,418 belonged to the state. Aviation has developed rapidly. Aerial routes have been established from Buenos Aires to Salta, Catamarca, Posadas, Corrientes, Mendoza, and San Juan, and there is an aerial post service between Buenos Aires and Montevideo. There are over a dozen stations for wireless telegraphy.

HISTORY. Argentine history begins in 1535, when Pedro de Mendoza was sent out by the King of Spain and founded a settlement which he named Buenos Aires. Famine and the attacks of savages compelled the settlers to migrate and, sailing up the river, they founded Asunción. Soon some returned, and Buenos Aires became the centre of a province under a Spanish governor responsible to Peru. It soon acquired a predominating position.

In 1806 a British expedition from Cape Town captured Buenos Aires, but the troops were soon forced to surrender, and in the next year another British expedition, failing to regain



the lost city, signed a treaty and departed. These events prepared the way for independent movement. The invasion of Spain and the seizure of the Spanish royal family by Napoleon precipitated such a movement. In May, 1810, the deposition of the viceroy virtually effected the bloodless revolution which was completed six years later, when the congress of Tucuman, representing most of the provinces, solemnly proclaimed independence.

After twenty years of civil wars, confused personal rivalries, and ephemeral attempts at constitution making, Buenos Aires sank into uneasy tranquillity under the rule of the Gaucho tyrant Rosas. The fall of Rosas in 1853 brought relief, but not immediate peace. The other provinces resented the preponderance of Buenos Aires, and for seven years that province formed a republic apart from the confederation, which made Paraná its capital.

Reunion followed, but the cause of trouble remained, until the question was settled by forming the capital of the republic into a federal district. This arrangement of the federal system may be said in a large sense to have brought about internal tranquillity, notwithstanding some disturbance in 1890 and occasional troubles in the provinces. A steady influence was found in the astonishing economic growth, a minor influence being the introduction of wire fencing, which impeded the movements of Gaucho cavalry.

The disputes concerning the Chilean frontier, which menaced the peace of the country, were amicably adjusted. The last and most troublesome of these, the delimitation of the Andine boundary, was settled by the arbitration of King Edward VII in 1902. Simultaneously with the completion of the federal system in 1880 the republic practically acquired a great increase of rich territory through the conquest of the desert by General Roca in 1878. Previously the Indian frontier was in parts scarcely 200 m. from the capital. Roca in an organized campaign swept the country as far as the Rio Negro, and made the Pampa safe.

The Great War upset the republic's economic equilibrium. But the shock imposed the need of thrift and self-dependence, and the recovery which followed was remarkable. The meat freezing industry received a great stimulus. Argentina became in a limited degree a creditor nation by advancing credits to the Allies for the purchase of Argentine cereals. The restriction of imports and the consequent increase of money in the country produced a notable industrial or manufacturing movement. For Argentina, possessing money at home and unable to purchase abroad, proceeded to supply herself by weaving wool and cotton, tanning leather and manufacturing boots and other articles.

CONSTITUTION, ETC. The republic consists of 14 provinces, 10 territories and the federal district of Buenos Aires. With certain slight exceptions its constitution is identical with that of the U.S.A. The executive power is in the hands of a president elected for a year and a council of ministers appointed by him. The president must be a Roman Catholic and a native. The legislative authority is vested in Congress, which consists of a Senate and a House of Deputies. In 1928 Hipolito Irigoyen became president in succession to M. T. Alvear.

The army consists of a national militia, in which all males must serve. There is an air force. The mint of currency is the gold dollar, five going to the pound sterling. It is divided into 100 centavos. The metric system of weights and measures is compulsory.

Consult *The Argentine Republic*, A. S. Pennington, 1910; *Argentina*, W. A. Hirst, 1914; *The Argentine Through English Eyes*, J. A. Hammerton, 1916; *Argentina of To-day*, L. E. Elliot, 1926.

ARGENTITE. One of the principal ores of silver. It is a sulphide, composed of about 86.5 silver and 13.5 sulphur, and is always found combined with other sulphides, particularly those of copper and lead. See Silver.

ARGENTORATUM.

Latin name for Strasburg. It was used by the early printers. Most of the books printed at Strasburg in the 15th, 16th, and 17th centuries bear the impress Argentoratum. See Strasburg.

ARGESUL, ARGESH or **ARJISH.** River of Rumania. Rising in the Transylvanian Alps, it flows for about 150 m. S. and S.E. to the Danube below Oltenita.

An important battle was fought on Nov. 30-Dec. 3, 1916, between the Austro-Germans and the Rumanians on the Argesul. Unable to hold the line of the Oltu, because it had been turned from the S. by Mackensen's passage of the Danube at Sistova, Nov. 23, 1916, the Rumanians made a stand so as to save Bukarest. At first they were successful and it looked as if the Germans would meet with a serious defeat, but they were reinforced in time, whereas the Rumanian reinforcements failed to come up. The result was a heavy defeat for the Rumanians and the evacuation by them of their capital, Bukarest, which was occupied by Mackensen on Dec. 6.

Argives. (Gr. Argeioi; Lat. Argivi). Inhabitants of Argos in Greece. Homer uses the term for the Greeks in general. See Argos.

ARGOL. Crude acid potassium tartrate deposited from wine. When grape juice ferments argol is deposited as a crystalline crust on the sides of the vat, and when this is recrystallised it is known as tartar; from tartar, by further purification, cream of tartar is obtained. Argol is also used for the preparation of tartaric acid.

ARGOLIS. A district of ancient Greece. Occupying the N.E. part of Peloponnesus, bordering the Gulf of Aegina or the Saronic Gulf, and the Argolicus Sinus or Gulf of Nauplia, it was the territory surrounding Argos. It became part of the Roman prov. of Achaia in 146 B.C. It has many legendary associations, including that of the Lernean Marsh, where Hercules slew the Hydra. Argolis, with Corinth, now forms a nome of modern Greece. Its capital is Nauplia. Pop. 174,320.

ARGON (Gr. argos, inert). One of the gases which go to make up the atmosphere. It exists in the proportion of one part in 160 parts of air. It is classed as an element, symbol A, with an atomic weight of 39.91, and the atomic number is 18.

Argon is a colourless inert gas, and does not combine with any other element. It can be liquefied and solidified. Argon is prepared from the air, and is of com-

mercial use in filling the bulbs of the tungsten electric lamps, for which purpose it is better than nitrogen.

ARGONAUT. Cuttle fish of the genus *Argonauta*. The ribbed, translucent shell is secreted by the flat expansions of two of the tentacles, and is not attached to the body. It serves as a receptacle for the eggs. The argonaut is common in the tropic seas; one species, the paper nautilus, inhabits the Mediterranean.



Argonaut, or paper nautilus. The upper figure shows the animal swimming

ARGONAUTS (Gr. sailors of the Argo). In Greek mythology, the heroes who, under the leadership of Jason, sailed to Aea or Colchis, on the Black Sea, in search of the Golden Fleece. They were so called from the name of the 50-oared ship Argo, which was built by Argos, one of the heroes.

After an eventful voyage Jason and the Argonauts arrived at Colchis, whose king, Aeetes, consented to surrender the Fleece to Jason provided he fulfilled certain conditions. By the help of the magic powers of Medea, the king's daughter, Jason succeeded in this, and, obtaining possession of the coveted prize, started on the return journey, taking with him Medea and her young brother Absyrtus. In spite of the pursuit of Aeetes, the lures of the Sirens and of storms, the voyagers returned to Iolcus. See Jason; Medea.

ARGONNE. District in E. France, known from its wooded character as the forest of Argonne. In the departments of Ardennes and Meuse, between Toul and Mézières, on high ground between the basins of the Meuse and the Aisne, it is about 10 m. wide from east to west and 40 m. long.

The Argonne was the scene of incessant fighting throughout the Great War. It had strategic importance, as a successful advance through it would have made Châlons and Verdun untenable. Throughout 1915 and 1916 the fighting here was of a minor character.



Argonauts. Jason and his companions speeding between the Symplegades, cliffs which closed on anything that attempted to pass. See article above. After an engraving by Picart

though the Germans attacked in June, 1915, in considerable strength. The greatest fighting in the Argonne was in the autumn of 1918, when Foch determined to clear the district and to strike at the vital Mézières-Montmédy rly. A large force was employed, consisting principally of American troops supported by a French force. The initial American attack on Sept. 26 was successful, and after experiencing set-backs the troops of the U.S.A. steadily advanced, so that by the end of October the Germans had fallen back on the W. bank of the Meuse. Early in November the combined French and American forces achieved a decisive victory, and the whole of the Argonne region was cleared of the Germans.

ARGOS. City of ancient Greece. In Argolis, 3 m. inland from the head of the Gulf of Nauplia, and said to be the oldest city of Greece, it became the nucleus of a kingdom, with Mycenae as capital. It fell in the 7th century B.C. under the influence of Sparta, but remained independent until conquered by the Romans in 146 B.C. Remains include those of the Heracum or temple of Hera. Argos was famed for its sculptors in bronze and for its musicians. The modern Argos has remains of its cyclopean walls and rock-hewn amphitheatre. Pop. 9,038. See Greece.

ARGOSTOLI. City and seaport of the Ionian Islands, Greece. The capital of Cephalonia Island, it stands on the E. shore of the Gulf of Argostoli, and has a good harbour and a naval school. It has a ship-building industry, exports currants, wine, and oil, and is noted for its mills, driven by sea-water flowing through an artificial cut. In the neighbourhood are the ruins of Craniil. Pop. 7,404.

ARGOSY. Term used, generally figuratively, in the sense of a richly laden ship. Though popularly connected with the vessel Argo in which Jason bore off the Golden Fleece, the word was said in the 17th century to be derived from Aragouse, a corruption of Ragosie, by which was meant a ship from the wealthy medieval port of Ragusa, on the Adriatic. The name is given to a monthly magazine issued by the Amalgamated Press.

ARGOT. French term for slang. It is applied to the colloquial language of general society; the special vocabulary of a class, community, profession, or calling; and—the earliest meaning—the jargon of thieves, rogues, and vagabonds, intelligible only to the initiated. Villon wrote some poems in argot.

ARGUS. In Greek mythology, a being with 100 eyes, of which only two slept at a time. Hera appointed him guardian of Io, whom Zeus had changed into a heifer, but all his eyes were lulled to sleep by the lyre of Hermes, whom Zeus had sent to fetch Io. Hera thereupon put his eyes on the tail of a peacock, the bird sacred to her. Argus was also the name of the dog of Ulysses, who died from joy when his master returned.

The argus pheasant, a species found in Malay and Sumatra, is so called by reason of the beautiful eye-like spots on its plumage.

ARGYLL, EARL AND DUKE OF. Scottish titles

borne by the family of Campbell. Duncan Campbell, of Lochow, was made a lord of Scotland about 1400, and his grandson Colin earl of Argyll in 1457. The title passed down from his son Archibald, the 2nd earl, who was killed at Flodden in 1513, to another Archibald, the 5th earl (1530-1573), a prominent figure during the troubled reign of Mary Stuart. The 8th earl (1607-1661) figured largely in

Scottish history in the time of Charles I and Charles II. After the Restoration he was beheaded and the titles and estates were forfeited, but these were restored to Archibald, the eldest son of the 9th earl, after the revolution of 1688. At this time he was of great assistance



Argyll: four members of a notable family. Left to right, Archibald Campbell, Marquess of Argyll; Archibald Campbell, 8th Earl; George Douglas, 8th Duke; John Douglas Sutherland, 8th Duke, after a painting by Sir John Millais

to William of Orange, who rewarded him with a dukedom in 1701.

John, the 2nd duke, was also duke of Greenwich, a title which became extinct when he died in 1743. When the 3rd duke died in 1761 the senior line became extinct and the inheritance passed to a descendant of the 9th earl. John, the 5th duke, who married Elizabeth Gunning, was made a peer of Great Britain in 1766. He was succeeded by his two sons in turn and then by a grandson, George (1823-1900), who became the 8th duke in 1837.

Prominent in public life for many years, this duke was regarded as one of the great orators of his day. He was secretary for India, 1868-74, and filled other positions before he became a Unionist on the proposal to give Home Rule to Ireland. His books include *The Reign of Law*, and he died April 24, 1900. His son John, the 9th duke, was long known as the marquess of Lorne. He married Louise, a daughter of Queen Victoria, and was governor-general of Canada 1878-83. When he died in 1914 the titles and estates passed to a nephew, Niall Diarmid Campbell (b. 1872), who became the 10th duke.

The duke is hereditary master of the royal household in Scotland. He owns estates in Argyllshire, his chief seat being Inveraray Castle. His eldest son is usually known as the marquess of Lorne.

ARGYLL AND SUTHERLAND HIGHLANDERS. Kilted regiment, a union of the old 91st (Argyllshire Highlanders) and the 93rd (Sutherland Highlanders). The former was raised in 1794 by the duke of Argyll, and the latter by the earl of Sutherland in 1800. The old 91st specially distinguished itself in the Peninsular War. In the Crimean War the 93rd Sutherland Highlanders won renown at the Alma and Balaclava. The regiment bore an honourable part in quelling the Indian Mutiny, and went through the South African War. Many battles fought in the Great War. The regimental depot is at Stirling.



A. and S. Highlanders' Badge

ARGYLLSHIRE. A western maritime county of Scotland. It includes most of the Inner Hebrides, Mull, Islay, Jura, Tiree, Coll, Lismore, Colonsay, and its area is 3,110 sq. m. Inland communication is afforded by the L.M.S. and L.N.E.R. and the Crinan Canal. The coast is broken by many sea-lochs (Linnhe, Fyne, Moidart, Sunart, Long) and land projections (Ardnamurchan, Morven, and Kintyre, etc.).

The surface is generally rugged and mountainous (Bidean nam Bian 3,766 ft., Ben

Cruachan 3,689 ft., Stob Ghabhar 3,565 ft., Ben Ime 3,318 ft., Ben More 3,169 ft.), with low-lying coast districts. Loch Awe is the largest lake, and the principal streams are the Orchy and Awe. Sheep and cattle rearing and herring and salmon fishing are the main

industries. Slate is quarried at Easdale and Ballachulish, and coal is worked near Campbeltown. Kinlochleven has aluminium works. Inveraray is the county town. Pop. 79,000.

LITERARY ASSOCIATIONS. Dr. Johnson's Journey

to the Western Highlands touches upon Inveraray and other places. The Scott associations include *The Legend of Montrose* and *The Lord of the Isles*. Campbell wrote *Lines on Visiting a Scene in Argyllshire*, and *Loch Gail is the scene of Lord Ullin's Daughter*. Glen Croe has a seat which inspired Wordsworth's *Rest and be Thankful*. See map. p. 124.

ARIADNE. In Greek mythology, the daughter of Minos, king of Crete. Theseus, on his arrival in Crete with the tribute of young men and maidens to be devoured by the Minotaur, was shown by Ariadne how to find his way out of the labyrinth, the monster's dwelling-place, by means of a ball of thread. He took Ariadne away with him, but deserted her on the island of Naxos while she slept. Here the god Dionysus (Bacchus) found her, took her to wife, and set her crown among the stars. Ariadne was a nature goddess, whose desertion by Theseus and marriage to Dionysus symbolise the death and revival of vegetation in winter and spring respectively. See *Minotaur*; *Theseus*.

The name Ariadne was given to a British protected cruiser of the Diadem class. She was torpedoed July 26, 1917.

ARIANISM. Name given to the doctrine, maintained by Arius, a priest of Alexandria, in the 4th century, denying that Christ was equal to or was of the same substance with God the Father. Athanasius was its great opponent. The controversy became acute, and in 325 the Council of Nicaea condemned Arius and formulated the earliest published declaration of the Catholic Faith—the Nicene Creed. Words of anathema were added.

Arianism, however, lived on. The heresy spread among the Goths in Thrace and Italy, the Vandals in Africa, and in parts of Spain and Gaul, until suppressed under Clovis. It reappeared in the 16th century in Poland, and had its supporters in England in the 17th, 18th and 19th centuries. To-day it exists only in the forms of Unitarianism, Socinianism, and Deism. See *Athanasius*.

ARIEGE. A department of S. France. It is bordered on the S. by the Pyrenees, of which it includes some of the highest peaks, and is watered by the Ariège and the Salat. Agriculture, the rearing of cattle, sheep, and goats, the cultivation of the vine, and the mining of iron and other minerals are the chief industries. Foix is the capital. The area is 1,892 sq. m. Pop. 167,498.

ARIEL. Man of Moab whose two sons were slain by Benaiah, son of Jehoiada (2 Sam. 23; 1 Chron. 11. R.V.). The name occurs on the Moabite stone in allusion to an altar, is used as the name of a man in Ezra 8, and applied symbolically to Jerusalem in Isaiah 29, and in Ezek. 43 to the altar of burnt offerings. The word means lion, or altar, of God.

In English folk tales Ariel is the name given to a delicate, gossamer-winged fairy, such as the sprite who waits on Prospero's commands in Shakespeare's comedy, *The Tempest*.



Argus Pheasant, bird of beautiful plumage. It is a native of Malaysia

the lost city, signed a treaty and departed. These events prepared the way for independent movement. The invasion of Spain and the seizure of the Spanish royal family by Napoleon precipitated such a movement. In May, 1810, the deposition of the viceroy virtually effected the bloodless revolution which was completed six years later when the congress of Tucuman, representing most of the provinces, solemnly proclaimed independence.

After twenty years of civil wars, confused personal rivalries, and ephemeral attempts at constitution making, Buenos Aires sank into uneasy tranquillity under the rule of the Gaucho tyrant Rosas. The fall of Rosas in 1853 brought relief, but not immediate peace. The other provinces resented the preponderance of Buenos Aires, and for seven years that province formed a republic apart from the confederation, which made Paraná its capital.

Reunion followed, but the cause of trouble remained, until the question was settled by forming the capital of the republic into a federal district. This arrangement of the federal system may be said in a large sense to have brought about internal tranquillity, notwithstanding some disturbance in 1890 and occasional troubles in the provinces. A steadying influence was found in the astonishing economic growth, a minor influence being the introduction of wire fencing, which impeded the movements of Gaucho cavalry.

The disputes concerning the Chilean frontier, which menaced the peace of the country, were amicably adjusted. The last and most troublesome of these, the delimitation of the Andine boundary, was settled by the arbitration of King Edward VII in 1902. Simultaneously with the completion of the federal system in 1880 the republic practically acquired a great increase of rich territory through the conquest of the desert by General Roca in 1878. Previously the Indian frontier was in parts scarcely 200 m. from the capital. Roca in an organized campaign swept the country as far as the Río Negro, and made the Pampa safe.

The Great War upset the republic's economic equilibrium. But the shock imposed the need of thrift and self-dependence, and the recovery which followed was remarkable. The meat freezing industry received a great stimulus. Argentina became in a limited degree a creditor nation by advancing credits to the Allies for the purchase of Argentine cereals. The restriction of imports and the consequent increase of money in the country produced a notable industrial or manufacturing movement. For Argentina, possessing money at home and unable to purchase abroad, proceeded to supply herself by weaving wool and cotton, tanning leather and manufacturing boots and other articles.

CONSTITUTION, ETC. The republic consists of 14 provinces, 10 territories and the federal district of Buenos Aires. With certain slight exceptions its constitution is identical with that of the U.S.A. The executive power is in the hands of a president elected for a year and a council of ministers appointed by him. The president must be a Roman Catholic and a native. The legislative authority is vested in Congress, which consists of a Senate and a House of Deputies. In 1928 Hipolito Irigoyen became president in succession to M. T. Alvear.

The army consists of a national militia, in which all males must serve. There is an air force. The mint of currency is the gold dollar, five going to the pound sterling. It is divided into 100 centavos. The metric system of weights and measures is compulsory.

Consult The Argentine Republic, A. S. Pennington, 1910; Argentina, W. A. Hirst, 1914; The Argentine Through English Eyes, J. A. Hammerton, 1916; Argentina of To-day, L. E. Elliot, 1926.

ARGENTITE. One of the principal ores of silver. It is a sulphide, composed of about 86.5 silver and 13.5 sulphur, and is always found combined with other sulphides, particularly those of copper and lead. See Silver.

ARGENTORATUM.

Latin name for Strasbourg. It was used by the early printers. Most of the books printed at Strasbourg in the 15th, 16th, and 17th centuries bear the impress Argentoratun. See Strasbourg.

ARGESUL, ARGESII or **ARJISH.** River of Rumania. Rising in the Transylvanian Alps, it flows for about 150 m. S. and S.E. to the Danube below Oltenitsa.

An important battle was fought on Nov. 30-Dec. 3, 1916, between the Austro-Germans and the Rumanians on the Argesul. Unable to hold the line of the Oltu, because it had been turned from the S. by Mackensen's passage of the Danube at Sistova, Nov. 23, 1916, the Rumanians made a stand so as to save Bukarest. At first they were successful and it looked as if the Germans would meet with a serious defeat, but they were reinforced in time, whereas the Rumanian reinforcements failed to come up. The result was a heavy defeat for the Rumanians and the evacuation by them of their capital, Bukarest, which was occupied by Mackensen on Dec. 6.

Argives. (Gr. Argeioi; Lat. Argivi). Inhabitants of Argos in Greece. Homer uses the term for the Greeks in general. See Argos.

ARGOL. Crude acid potassium tartrate deposited from wine. When grape juice ferments argol is deposited as a crystalline crust on the sides of the vat, and when this is recrystallised it is known as tartar; from tartar, by further purification, cream of tartar is obtained. Argol is also used for the preparation of tartaric acid.

ARGOLIS. A district of ancient Greece. Occupying the N.E. part of Peloponnesus, bordering the Gulf of Argos. Homer uses the term for the Argives in general. See Argos. Sinus or Gulf of Nauplia, it was the territory surrounding Argos. It became part of the Roman prov. of Achaia in 146 B.C. It has many legendary associations, including that of the Lernean Marsh, where Hercules slew the Hydra. Argolis, with Corinth, now forms a nome of modern Greece. Its capital is Nauplia. Pop. 174,320.

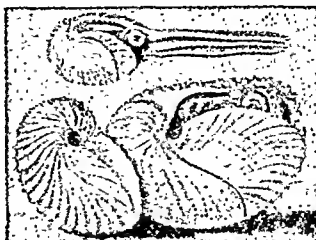
ARGON (Gr. argos, inert). One of the gases which go to make up the atmosphere. It exists in the proportion of one part in 100 parts of air. It is classed as an element, symbol A, with an atomic weight of 39.91, and the atomic number is 18.

Argon is a colourless inert gas, and does not combine with any other element. It can be liquefied and solidified. Argon is prepared from the air, and is of com-

mercial use in filling the bulbs of the tungsten electric lamps, for which purpose it is better than nitrogen.

ARGONAUT.

Cuttle fish of the genus Argonauta. The ribbed, translucent shell is secreted by the flat expansions of two of the tentacles, and is not attached to the body. It serves as a receptacle for the eggs. The argonaut is common in the tropic seas; one species, the paper nautilus, inhabits the Mediterranean.



Argonaut, or paper nautilus. The upper figure shows the animal swimming

ARGONAUTS (Gr. sailors of the Argo). In Greek mythology, the heroes who, under the leadership of Jason, sailed to Aea or Colchis, on the Black Sea, in search of the Golden Fleece. They were so called from the name of the 50-oared ship Argo, which was built by Argos, one of the heroes.

After an eventful voyage Jason and the Argonauts arrived at Colchis, whose king, Aeetes, consented to surrender the Fleece to Jason provided he fulfilled certain conditions. By the help of the magic powers of Medea, the king's daughter, Jason succeeded in this, and, obtaining possession of the coveted prize, started on the return journey, taking with him Medea and her young brother Absyrtus. In spite of the pursuit of Aeetes, the lures of the Sirens and of storms, the voyagers returned to Iolcus. See Jason; Medea.

ARGONNE. District in E. France, known from its wooded character as the forest of Argonne. In the departments of Ardennes and Meuse, between Toul and Mézières, on high ground between the basins of the Meuse and the Aisne, it is about 10 m. wide from east to west and 40 m. long.

The Argonne was the scene of incessant fighting throughout the Great War. It had strategic importance, as a successful advance through it would have made Châlons and Verdun untenable. Throughout 1915 and 1916 the fighting here was of a minor character.



Argonauts. Jason and his companions speeding between the Symplegades, cliffs which closed on anything that attempted to pass. See article above. After an engraving by Picart

In its older sense the word was used by Aristotle to define one of three forms of good government. An aristocratic government may be also the rule of a single man, provided that man is the best man—for instance, the philosopher king of Plato's Republic. See Plato.

ARISTOPHANES (c. 445-385 B.C.). An Athenian comic dramatist. In all, 54 comedies were attributed to him, 11 of which survive.



Aristophanes,
Greek dramatist

The first, *The Banqueters*, was produced in 427 B.C. His earlier comedies, such as *The Knights*, *The Clouds*, and *The Wasps*, contain violent personal attacks upon those who in his eyes stood for the democratic tendencies he deplored. The demagogue Cleon and the philosopher Socrates, whom he unjustly identified with the Sophists, were particularly obnoxious to him. Later he appears to have learned caution, for his plays during the next period of his dramatic career, such as *The Birds* and *The Frogs* in the second of which Euripides is held up to ridicule, were much less outspoken, while in his last personal satire almost disappeared.

Not only was Aristophanes a supreme comic genius, he was also a great poet: for beauty and delicate fancy some of his lyrical passages, especially in *The Birds*, challenge comparison with those of Shakespeare. There is a spirited English verse translation by B. B. Rogers, with Greek text and notes, 1902-15.

ARISTOTLE (384-322 B.C.). A Greek philosopher. He was born at Stagira in Macedonia. In 367 he went to Athens and spent 17 years in association with Plato. Several years of adventure in Mysia followed, including a romantic marriage. In 343 he was called to Macedonia by Philip to undertake the education of his son, then a boy of fourteen. When Alexander, in 334, passed into Asia "to subdue the world," Aristotle returned to Athens, founded his Peripatetic School at the Lyceum, and there, supported by gifts from his royal friend, lived for the next twelve years absorbed in lecturing and scientific research. In 323 he retired to Euboea to spend the last months of his life in peace.

Aristotle distinguishes three kinds of philosophy: (1) Theoretic, subdivided into (a) "first" philosophy, that is, enquiry into God and being, later termed metaphysics; (b) mathematics, the study of being so far as it was determined by number and geometrical form; and (c) physics, the study of material and movable objects. (2) Practical, subdivided into (a) politics, the study of the right conduct of man in society; (b) ethics, the theory of individual conduct; and (c) economics, the practical science of household management, including the science of wealth. (3) Productive, (a)



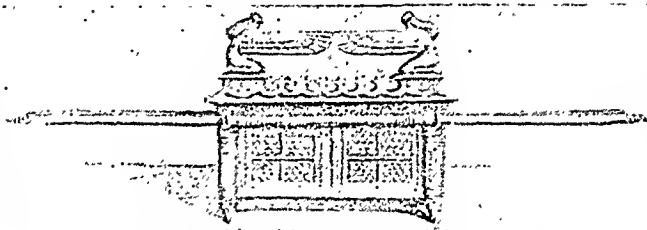
Aristotle, Greek philosopher who took
all knowledge for his province
Statue in Spada Palace, Rome

poetics, or the philosophy of art; and (b) rhetoric. He also devoted a number of works to the study of logic, included as a whole under the name of *Organum*. This system of philosophy which Aristotle taught at Athens is contained in a number of extant books, though these form not more than a fifth of his total output. See *Ethics*; *Metaphysics*.

ARIZONA. State in the S.W. of the U.S.A. It has an area of 113,810 sq. m. The Colorado river, which forms most of the W. boundary, traverses a lofty plateau from 6,000 ft. to 8,000 ft. high in the N.W. Most of the surface exceeds a height of 5,000 ft., and the greatest alt., 12,795 ft., is attained in the San Francisco Mts. In the S. and W. many low valleys separate the short mountain ranges. Several cañons of the Colorado river are within the state, the chief of these being the Grand Cañon, which has been made a national park.

Agriculture is retarded by a limited rainfall, and irrigation is resorted to. Reservoirs for the storage of water have been constructed, notably the Roosevelt dam, and extensive tracts have been and will be reclaimed by the Yuma and other irrigation schemes. Sheep breeding is engaged in, and copper, gold, silver, asbestos, lead, and zinc are recovered in large quantities. There are 2,400 m. of railway. The chief cities are Phoenix, the capital, and Tucson, the seat of the state university. The pop. at the census of 1920 was 334,162; latest estimate 474,000. Arizona was organized as a territory in 1863, and admitted to the Union in 1912.

ARJISH OR ARGESH. River of Rumania, also called the Argesul (q.v.).



Ark of the Covenant. After the drawing in Tissot's Illustrated Bible
Copyright de Brunoff

ARK OF THE COVENANT. Sacred chest of shittim or acacia wood, made by the Israelites according to the command of the Lord as given to Moses (Ex. 25). It contained the Tables of the Law and was placed in the most holy place of the Tabernacle and of the first Temple. It was the most solemn emblem of the Jewish faith, and the waters of the Jordan divided at its approach (Josh. 3). After being set up at Gilgal, the Ark was removed to Shiloh, and later fell into the hands of the Philistines, who returned it with gifts (1 Sam. 4-7). Its final resting-place was Jerusalem, where it was placed in the Temple (1 Kings 8; 1 Chron. 15). It is believed to have been destroyed when the Temple was burnt by the Babylonians. The word Ark as applied to the Ark of the Covenant is from a Hebrew root different from that used to define the ark of Noah (q.v.). See Jerusalem.

Arkaig. Lake in Inverness-shire, Scotland. It is 10 m. N. of Fort William, 12 m. long, and nearly 1 m. wide.

ARKANSAS. One of the S. central states of the U.S.A. It has an area of 53,335 sq. m. The surface is swampy and well wooded on the E., hilly in the N.W. and W., and centrally and S. undulating. Navigable rivers besides the Mississippi are the Arkansas, Red, White, Washita, and St. Francis, and there are upwards of 5,000 m. of railway.

Mainly agricultural, Arkansas produces maize, wheat, cotton, oats and hay. The state has a wide coal area, and also produces

manganese ores and lead, whetstones from novaculite, bauxite, petroleum and natural gas, and limestone, granite and slate are worked. Lumbering is an important industry, as also is fruit growing. The largest cities are Little Rock, the capital, and Fort Smith; Fayetteville is the seat of the state university. The pop. at the census of 1920 was 1,752,204, of whom 472,220 were negroes; the latest estimate is 1,944,000. Arkansas was organized as a territory in 1819, and was admitted to the Union in 1836.

ARKLET. Small lake of Stirlingshire, Scotland. Its water, raised 22 ft. by a dam 1,050 ft. long, is conducted by tunnel into Loch Katrine, and thence to Glasgow.

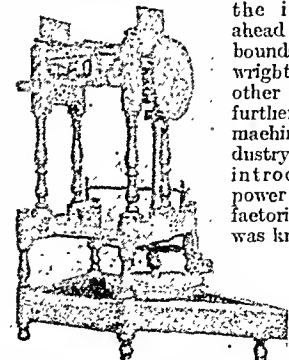
ARKLOW. Market town and seaport of co. Wicklow, Irish Free State. It stands on the mouth of the Avoca, 49 m. S. of Dublin by the Gt. Southern Rly. It has herring fisheries and oyster beds, manufactures explosives, and is engaged in the shipment of copper and lead from the neighbouring mines. Traces remain of the castle of the Ormondes, razed by Cromwell in 1649. During the insurrection of 1798 the rebels sustained a heavy defeat near Arklow Bridge. Pop. 5,042.



Sir R. Arkwright,
British inventor

ARKWRIGHT, SIR RICHARD (1732-92). Inventor of the machinery which made possible the great cotton industry of to-day. Born at Preston, Lancashire, he learned the trade of barber, but became interested in

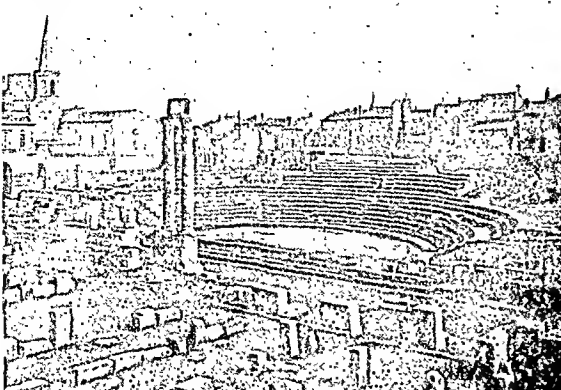
the slow and clumsy processes then employed for spinning and weaving cotton he turned his attention to the design and construction of a spinning machine. With the help of John Kay and John Smalley, one was put together at Preston, and when it was perfected Arkwright obtained a patent and took it to Nottingham, where he built a factory and began to spin cotton, later moving to Cromford, in Derbyshire. His invention quickly proved its utility, and the industry went ahead by leaps and bounds. In 1775 Arkwright took out another patent which further improved the machinery for the industry. In 1790 he introduced steam power into one of his factories. In 1786 he was knighted.



Arkwright's spinning machine, the original one made by him in 1769

ARLEN, MICHAEL (b. 1895). British novelist. Born in Bulgaria, Nov. 16, 1895. Arlen's parents

were Armenians and his name was Dikran Kouyoumdjian. He was educated in England (Malvern College) and in 1922 became naturalised, taking his present name. His reputation was made with his novel *The Green Hat*, but he had already written several others. Later books are *Young Men in Love*, *Lily Christine*, and *Babes in the Wood*, 1929. His plays include dramatised versions of his books *These Charming People* and *The Green Hat*.



Arles. Remains of the Roman amphitheatre in the ancient town which was at one time capital of the kingdom of Burgundy

ARLES. Town of S.E. France, in the department of Bouches-du-Rhône. On the Rhône. 53 m. by rly. N.W. of Marseilles, it has flour, silk, hat, and shipbuilding industries. The 7th century church of S. Trophimus and the hotel de ville are of interest.

Arles, the ancient Arelate, was important in Roman times and earlier; Roman remains include ruins of an amphitheatre, an imperial palace, and an aqueduct. In the 10th century it was the capital of the kingdom of Burgundy. Pop. 31,014. See Burgundy.

ARLINGTON, HENRY BENNET, EARL OF (1618-85). English politician. He joined the Royalists at the outbreak of the Civil War, and in 1658 went to Madrid as Charles's agent. After the Restoration he was made keeper of the privy purse and in 1662 secretary of state. He was raised to the peerage in 1663, was a member of the Cabal ministry, and later lord chamberlain. Arlington Street, London, is built on the site of Goring House, where he resided. He died July 28, 1685.

ARLON. A town of Belgium, capital of the province of Luxembourg. It stands on a hill, 17 m. by rly. N.W. of the city of Luxembourg. The ancient Orolaunum, its museum contains many relics of Roman occupation. Pop. 11,160.

ARM (Gr. harmos, shoulder joint). Limb extending from the shoulder of the human body to the hand. The bones consist of: the humerus, or upper arm bone, which articulates at the shoulder joint with the shoulder blade; and the bones of the forearm, the radius and ulna, articulating with the humerus above to form the elbow joint, and with the carpal bones of the hand below to form the wrist joint.

The more important muscles are the deltoid, which raises the arm from the side and also assists backwards and forwards movement of the arm; the biceps, forming the principal muscle which raises the arm at the shoulder joint, and bends the elbow; and the triceps, acting mainly by straightening the elbow.

The main arteries are the axillary, the brachial, the ulnar, and the radial artery, which, just before it reaches the wrist, forms the well-known pulse. The superficial veins of the arm are the radial, basilic, and cephalic. The principal nerves are the circumflex, the cutaneous, the musculospiral, the median, and the radial.

Fracture of the shaft of the humerus is usually due to direct violence. The two bones of the forearm are more frequently broken together than is either the ulna



Armadillo. Priodon gigas, or the giant armadillo of South America. See above

or radius alone. Fracture of the lower end of the radius, known as Colles' fracture, is most often due to putting out the hand to break a fall.

ARMADA or **ARMADO.** Spanish word meaning originally any armed force. It was applied then to a fleet, and especially to the fleet sent against England by Spain in 1588, known as the Great or Spanish Armada.

The command of the expedition was assigned to a perfectly incompetent landsman, the duke of Medina Sidonia. The fleet set sail finally on July 12, 1588, and on July 19 was sighted off the Scillies by an English scout. The number of ships was between 127

and 130, many of them being rowed by galley slaves. The soldiers on board numbered about 20,000.

The English fleet had been ready in Feb., its backbone being the small but efficient Royal Navy. In the number of men and guns the Spaniards doubled the English; but the English ships were constructed to deliver broadsides, which the Spaniards were not, and could fire three times as quickly.

On the news of the approach of the Spanish fleet, the English at Plymouth, under the command of Lord Howard of Effingham,



Armagh, Ireland. One of the inland counties of Northern Ireland. It has many ancient remains

but agriculture is backward. Oats, potatoes and wheat are grown, and cattle are reared. The G.N.I. Rly. traverses the county, while additional communication is afforded by the Newry and Ulster canals. Armagh is the county town, and others are Lurgan, Portadown, Bessbrook, and Tanderagee. Armagh contains many relics of antiquity, including Danes Cast, a defensive work in the S.E. on the co. Down border, and Tyrone's Ditches, near Poyntz Pass. Pop. (1926) 110,070.

ARMAGH. City, market town, and co. town of Armagh, Northern Ireland. It is 89 m. N.N.W. of Dublin on the G.N.I. Rly. The eccles. metropolis of Ireland, it is the seat of a Roman Catholic and a Protestant archbishop, both primates of all Ireland, and has two cathedrals and two archiepiscopal palaces. Linen weaving is the only industry of importance. Market days, Tues., Wed., and Sat. Pop. 7,356.

ARMADALE. Burgh of Linlithgowshire, Scotland. It is 2½ m. S.W. of Bathgate, on the L.N.E. Rly., lies in an extensive coal,

iron, and limestone district, and has paraffin and chemical works. Pop. 4,927.

ARMADILLO (Spanish diminutive of armado, armed). Genus of mammals included with sloths and ant-eaters in the order Edentata. The armadillo is a burrowing animal, with powerful digging claws, and inhabits the forests and pampas of S. and Central America. The body is protected by two shields formed of bony plates embedded in the skin, to which are attached external horny scales. One shield covers the shoulders and fore part of the back, and the other the hind quarters. Between these are flexible scaly girdles, which enable the armadillo to roll up like a hedgehog. The head, tail, and limbs are similarly protected. The piciciego or fairy armadillo is about 6 ins. in length; the priodon or giant armadillo measures 3 ft. from snout to base of tail, and the tail is about 20 ins. Armadillos feed mainly on ants, termites, beetles, and other insects. See illus. below.

ARMAGEDDON or **HAR-MAGEDON** (Heb. mountain or mountain district of Megiddo). Scene of the battle between the forces of good and evil which, according to Rev. 16, is to precede the millennial reign of Christ on earth. It was the scene or near the scene of the defeat of the Canaanites by Barak (Judges 4), of the Midianites by Gideon (Judges 7), of the death of Saul in the Philistine invasion (1 Sam. 31), and of the death of Josiah in the Egyptian invasion (2 Kings 23; 2 Chron. 35). In popular usage the name Armageddon is applied to a battle or campaign involving great slaughter and was so used in reference to the Great War. See Megiddo.

ARMAGH. Small inland county of Northern Ireland. It has a greatest length of 35 m. and a greatest breadth of 20 m., and an area of 512 sq. m. Hilly in the S. and S.E., where the highest summit, Slieve Gullion, reaches 1,893 ft., the surface is generally undulating as it recedes towards Lough Neagh, partly in the county, and mainly bog-land in the N. The salmon fisheries of the Bann and Blackwater are important, the linen industry thrives,

ARMAGNAC. Former prov. of S. France, now mostly included in the department of Gers. The region is hilly but fertile, and noted for its wine and brandy. Its capitals were Auch and Lectoure.

The Armagnacs were a faction which came into existence about 1396. It was first known, from the name of its leader, as the Orleanist party, but afterwards it took a new name from Bernard, count of Armagnac, who became its real head. In opposition to the Burgundians, the Armagnacs became the national party of France, and remained so until the treaty of Arras in 1435. The name was afterwards given to bands of adventurers.

ARMANT. Town of Egypt, also called Erment. It is 450 m. from Cairo, quite near Luxor and the ancient city of Hermonthis. Excavation work done here during 1926-30 resulted in the discovery of a sarcophagus containing the remains of one of the sacred bulls. These finds show that the sacred bull Buchis was worshipped by Alexander the Great and two Roman emperors.

ARMATURE. In a dynamo or an electric motor, that part which rotates in the magnetic field. In alternators of one type the armature rotates, but in another the magnetic field revolves while the armature remains stationary. An armature consists of a core of laminated iron round which coils of insulated copper wire are wound; the iron acts as a conductor of the magnetic lines of force, and the current induced is transmitted to the external circuit. A bar of iron placed across the poles of a horseshoe magnet is also known as an armature. See Alternator; Dynamo; Magnet.

ARMED NEUTRALITY. The name given to a league formed by most of the maritime powers in 1780. At that time Great Britain was at war simultaneously with the American colonies, France, and Spain, and the object of the league was to resist British doctrines of the rights of belligerents in their treatment of neutrals at sea. The prime mover was the Tsarina, Catherine of Russia, who was joined by Denmark, Sweden, Holland, Prussia, Portugal, and Naples. The critical questions at issue were formulated in the demands of the neutrals that the declaration of a blockade should not be recognized unless the blockade was effective, and that all goods other than contraband of war carried in neutral vessels should be free from seizure. At the end of 1800, when Great Britain was left isolated in her struggle with France, the Armed Neutrality was revived, but it was dissolved after the battle of the Baltic in that year.

ARMENIA. Soviet republic and a member of the Union of Socialist Soviet republics. It is situated S. of the Caucasus mountains and is bounded on the N. by Georgia, on the S. by Persia, on the E. by Azerbaijan, and on the W. by Turkey. Its area is 11,945 sq. m. and its pop. 876,557.

In modern times, until after the Great War, the term Armenia was given generally to the territory comprised within the six provinces of the Turkish empire in the E. half of Anatolia known as the Armenian vilayets, and the S. part of Caucasia, which belonged to Russia. To these districts was usually added the N.W. corner of the Persian province of Azerbaijan. The meeting point of the

territories was on Little Ararat. In Jan., 1920, the Allies recognized Armenia's independence, which was embodied in the treaty of Sévres in August, 1920. In 1921 Armenia was proclaimed a Soviet republic, and in 1922, with the republics of Georgia and Azerbaijan, formed the Transcaucasian federation.

Armenia consists of a fairly level plateau with mountain ranges from about 8,000 to 12,000 ft. and wide fertile valleys. Rain is scarce, and irrigation has been necessary from the earliest times. Fruits, grain, tobacco, cotton and flax are grown. The country is rich in minerals, which await development. Erivan is the capital, other towns including Kars and Leninahan or Alexandropol and Emiadzim.

The Armenian Church is the oldest established Christian Church, Christianity having been introduced into Armenia in the 3rd century by S. Gregory the Illuminator, who became patriarch. Armenia has suffered much persecution from Islam, and wholesale massacres of the inhabitants have frequently taken place. The Armenians have their own alphabet. This consists of 38 letters, and is particularly strong in consonants. See Caucasus.

ARMENTERIES. Town of France, in the department of Nord. On the river Lys, 20 m. by rly. N. of Lens, it was held by the British despite furious German attacks in 1914, and continued in their possession until, on April 2, 1918, they evacuated it in the great German offensive for the Channel ports. It was recaptured by the Allies in Oct., 1918. Pop. 28,625. See Ypres.

ARMIDALE. Town of New South Wales, Australia in Sandon county. It is 313 m. by rly. N. of Sydney, and stands on the New England tableland, 3,314 ft. high. It has a Roman Catholic bishop. Pop. 5,850.

ARMILLARY SPHERE. Skeleton celestial globe made up of circular metal hoops representing the equator, the ecliptic, the tropics, and arctic and antarctic circles, and colures. It revolves on an axis and has a circumscribing wooden horizon.

ARMINIANISM. Doctrine of man's free will and salvation by faith. Taught by Jacobus Arminius in opposition to the dogma of predestination to eternal salvation, or eternal punishment, taught by the extreme Calvinists, it gave rise to bitter controversy in Holland in the first half of the 17th century.

Arminius, its founder, was a Dutchman whose baptismal name was Jacob Harmensen or Hermanns. He studied at Geneva and was a professor at Leyden from 1603 until he died, Oct. 19, 1609.

Immediately after the death of Arminius, in 1609, his followers, of whom Simon Episcopius became the chief, addressed a remonstrance of five points

to the States-General, hence their name of Remonstrants. Conferences were held at The Hague in 1610 and at Delft in 1613, without producing harmony. The States-General issued a decree to enforce toleration and suppress controversy, but the decree was ignored. Political differences added to the bitterness of the feud. Then the synod of Dort was convened. It sat from Nov. 13, 1618, to April 30, 1619, but as it was composed entirely of extreme Calvinists, Arminianism was condemned, and its adherents were imprisoned or banished for refusing to subscribe to the finding of the synod.

Their persecution did not cease until about 1630.

ARMINIUS (17 B.C.-A.D. 21). German national hero. He belonged to the tribe of the Cherusi and became an officer in the Roman army. In A.D. 9 he led a revolt of the Cherusi against their Roman governor, Quine-

tilius Varus, whom he defeated in the Teutoburg Forest. In A.D. 16 he was defeated by Germanicus, but the Romans were obliged to withdraw. He was eventually assassinated. There is a colossal monument to Arminius, completed in 1875, on the Grotenburg, near Detmold.

ARMISTICE (Lat. arma, arms; sistere, to put a stop to). Agreement between two belligerents to suspend hostilities temporarily either for some local reason, e.g. to bury the dead and succor the wounded, or as a preliminary to negotiations for peace.

An armistice applies only to the troops under the immediate command of the officers who agree to it. A neutral zone is fixed and a road is indicated by which all communications between the belligerents shall take place while the armistice is in force.

The most notable armistice was that signed between Germany and the Allies in France, Nov. 11, 1918. Nov. 11 is now kept as armistice day, a general cessation of work taking place for two minutes at 11 o'clock.

ARMORICA (Celtic, land by the sea). Old name for Brittany, which was at one time inhabited by the Armorici. It was given by the Romans. See Brittany.

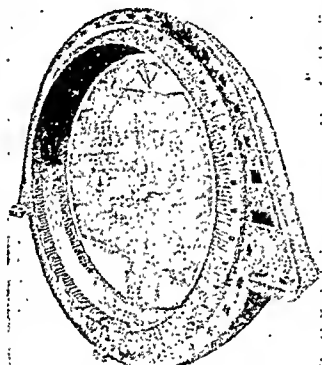
ARMORICAN FOLDING. This is the name applied to a system of folds that affected the rocks of N.W. Europe in Permo-Carboniferous times, and is seen typically in N.W. France.

ARMORICAN GRITS. This is a subdivision of the Ordovician rocks of France, underlying the Angers Slates, and of Arenig age.

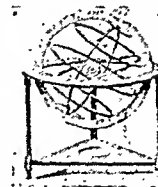
ARMOUR. Name given to the covering which protected the bodies of fighting men in former days. The term is also used for the protective covering of warships. Body armour was worn by the ancient nations of the East, and by the Greek and Roman soldiery. The Greek equipment consisted of a short bronze



Armenia. Above, fruit merchants of Bitlis. Below, Armenian lady in the semi-oriental dress of her race



Armature. Stationary armature of 40-pole alternator, for a 2,000 h.p. dynamo



Armillary sphere

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ՍՕՆՀՈՉԳԶՆՈՍՏՏՐՏԻՓՐՕՅ

աբգդեզէըթճլխծկզչծս
յնշուղլնւսմրցւփքօֆ

Armenian alphabet as used in ordinary books. The characters were invented by Mesrob in the 5th century

cuirass with a high-erected helmet. The legs were protected by bronze greaves. The Roman equipment was similar, but far more practical, and was frequently made of iron. After the decline of Rome the warrior of Europe went back to the leather and fabric defences of Assyria and Egypt.

Chain mail had come to the Romans from the East, though never used by them to a large extent. It returned to the West with the reviving skill of the smiths about the 8th century, and formed the body equipment of the wealthier Saxons and Normans, and of the Crusaders. By about 1400 we find definite additions of plate armour, first on the knees,

was enclosed in a sort of citadel; while the ends of the ship remained unarmoured. In the modern battleships and battle-cruisers the armour belt extends from end to end, in combination with gun-turret armour and transverse bulkheads. In the Royal Sovereign class completed during the Great War the belt is 13 ins. thick amidships, tapering to 4 ins. at the bow and stern; in the Hood, which embodies all the experiences of the war, the gun-houses have a maximum protection of 15 ins., with 12 ins. on the barbettes.

The original naval armour consisted of plates of cast iron, then came compound armour, hard-faced steel plate to resist perforation, cemented to a soft wrought-iron backing to give toughness. In 1895 came the Krupp process of cementation, whereby a deep hard face is combined with a tougher back of the plate. This process was acquired by the Sheffield firms, and almost all the armour used in modern navies is produced on this principle. In 1929 experiments were made at Woolwich with a new type of naval armour which was said to possess exceptional resisting power. See Battleship; Cruiser; and illus. p. 210.

ARMOUR, PHILIP DANFORTH (1832-1901). American merchant. He entered the provision business at Milwaukee, and later became head of a firm of pork packers. In 1870 he moved to Chicago, where he joined his brother in the firm of H. O. Armour & Co. As Armour & Co. this business under his direction became probably the largest firm of provision merchants in the world. Armour founded and endowed the Armour Institute of Technology at Chicago. His son, Jonathan Ogden Armour (b. 1863), succeeded him as head of the firm. The latter wrote *The Packers, The Private Car Lines, and The People*, 1906.

ARMoured CAR. Automobile vehicle for use in warfare. It has armour plate to protect the mechanism, and light armament for offensive action. Before the Great War these vehicles had been considerably developed and were equipped with completely enclosed bodies of armour plate, surmounted by a revolving turret in which a machine gun was mounted. Vehicles of this type were most useful in the war, especially during the Belgian retreat of 1914, in Mesopotamia, Egypt, Palestine and Russia. They fought rearguard actions and engaged in patrol work. The driver of the car is protected by a movable screen in which observation slits are provided for use when driving with the screen closed.

In the Austin armoured car two turrets are fitted and there is accommodation for a crew of five. The latest type used in the British army is intended for reconnaissance work by cavalry units, but capable of employment against the rear and flanks of marching forces. Twelve batteries of field artillery and four of heavy artillery have also been mechanised, and nine batteries have been supplied with tractors known as "dragons." There are also armoured machine-gun carriers with a speed of 30 m. an hour. See Tank.

ARMOURER (Fr. armurier). One skilled in the manufacture and care of weapons. A military armourer is a non-commissioned officer of the Royal Army Ordnance Corps who is attached to a unit of combatant troops for inspecting, repairing, and maintaining in efficient order the small arms and any mechanism in their charge.

A naval armourer is a skilled warrant officer who has charge of the rifles, cutlasses, and other small arms aboard a warship. His duties are similar to those of an armourer in the army, though he also acts as blacksmith.

The Armourers' and Braziers' Company is a London livery company, incorporated June 17, 1708. The Armourers' Company was incorporated about 1423: the Braziers appear

to have been separately incorporated about 1479. The hall, in Coleman Street, London, E.C., was founded about 1450 and rebuilt 1840. It contains rare specimens of armour.

ARMOURY (Lat. armarium, chest, safe). Apartment in which weapons or instruments of war were stored until required for service.

The Wallace Collection (q.v.) contains a very choice collection of arms and armour, and at the Tower of London are some 6,000 exhibits. Among other collections are those at the Royal United Service Museum in Whitehall, Windsor Castle, and Warwick Castle. Foreign collections include that in the Kunsthistorisches Museum, Vienna, the Royal Armoury at Madrid, the Historical Museum, Dresden, the Metropolitan Museum, New York, the Musée de l'armée, Paris, the Armeria at Turin, and the Zeughaus at Berlin. The private armoury in the castle at Churburg, Tirol, has descended from the Middle Ages, and the Landes-Zeughaus at Graz in Styria is another example of a true armoury, as opposed to a collection. See Armour.

ARMS. This word refers to weapons of all kinds, which are divided into small arms, firearms, and other classes. It describes, too, the armorial bearings of noble and other families, and of cities, corporations, etc., which are in full coats of arms.

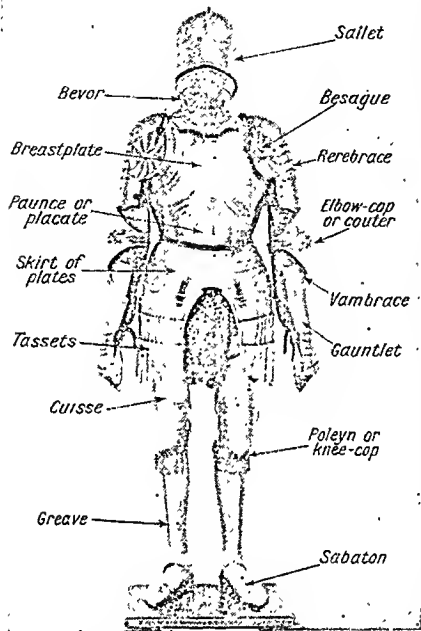
Grants of arms are made by the College of Arms in Queen Victoria Street, London, E.C. The recipient of a coat of arms must pay £10 and an annual sum of £1 ls. for the licence. If the arms are used on a vehicle the licence costs £2 2s. a year. Coats of arms are also granted in much the same way to municipal corporations, professional organizations, schools, and other public bodies. In Scotland grants are made at the court of the Lord Lyon at the Register House, Edinburgh. See Allusive Arms; College of Arms; Heraldry; Sword, etc.

ARMSTRONG, WILLIAM GEORGE ARMSTRONG, BARON (1810-1900). British engineer and inventor. In 1847 he established works at Elswick, near Newcastle, for the manufacture of hydraulic machinery, and in 1863 he took over neighbouring works and began to make guns and ammunition. In 1882 the firm united with the shipbuilding firm of Mitchell & Swan, and began to build warships. In 1897

it took over the Manchester engineering firm of Joseph Whitworth & Co., and took its name of Sir W. G. Armstrong, Whitworth & Co., Ltd. In later life Armstrong devoted much attention to the construction and improvement of naval guns and warships. He spent much time also in researches into the possibilities of electricity. In 1859 he was knighted, and in 1887 was made a peer. His title became extinct when he died, Dec. 27, 1900, but his heir, his great-nephew, W. H. A. F. Watson-Armstrong, was made Baron Armstrong in 1903.

Armstrong College, originally called Durham University College, an educational establishment at Newcastle-upon-Tyne, was founded in 1871 and given its present name in 1904 in honour of Lord Armstrong. Science figures largely in the college curriculum.

ARMY. Word denoting a body of men organized for warfare. It includes every branch of land forces, such as cavalry, infantry, artillery, engineers and men engaged in transport and supply. The term is also used for a large or small body of troops employed in a particular region or under a noted leader, e.g. the Crimean army, Wellington's army.



Armour. Full suit of German make, c. 1470, with the special names applied to the various parts
Wallace Collection

then on the arms and shins, and finally, by the end of the 14th century, the knight is completely encased in plate armour hinged or jointed at knee and elbow, and his head protected by a visored helmet.

The Golden Age of armour was the middle of the 15th century. The finest representation of the equipment of this period is the effigy of Richard Beauchamp, earl of Warwick, in St. Mary's Church, Warwick. Armour was in great use in the 15th and 16th centuries in connexion with tournaments, and was made heavier than that employed on the battlefield. In the 16th century the increasing use of firearms made itself felt. Piece by piece armour was discarded, until in the 17th century only the cuirass and helmet remained.

The Great War revived the use of armour. The steel helmet was used in varied forms by all belligerents, and heavy breastplates were employed in the German army, similar to those of the 17th century. The brigandine was resuscitated as a bullet-proof tunic composed of small plates of steel.

NAVAL ARMOUR. This is a modern development. The French constructed armoured floating batteries in the Black Sea, during the Russian war, in 1854, and subsequently built the Gloire, first of all armour-clads. The British replied with the Warrior and the Minotaur classes. Then ensued the long conflict between the gun and the armour. At first systems of distributing armour were introduced to give greater protection to the vital parts of the ship. The main armament



Baron Armstrong,
British engineer
Royal Institution of
Civil Engineers

During the Great War, when enormous forces were in the field, the term army was used for a group of three or four army corps, and so we had the First, Second, Third and other armies. The French and German armies were similarly organized. Before the Great War most European nations had large conscript armies, but in Britain the principle of compulsory service was only put into force during the war, and following its termination was discontinued.

BRITISH ARMY: HISTORY. In England in Saxon times military service was obligatory upon all free landowners between the ages of sixteen and sixty. In medieval England the feudal class supplied the cavalry, and the men of the national militia the infantry. Throughout the reign of Elizabeth the army remained defective in both organization and armament, and in the first years of James I a new Militia Act practically destroyed the old national force, though without impairing the obligation of all citizens to military service. The Civil War showed that the entire military system was chaotic, and in 1645 Parliament created the New Model professional army of about 24,000 men. At the Restoration it was disbanded, but one regiment of foot was saved, and a regiment of horse was formed by enlisting discharged troopers. These, together with a regiment of footguards levied from among the King's adherents, formed the nucleus of the present standing army.

During the seventeenth and eighteenth centuries the army organization was very lax. Regiments were the property of their colonels, the civil population was averse to joining, and to induce men to enlist a bounty had to be given and a commission offered to individuals to raise new regiments. The Duke of York, taking over the army in a hopeless state in 1795, reorganized the staff at headquarters, restored discipline and added a second bat-

talion to almost every regiment in the line. In 1870 Lord Cardwell introduced real reforms. Among them he abolished the purchase system, reduced the long service system, inaugurated the linked battalions, and swept away the old numbers and substituted territorial titles for them. Lord Haldane in 1907 effected reforms by creating an Imperial General Staff, and converted the Volunteers into a Territorial Army.

THE GREAT WAR. At the outbreak of the Great War the regular army, including those serving in India, numbered about 255,000, and behind them were an army reserve of 146,000 and a special reserve of 62,000. In addition the Territorial Army numbered about 250,000 men. The infantry consisted of Guards, four regiments of nine battalions, and infantry of

the line, 69 regiments or 148 battalions. The cavalry was organized in 31 regiments, the artillery was divided into field and garrison, the former further into horse and foot, i.e. for service with cavalry and infantry respectively.

Other branches of the service included the Army Service Corps, 80 companies; the Army Medical Corps; and the Army Ordnance Corps. The Engineers were a separate unit with 85 troops or companies, and there was also a department for chaplains. The expeditionary force consisted of five divisions of infantry and one of cavalry. With the various units attached it probably numbered 100,000 men. It was completed in Sept. by the arrival of the 6th Division. At the beginning of the war Lord Kitchener organized a new army, originally known as Kitchener's Army. The strength on Sept. 15, 1914, was:

Regulars	314,000
Army Reserve .. .	80,000
New Army	500,000
Territorial Force ..	313,000
	1,207,000

Some new units added to the army attained great proportions. The Tank Corps had a numerous personnel, as had the Machine-Gun Corps. Labour battalions were formed for duties behind the lines. The Canadians, Australians, and other overseas troops kept their own organizations. They were not, therefore, included in the total of 3,704,416, which is the number of those who served in the ranks during the Great War. With these, the grand total of British troops was 7,130,380, and with coloured troops the total employed on all fronts was 8,354,567. On Nov. 11, 1918, the day of the armistice, the mobilised strength was 5,680,247, of whom over 4,000,000 belonged to the British army proper. Then came the great demobilisation, and by Oct. 15, 1919, the number of troops was 757,000. In 1928-29 the strength was 520,453, of whom 190,000 were regulars. Its cost for the year was estimated at £41,030,000. Consult History of the British Army, J. W. Fortescue.



Army. The evolution of uniform in the British Army from 1558 to 1802. Left to right—Mounted: Cromwellian Trooper, 1648; Dragoon, 1751; Light Dragoon, 1792. Foot: Infantry, 1558; Royalist and Parliamentary, 1619; Musketeer, 1685; Infantry of the Line, 1742, 1792, and 1802

Specially drawn by Charles M. Sheldon from sketches by R. Simkin



Army. Development of British Army uniform during the 19th and 20th centuries. Left to right—Mounted: Hussar, 1832; Lancer, 1890; Cavalry Trooper, 1914. Foot: Representatives of the Infantry of 1812, 1836, 1854, 1864, and 1890; service dress, 1914, and trench kit, 1917

Specially drawn by Charles M. Sheldon from sketches by R. Simkin

ARMY AGENT. Any firm appointed by the War minister to receive a lump sum from the Treasury sufficient to pay all the officers of all the regiments for whom it acts as bankers. The two existing army agents are Lloyds Bank, Ltd., Cox's & King's Branch, 6, Pall Mall, London, S.W.1, and Glyn, Mills & Co., Holt's Branch, 3, Whitehall Place, London, S.W.1. The former have branches in India at Bombay, Calcutta, Karachi, Rawal Pindi, Murree and Srinagar (Kashmir). Agents credit each officer with a month's pay in advance.

ARMY CORPS. Second largest unit into which a modern army is divided. It usually consists of two or three divisions, with cavalry, artillery, engineers, and other auxiliary services, and is in practice an army complete in every way. An army corps may contain as many as 60,000 men, but more generally it has about 40,000. During the Great War Britain had over 20 of these corps in the field. The French and Italian armies are organized on an army corps basis, the country being divided into districts, in each of which one corps is recruited. This until the end of the Great War was also the German system.

ARMY COUNCIL. Controlling body of the British Army. Established in 1904, when the office of commander-in-chief was abolished, it is, in constitution, something like the Board of Admiralty. It consists usually of nine or ten members. The civilian members are the secretary for war, who acts as president, the under-secretary, and the financial secretary to the War Office. The military members include the chief of the Imperial general staff, the quartermaster-general, the adjutant-general, the master-general of the ordnance, and the deputy chief of the general staff.

ARMY EDUCATIONAL CORPS. Separate unit of the British army. It was formed in 1920, in recognition of the principle that education, general as well as vocational, is an essential part of a soldier's training. The corps consists of a staff of officers from second-lieut. to lieutenant-colonel, warrant officers, and sergeants. The badge is an open book resting upon crossed rifles and lances. The headquarters are at Shorncliffe.

ARMY MEDICAL CORPS, ROYAL. Unit of the British army the duties of which are the prevention of disease and the care and treatment of the sick and wounded. The outbreak of war with Russia in 1854 found the medical organization very deficient, and thus led to the formation of the Army Hospital Corps with its first school at Chatham. Many changes and reforms were introduced. The regimental system was superseded by the Army Medical Corps in 1873, converted into the Royal Army Medical Corps in 1898.

The duties of the corps include advice on all questions of the welfare of the troops, barracks, billets, camp, water supply, cooking, rations, latrines, etc., as well as the many items in connexion with the care of the sick and wounded and their removal from the scene of action and treatment in hospital. Distinct from this is the Army Dental Corps, with headquarters at Woking.

The Royal Army Medical College is an Institution for the technical education of officers on probation for permanent commissions in the Royal Army Medical Corps and Indian Medical Service. Formerly attached to the hospital at Netley, it is now situated at Millbank, London, S.W.

ARMY ORDNANCE CORPS, ROYAL. Non-combatant unit of the British army, which supplies the fighting forces with munitions of all kinds. The corps was constituted as a separate unit in 1881, but its origin is of considerable antiquity. In 1875 it formed a branch of the Army Service Corps as Ordnance Store Companies; these companies being constituted a separate unit, the Ordnance Store Corps, in 1881. The title was afterwards changed to Army Ordnance Corps, the prefix Royal being granted in Nov., 1918, as a recognition of services rendered in the Great War.

The duties of the corps consist in providing, receiving, holding, and issuing munitions of war and military matériel of all descriptions, clothing for camps, and clothing and necessaries for use in the field. Its headquarters are situated at Woolwich, where there are extensive depots; clothing is stored at Pinlipo, London, small arms at Weedon, Northants, and there are subsidiary depots. The corps is directly under the director-general of ordnance and its officers belong to the Army Ordnance Department. The Ordnance College, Woolwich, provides special courses for officers. See Artillery.

ARMY PAY DEPARTMENT. That branch of the War Office responsible for paying the troops of the British regular army. Known also as the Royal Army Pay Corps, it works through officials stationed in districts and commands at home and abroad, and is controlled by a chief paymaster and his staff in Whitehall, under the general direction of the finance member of the Army Council.

ARMY RESERVE. Trained soldiers allowed to quit the colours on condition of engaging to rejoin in time of national emergency. In the British standing army every soldier enlists for 12 years, but as only a certain number of men can appear on the pay roll in any one year, according to the establishments sanctioned by Parliament in the Army (Annual) Act and the votes in Army Estimates, men who have completed about six years with the colours are granted a permanent furlough on half-pay for the remainder of the term, their places in the ranks being taken by recruits. This is called the short service system, and it is thus possible to train two men in twelve years for little more than the cost of one under the old system.

ARMY SERVICE CORPS, ROYAL. Department of the British army. The corps carries on the duties of a number of earlier army departments, the Corps of Royal Wagoners, later known as the Royal Wagon Train; the Commissariat Department, and the Military Train, which superseded the Land Transport Corps formed during the Crimean War. In 1888 the corps as now organized became a definite unit of the British army, responsible for both transport and supplies. Its duties range from horse and motor transport to clerical work, and include the conveyance of food and forage to the armies in the field. The prefix Royal was added to its title in Nov., 1918.

At the outbreak of the Great War the corps consisted of 500 officers and 6,000 warrant officers, non-commissioned officers and men. At the cessation of hostilities these figures had expanded to 11,408 officers and 311,478 other ranks. The most striking increase occurred in the Mechanical

Transport branch. The corps was administered by the Supply and Transport Department, one of a number of directorates at the War Office.

ARMY VETERINARY CORPS, ROYAL. Unit of the British army which is concerned with the medical treatment of army horses. Officers of the corps have to undergo a course of special training at the Army Veterinary School. They were granted adequate military rank in 1891. In Nov., 1918, the prefix Royal was added to the title. The headquarters are at Caxton House, Westminster, London.

ARNAUD, HENRI (1641-1721). Leader of the Piedmont Waldenses. On the expulsion of the Vaudois by Victor Amadeus of Savoy, Arnaud organized and commanded the military expedition, 1689, for their return from Switzerland, but from 1690-8 he cooperated with Victor Amadeus against the French. When Amadeus again turned against the Vaudois, in 1698, Arnaud took refuge in Württemberg, and became a pastor near Stuttgart. See Waldenses.

ARNAULD, ANTOINE (1612-94). French theologian. He was ordained in 1641. Supporting Jansen, bishop of Ypres, he attacked the Jesuits, and his book on Frequent Communion, a practice he opposed save after very rigid preparation, at once provoked much controversy. When Jansen's work was condemned as Calvinistic by Rome, Arnauld denied that interpretation and the power of Rome to decide on questions of fact. He made outward submission in 1664, but lived at Port Royal and remained Jansenist. In 1678 he retired to the Netherlands, and wrote in opposition to the Jesuits, the Protestants, and William of Orange. His eldest brother, Robert Arnauld d'Andilly (1588-1674), poet and historian, lived as a layman at Port Royal. Another brother was Henri Arnauld (1597-1692), bishop of Angers, who had a long struggle with the Jesuits.

ARNAULD, JACQUELINE MARIE ANGÉLIQUE (1591-1661). Abbess of Port Royal. Often known as Mère Angélique, she was a sister of Antoine Arnauld, the theologian. In 1599 she became a novice in the Cistercian convent of Port Royal, near Versailles, and at the age of eleven was nominated abbess by her father. In 1623 she came under the influence of the Jansenist abbot of St. Cyran, du Vergier. After resigning to become head of a convent in Paris, she eventually returned to Port Royal as prioress under her sister Agnes. Her niece, Angélique Arnauld (1624-84), became successively prioress and abbess of Port Royal, and was chief author of the *Memoirs of Port Royal*, 1742. See Port Royal.

ARNDT, ERNST MORITZ (1769-1860). German poet. The son of a former serf, he first attracted attention by the publication in 1803 of an attack on serfdom in Pomerania and Rügen, which led to its abolition. He was a bitter critic of Napoleon and helped in Russia to organize the coalition against him. He wrote various songs and poems, including the famous *What is the German's fatherland?*, which helped largely to revive the spirit of nationalism in Germany. In 1818 Arndt was appointed professor of history at Bonn, but was soon suspended for his liberal opinions. At the revolutionary movement of 1848 he was elected to the national assembly at Frankfurt. He died Jan. 29, 1860.



Army Ordnance Corps badge



Army Veterinary Corps badge



Army Pay Corps badge



Army Medical Corps badge



J. M. A. Arnauld, French abbess
Phylippe de Champagne



Army Service Corps badge

ARNE, THOMAS AUGUSTINE (1710-78) British musician. His first composition was the music to Addison's opera *Fair Rosamond*, 1733. He was the composer of two oratorios, *Abel*, 1755, and *Judith*, 1761, of the music to Milton's *Comus*, 1738, and of many operas and operettas, in addition to the music for plays of Shakespeare and others. His *Rule Britannia*, in *The Masque of Alfred*, 1740, and the Shakespearean songs, *Under the greenwood tree*; *Blow, blow, thou winter wind*; *When daisies pied*, and *Where the bee sucks*, are immortal contributions. Arne died March 5, 1778, and is buried in S. Paul's, Covent Garden, London.



Thomas A. Arne, British musician

ARNEE. Native name for the long-horned Indian buffalo. It is found wild in many parts of India, where it lives in swampy jungles, but is better known in the domesticated form, of which there are many breeds, differing greatly in appearance.



Arnee. Long-horned buffalo, an Indian draught animal

ARNHEM or **ARNHEIM**. Town of Holland, capital of Gelderland. It stands on the Rhine, 35 m. by rly. E. of Utrecht, is connected by tram with that city and Zutphen, and by steamer with Amsterdam, Rotterdam, Cologne, and other ports. It manufactures tobacco, cotton and woollen goods, paper soap, furniture, and carriages. Sir Philip Sidney died here in 1586. The Roman *Arenacum*, it was often captured, destroyed, and re-fortified. Pop. 76,619. Arnhem Land is a district in Northern Territory, Australia.

ARNICA. Dried root of *Arnica montana*, a plant which grows in middle and southern Europe. Tincture of arnica is a popular application for bruises and sprains.

ARNIM, MARY ANNETTE, COUNTESS VON, British novelist, generally known as *The Author of Elizabeth and her German Garden*. Daughter of H. Herron Beauchamp, she married first Count Henning August von Arnim, who died in 1910, and then, in 1916, the second Earl Russell. In 1898 she won immediate popularity with her delightful story, *Elizabeth and Her German Garden*. Her stories, mostly marked by keen appreciation of character, grace of style, and lively humour, include *The Solitary Summer*, 1899; *Princess Priscilla's Fortnight*, 1905; *Fraulein Schmidt and Mr. Anstruther*, 1907; *Christopher and Columbus*, 1919; *The Enchanted April*, 1923; and *Introduction to Sally*, 1926.

ARNO. A river of Italy. It rises in the Apennines, flows S. nearly to Arezzo, curves N.W. and then W. to the Mediterranean, 7½ m. below Pisa. It is 150 m. long and is navigable by barge to Florence.

ARNOLD. Urban district and market town of Nottinghamshire, England. It is 4 m. N.E. of Nottingham and has lace and hosiery factories. The church of S. Mary is partly Norman but chiefly Early English, and has a 15th century tower; it was partly restored in 1868 and 1877. In the town is the house in which R. P. Bonington was born. Market day, Sat. Pop. 11,800.

ARNOLD, SIDNEY ARNOLD, 1st BARON (b. 1878), British politician. Born Jan. 13, 1878, the son of a Manchester stockbroker, for a time he followed his father's business. During 1912-21 he was Liberal M.P. for the Holmfirth Division of Yorkshire. In 1922 he joined the Labour Party and in 1924 was under-secretary for the Colonies in the Ministry formed by Mr. Ramsay MacDonald, being then made a peer. In the second Labour Government (1929) Lord Arnold became paymaster-general, and in Oct. went to the U.S.A. with Mr. MacDonald.

ARNOLD, BENEDICT (1741-1801). American general. He joined the American army in the War of Independence, distinguished himself in the fighting at Ticonderoga and Quebec, and became a major-general. In 1780 he entered into negotiations with the British, through John André, for the betrayal of West Point. André was taken and hanged, but Arnold made his way to the British lines, received a command in the British army, and fought against the Americans. He sailed for England in 1782, and died in London. See André, John.

ARNOLD, SIR EDWIN (1832-1904). British poet and journalist. After spending five years in India as principal of the Government College at Poona, he joined the staff of *The Daily Telegraph* in 1861, and was connected with that journal for the rest of his life. His reputation as a poet rests on *The Light of Asia*, 1879, an epic dealing in florid blank verse with the life of Buddha.

ARNOLD, MATTHEW (1822-88). British poet, critic, and educationist. Eldest son of Thomas Arnold of Rugby, he became fellow of Oriel in 1845, and from 1847 to 1851 was private secretary to Lord Lansdowne, president of the council, by whom in 1851 he was appointed inspector of schools. He held this post for over 30 years, retiring in 1883, and from 1857 to 1867 was professor of poetry at Oxford. He died Apr. 15, 1888.



Matthew Arnold, British poet

After G. F. Watts

Amid his more noteworthy poems are *The Strayed Reveller*, *Thyrsis*, a monody on his poet friend Arthur Hugh Clough and one in the language:

Sohrab and Rustum, Mycerinus, Tristram and Iseult, The Forsaken Merman, Rugby Chapel, Requiescat, The Scholar Gipsy, Stanzas from the Grand Chartreuse, Westminster Abbey, Heine's Grave, and some beautiful sonnets, including one on Shakespeare. In his prose writings he consistently opposed Victorian smugness and what he called philistinism; he pleaded for classic ideals, restraint, and for a standard of mind instead of material comfort.

ARNOLD, THOMAS (1795-1842). British schoolmaster and educationist. He was educated at Winchester and Oxford, being

elected fellow of Oriel College in 1815. In 1828 he was elected headmaster of Rugby school, at a time when public opinion was largely adverse to public school education. Chosen professor of modern history at Oxford in 1841, he held this office with his headmastership until his death, June 12, 1842. Arnold's works were mainly religious and historical.



Sidney Arnold, 1st Lord Arnold

Arnold defined the aim of education as a union of moral and intellectual excellence, and a public school must therefore be a place where not only classical and general learning were obtained, but a sphere in which character was formed and the ability to deal with the responsibilities and duties of adult life. The remarkable influence which he exercised over his pupils is depicted in T. Hughes' *Tom Brown's School Days*.

ARNOULD, MADELEINE SOPHIE (1744-1802). French singer. Born in Paris, she first appeared in public at the Grand Opera House, Paris, Dec. 15, 1757, and until her retirement, in 1778, was one of the most popular opera singers. She was the first to play the title-part in Gluck's *Iphigenia in Aulis*. A beauty and a wit, her salon was the resort of distinguished writers. Many of her witty sayings are preserved in the collection known as *Arnouldiana*.



Sophie Arnould, French beauty and wit, who was a popular opera singer
J. B. Greuze, Wallace Collection

AROLLA. Village and mt. resort of Switzerland, in the canton of Valais. Near the Arolla Glacier, at the head of the S.W. branch of the Val d'Herens, it is four hours by mule path from Evolena.

AROSA. A summer and winter resort of Switzerland, in canton Grisons. It is 19 m. E. of Coir, in the Schanfigg valley. Surrounded by pine woods, it is 5,900 ft. high, and is visited by convalescents.

ARPAD (d. 907). Soldier and founder of the Magyar monarchy. Little is known of him beyond his appearance with his hordes in 896 and his conquest of the country afterwards named Hungary about 906. On his death his son succeeded him as duke of Hungary, and the dynasty lasted until 1301. Arpad's Monument, overlooking Brasso, was erected in 1896.

ARQUEBUS or **HARQUEBUS**. An early form of firearm. It appeared in the 15th century soon after the discovery of gunpowder, and varied in size from a cannon to a musket. It was carried by the soldiers, but in the field was supported on a rest. The earliest arquebus was merely a small cannon fired by matchcord



Thomas Arnold, English schoolmaster and educational reformer

East by Do in Temple Speech Room, Rugby

or tinder; but a 16th century Italian made great improvements, and in his time it was effective up to 400 paces. It was the chief infantry weapon in the battles of the earlier part of the 16th century, but in the 17th was supplanted by the musket. See Artillery; Musket.

ARRACK OR RAKI (Arab. araq, juice). Name of any locally made spirituous liquor in the E. Indies, especially that distilled from Palm toddy, from rice or molasses fermented with palm-juice, or from flowers of the mahwa tree. Usually imperfectly prepared, it is an inferior but potent, injurious spirit, containing from about 53 to 75 p.e. of alcohol.

ARRAIGNMENT (late Lat. arrationare, to call to account). English legal term. It means bringing a prisoner who has been indicted, or found guilty on a coroner's inquisition, before the court which is to try him. The accused must be brought to the bar of the court, or placed in the dock. The charge is read or explained to him by the clerk, and he is asked to plead guilty or not guilty. Where the indictment also charges the prisoner with having been previously convicted of felony, this must not be mentioned on the arraignment, for fear of prejudicing the prisoner on his present trial. See Trial.



Arquebus. The lower one is an early form, with a brass barrel in a wooden stock. The upper, of the time of Henry VIII, has the recess for bullets in the side of the stock shown open.

by rly. N.E. of Amiens. Its 16th century town hall and its cathedral were laid in ruins during the Great War. It was afterwards adopted by Newcastle-on-Tyne. Before the Great War the manufactures included hosiery, agricultural implements, pottery and china, and lace, and Arras was one of the biggest corn markets in the whole country. Pop. 24,835.

During the 14th and 15th centuries the tapestries of Arras were so famous that the name arras was used in England as the general term for tapestry wall-hangings. The arras was often hung a considerable distance from the wall, thus providing a lurking-place for eavesdroppers. Polonius, in Shakespeare's Hamlet, was stabbed while hiding behind the arras, which was a tapestry fabric woven with figures and scenes. See Tapestry.

BATTLES OF ARRAS. Throughout the Great War there was intense fighting in front of Arras, an important strategic centre. The first battle was fought in Sept.-Oct., 1914. On Sept. 18 French cavalry entered Arras, which was thenceforth in the hands of the Allies. The French attempted to advance beyond the town, but after a severe engagement on Oct. 1-3 were compelled to abandon Lens, and were forced back to Arras. The Germans then made desperate efforts to break through, divide the French and British armies, crush the latter, and seize the Channel ports. On Oct. 21 they made their greatest attack on the French position, which ran in a semicircle round the town, but were repulsed at most points. Another attack on Oct. 24 gave them the important Vimy Ridge. The Germans then made their great attack at Ypres, and the first battle of Arras ended.

The second battle, fought in June, 1915, was an attempt by the French under Foch to carry the intricate German trench system, 2 m. N. of Arras, known as the Labyrinth. Here for a week French and Germans fought hand to hand, with bomb, knife, and bayonet. By June 23 the greater part of the system was in the hands of the French, and ultimately the salient N. of Arras was flattened out.

The third battle was fought in April-May, 1917. In accordance with the general plan of campaign the task set the British was to capture the dominating position of Arras and reduce the salient between Arras and the Ancre. On April 9 the third army attacked from Croisilles on the right to near Souchez on the left, and the Canadian Corps assaulted Vimy Ridge. Within an hour the British had stormed practically the whole German advanced line, and by noon Vimy Ridge was cleared as far as Hill 145 at the N. end.

The British line on the first day was carried to Feuchy village, which opened a breach in the German third line, while the capture of Fampoux created a second gap. The first day of the battle brought results greater

than any previous British victory of the war, 13,000 prisoners and many guns being taken.

On April 10 the Canadians cleared the last part of Vimy Ridge, and on succeeding days further positions were carried by British troops. On April 23 Haig attacked at Lens and E. of Arras, capturing Guvrelle and Guémappe and important ground E. of Lens. More ground was captured on April 28, on which day Arras was stormed by the Canadians. The advance was continued into May, the German line from Fresnoy to Bullecourt, on a front of 16 m., being stormed on May 3, and Roenx on May 14. Heavy fighting continued for many days about the Hindenburg line at Bullecourt, but the ground was held and the British position improved. The main result of the battle was to make Arras secure from German capture.

The fourth battle coincided with the German offensive on the Somme in March, 1918. Two attacks were made on the British lines, on Mar. 21 and Mar. 28, but beyond slight gains the Germans were unable to break the British front, though the latter was withdrawn in places. The last battle was a British victory. It was part of the great Allied offensive in the autumn of 1918. During the battle the Canadians stormed the formidable Drocourt-Quéant line early in Sept., and carried important sections of the Hindenburg line.

ARRASTRA. Machine used in Mexico and S. America for the fine grinding of the complex silver ores which occur in those regions. Its working parts consist of a vertical shaft fixed in the centre of a floor or bed about 12 feet in diameter, so paved with stones (usually porphyry) as to leave no interstices. This shaft carries projecting from it two or four arms, at least one of which projects beyond the edge of the floor. From these arms depend stones, weighing from 100 lb. to 200 lb., resting on the paved floor. Mules are harnessed to the projecting arm, and the stones are dragged round on the floor, grinding the crushed ore. See Silver.

ARREST (Lat. ad, to; restare, to remain). In English law, when a person is compelled, by a restraint on his bodily liberty, to attend before a court of justice, or to fulfil a legal obligation, he is said to be arrested. With few exceptions, there is now no arrest in England, apart from criminal cases. A person accused of any crime may be arrested on a warrant under the hand and seal of a justice of the peace, before whom sworn information has been laid. See Warrant.

Arrestment is a process of the law of Scotland. By it the goods of a debtor are arrested in the hands of anyone who holds them, until the debtor has given his creditor caution or security to the value of the debt or claim.

ARRHENIUS, SVANTE AUGUST (1859-1927), Swedish chemist. He was born Feb. 19, 1859, at Schloss Wijk, near Upsala, and studied at Up-

sala, Stockholm, and elsewhere. In 1895 he became a professor at Stockholm, and he died Oct. 2, 1927. Arrhenius made a special study of electrolysis, and suggested that electrolytic action may be found in atmospheric phenomena.



Arran. Glen Sannox, from the bridge. The glen, remarkable for its Alpine-like grandeur, is 5 miles north of Brodieck.

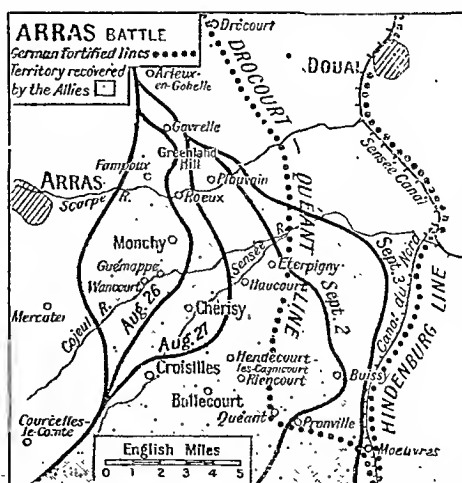
ARRAN, Largest island in the Firth of Clyde, Scotland. It forms part of Buteshire, is 20 m. long, from 8 m. to 11 m. broad, and has an area of 165 sq. m. The N. and N.W. are rugged and picturesque, with glens of great beauty. Lamlash Bay is one of the finest natural harbours in the British Isles. Loch Ranza is a lovely bay.

Agriculture, cattle and sheep rearing and fishing are the chief industries. The castle of Brodieck, the chief village, was long a seat of the dukes of Hamilton, afterwards passing to the duke of Montrose. Kildonan Castle is a ruin of the 14th century. Pop. 4,600.

The Scottish title of earl of Arran was held by several men famous in Scottish history and is now a secondary title of the dukes of Hamilton. It was given in 1503 to James Hamilton, but its most noted bearer was his son James (d. 1575). He was protector of Scotland, and was made duke of Châtellerauld by the French king. See Hamilton.

The Irish title earl of Arran is taken from the Aran or Arran Islands, Galway. It has been borne since 1762 by the family of Gore.

ARRAS. City and episc. see of N. France. The capital of the department of Pas-de-Calais, it stands on the river Scarpe, 38 m.



Arras. Map showing British gains in the fifth battle of Arras, Aug. 26-Sept. 3, 1918. In it the Drocourt-Quéant line was stormed by the Canadian Corps, and the main Hindenburg line reached

ARRIAGA, MANOEL JOSÉ DE (1839-1917). President of the Portuguese republic. After qualifying as a lawyer, he practised at Lisbon. Early professing republican convictions, he was deputy for Funchal, 1882-4, and for Lisbon, 1890-2. He was elected first president of the Portuguese republic Aug. 24, 1911, on the retirement of the provisional president, Dr. Braga, and resigned May 28, 1915. He was noted as a lawyer, a poet, and a writer on politics and economics.

ARRIANUS, FLAVIUS, OR **ARRIAN** (c. A.D. 100-180). Greek historian. Born at Nicomedia in Bithynia, he lived for some time at Nicopolis in Epirus, where he studied under the Stoic Epictetus. His chief works are the *Philosophical Lectures* of his master Epictetus in eight books, four of which are extant; the *Encheiridion* Epictetou, a handbook of the ethical philosophy of Epictetus, still extant; and the *Anabasis* Alexandrou, almost complete, a history of the campaigns of Alexander the Great, based on contemporary narratives.

ARRIS (Latin *arist*), fish-bone). Term used by builders and joiners for a raised edge or line formed by the junction of any two sides of a wood or stone body, which together make an external angle. The raised edges that separate the flutings in a Doric column are describable as arrises.

ARROL, SIR WILLIAM (1839-1913). British engineer. In 1868 he founded the firm of Wm. Arrol & Co., which was responsible for the Forth Bridge, the Tower Bridge, and the Manchester Ship Canal. Arrol was knighted in 1890 and sat in Parliament as Liberal Unionist for South Ayrshire 1895-1906. He died Feb. 20, 1913.

ARRONDISSEMENT (Fr. *arrondir*, to make round). French term for a local government district. Every department consists of a number of arrondissements, most of these being governed by a subprefect with a council, the chief duty of which is to allot to the various communes their respective share of the taxes required from the arrondissement as a whole. Each elector in an arrondissement votes for one deputy only.

ARROW. Projectile fired from both the long bow and the cross-bow, referred to in the Bible as artillery. In the Imperial Service Museum, London, are some arrows used by the Crusaders in the 12th century. Made with a light, straight shaft of wood, they are fitted with feathers at the neck, the object being to steady the flight by imparting a rotary movement to the projectile, a principle adopted by the makers of modern firearms. The arrow-head was of hard wood, flint, iron, or steel, and often barbed, and some arrows had heads of ivory. Arrows were carried in a quiver sometimes elaborately ornamented. Poisoned arrows are still used in fighting and hunting by savages.

From its shape, the term arrow-head has been given to the apex of a primitive missile implement. Made at first of bone and flint, they were displaced during the early metal ages by copper, bronze and iron. See *Archery*.

ARROWHEAD (*Sagittaria sagittifolia*). Aquatic perennial herb, a native of Europe and N. Asia. It has large leaves shaped like an arrow-head. The flowers are white. The plant hibernates in the form of small round tubers in the bottom mud. See *Sagittaria*.

ARROW INCIDENT, THE. Seizure of a ship which led to war between Great Britain and China. On Oct. 8, 1856, the *Arrow*, a ship rigged for service in Chinese waters, was lying off Canton, when a mandarin came on board and arrested her crew as pirates. As the Chinese refused the demands of Britain for reparations, Canton was bombarded, and by way of reprisal British property was destroyed. On Dec. 28, 1857, China still refusing Britain's demands, Canton was again bombarded, and occupied. The treaty of Tientsin, June 26, 1858, ended the affair.

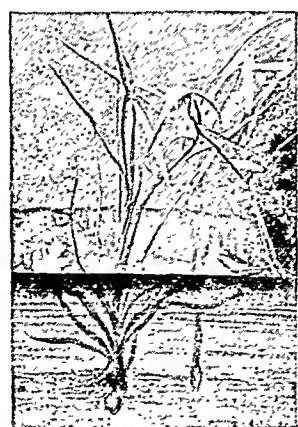
ARROWROOT (*Maranta arundinacea*). A perennial herb of the natural order Marantaceae. It is a native of tropical America, and is largely cultivated in the W. Indies. From its tuberous rootstocks a very pure starch is obtained. Dissolved in boiling water it is converted into a fine jelly as a food for invalids. Other related plants are cultivated for the same purpose, while inferior or spurious arrowroot is obtained from the tubers of several plants of other orders, e.g. English arrowroot from the potato, and Portland arrowroot from the corns of the wake-robin, or arum.

ARSACES. Founder of the Parthian empire. A Scythian by birth, he induced the Parthians to revolt from the Seleucid Antiochus II about 250 B.C. Under his descendants the empire which he founded ultimately extended from Bactria to the Euphrates. Among his descendants, who were called Arsacidæ, were Mithradates, Phraates, and Artabanus.

ARSENAL (Arab. *dār assnā'ah*, from *dār*, house or place of; *al*, the; and *snā'ah*, mechanical industry). Establishment designed or utilised for the manufacture, repair, receipt, storage, and issue of arms, ammunition, and other stores employed in warfare by the military and naval forces of a country—the modern equivalent of the medieval armoury.

The principal British arsenal for naval and military requirements is at Woolwich, while for purely naval matters there are large depots at Portsmouth, Chatham, Plymouth, Deptford, and Sheerness. Of foreign arsenals that of Venice, with its museum, is famous, while until 1919 Krupp's and the Skoda works were notable. Arsenals are supplemented by the work of private firms undertaken on contract.

ARSENAL. Association Football Club. It was founded in 1886, at Woolwich,



Arrowhead (*Sagittaria sagittifolia*), water plant with arrow-shaped leaves



Arrowroot. A plant of tropical America, from the tuberous roots of which is obtained the starch food arrowroot

ARSENIC (Gr. *arsenikon*, yellow orpiment). Chemical element, symbol *As*, atomic weight 75. The term arsenic, sometimes distinguished as white arsenic, is applied also to arsenious oxide. Metallic arsenic is a steel-grey substance, which darkens on exposure to air. When strongly heated it gives off a yellow vapour and a garlic odour. It occurs in the free state in nature and is found in combination in many ores and minerals. The principal ores are: arsenical antimony, arsenical iron, arsenical nickel, arsenical pyrites, cobalt glance, nickel glance, orpiment, realgar, and tin-white cobalt.

Metallic arsenic is generally prepared from native arsenic, or by heating arsenical iron. It is chiefly used as a constituent of alloys. Arsenic is used in the aniline dye industry; in calico printing; in the manufacture of pigments; as a weed-killer, rat-poison, and sheep-dip; in glass manufacture and in enamelling metals.

Arsenic is one of the poisons placed in Part I of the Poisons Schedule, and therefore cannot be sold except under certain restrictions. See *Poisons*.

ARSINOË. Name of several Egyptian princesses. (1) Daughter of Ptolemy Lagus, wife of Lysimachus, king of Thrace, and after his death of her brother, Ptolemy Philadelphus. (2) Daughter of Lysimachus and wife of Ptolemy Philadelphus. Convicted of conspiring against her husband, she was banished. (3) Daughter of Ptolemy Auletes, and queen of Egypt (47 B.C.), put to death at Miletus by Mark Antony. Arsinoë is also the name of cities in Egypt and Cyprus, founded in honour of the above or other princesses. See *Ptolemy*.

ARSON (Lat. *ardere*, to burn). In English law, the wilful and malicious burning of the dwelling house of another, or place of worship, or public building, or building belonging to any railway, dock, or harbour. It is a felony and is usually punishable by penal servitude, in serious cases, for life. Arson also covers the act of setting fire to coal mines, and crops, whether standing or stacked; and to any vessel. In Scotland arson is known as fire-raising.

ART. Art is one of the characteristic instincts and manifestations of man; though no date can be assigned to the first appearance of artistic expression, it is chiefly on such expression that our knowledge of primeval man is based. The earliest relics of prehistoric sculpture and drawings are calculated to belong to the Mousterian and Aurignacian periods. The best Palaeolithic art, assigned to the Magdalenian era, is represented by the cave drawings and paintings at Altamira and Font de Gaume, etc., which exhibit a surprising freedom and mastery of line in realistic renderings of boars, wolves, bison, etc.

The earliest date assigned to prehistoric Egyptian art is 8000 B.C.; between 5500 and 4000 B.C. the greatest time of Egyptian art was born and had passed over. The renaissance under the XII dynasty, the general decline after the XVIII and XIX dynasties, and the gradual merging into Roman art are the points marking the course of Egyptian art from 3400 B.C. to the Christian era. Its function was almost entirely religious, its purpose the furnishing of the tombs to equip the dead for their future life. Assyrian art is famous for its bas-reliefs of the wars and sports of the Assyrian kings. A development of Babylonian and Assyrian art was Old Persian art.



Sir William Arrol, British engineer
Elliott & Fry

The greatest manifestation of ancient art is Greek; in its beginnings it borrowed from Egyptian conventions. Again generally in the service of religion, its highest pitch was reached in the 5th century B.C., at Athens, where sculpture at least attained a majesty and technical perfection never again equalled. Greek art declined from the great Hellenic period to the Hellenistic (2nd century B.C.) and thence to the Greco-Roman, to which most of the so-called antique statues belong. Barely a trace of the great period of Greek painting exists; but its greatness is inferred from the peculiar excellence of the vases.

Succeeding manifestations of ancient art are Roman art, the outcome of Greek and Etruscan, specially notable for its superb engineering quality of architecture and for its portrait busts; Byzantine art (best periods between A.D. 330 and 700, and between 867 and 1200), in which Hellenistic tradition blends with Arabic and Persian; and Arab art, in which Chinese, Byzantine, Coptic, and Persian influences mingle with Syrian.

Chinese art, which to Far Eastern painting was as Grecian art to European, dates possibly from 2700 B.C.; its greatest periods, the Tang and Sung, are A.D. 618-905 and 960-1290, in which Buddhist ideals are expressed most perfectly. From Chinese roots were sprung the arts of Tibet and medieval Persia. The greatest eras of Japanese art were the 9th to 14th centuries.

In the West, Gothic art, sprung from Byzantine and Romanesque, and soaring to its height in the 11th to 13th centuries, is the richest, most mystic, and most imaginative manifestation of Christianity. Following on the great period of Gothic architecture, painting, and sculpture, pictorial art is found definitely outgrowing the old Byzantine feeling. By the close of the 13th century in Italy the Renaissance was established; about the same time, it should be noted, a noble school of mural painting flourished at Westminster. In France and the Netherlands a purely national Renaissance was at its best early in the 15th century.

In modern European art, as for convenience is designated the art of the 14th century and onwards, religion at first played a very large part. Very rarely was a work of art, before the 16th century, commissioned or executed save as a contribution to the Christian faith, though a reservation in the case of portraiture has to be made. This lasted, roughly, until the close of the 15th century, when artists found fresh outlets for their interest in the writings of the humanists and in the beauty of the world outside religious themes. Now Romantic art made its appearance and a constant delight in painting scenes of everyday life: now also the distinctive nationality of the schools was broken down, Italian influence flowing out to paralyse northern art. During the 16th century in Italy mastery of design, decoration, and draughtsmanship reached a pitch never again approached.

Art societies are associations formed to further the practice, study, and appreciation of the fine arts. Among the principal British exhibiting societies are the Royal Academy, the Royal Society of Painters in Water Colours, and the Royal Society of British Artists.

See Aegean Civilization; Aesthetics; Archaeology; Architecture; Assyria; Babylon; China; Cubism; Egypt; Etruria; Futurism; Greek Art; Impressionism; Japan; Painting; Persia; Phoenicia; Rome; Sculpture; and under the names of individual artists.

ARTAXERXES. Name of three Persian kings: (1) A. Longimanus (long-handed), 464-424 B.C., third son of Xerxes I. He was a successful and energetic ruler, and is generally supposed to be the Biblical Abasuerus of Ezra and Nehemiah. (2) A. Mnemon, 404-358, was

a son of Darius II Nothus. The revolt of his younger brother Cyrus, who was defeated and slain at the battle of Cunaxa, 401, is described in the Anabasis of Xenophon, who took part in it with the Greek mercenaries in support of Cyrus. His life was written by Plutarch. (3) A. Ochus, 358-338, son of Artaxerxes Mnemon. He was a weak and cruel despot, entirely under the influence of the Egyptian, eunuch Bagoas, by whom he was put to death in Egypt.

ARTEL. Russian word denoting a company or gang, originally used to describe associations of labourers who worked without a master and shared the profits.

ARTEMIS. In Greek mythology, a goddess identified by the Romans with Diana. The reputed daughter of Zeus and Leto, she was born in the island of Delos with her twin brother Apollo. In Greek literature she is usually associated with hunting and, like her brother, is represented with bow and arrows. In earliest times she appears to have been regarded as a nature goddess. Diana or Artemis of the Ephesians, mentioned in the Bible (Acts 19), had more of the attributes of an eastern goddess. The worship of Artemis is reminiscent of human sacrifice, notably on the shores of the Black Sea and in the groves of Nemi on the Alban hills. See Diana.

ARTEMISIA (d. 350 B.C.). Wife and sister of Mausolus, king of Caria. Her sorrow for the death of her husband was so great that she is said to have mixed his ashes with what she drank. The Mausoleum which she erected at Halicarnassus to his memory was one of the seven wonders of the ancient world; and from it has come the word mausoleum, to denote a magnificent tomb. Another Artemisia, queen of Halicarnassus, fought on the side of Xerxes at Salamis (480 B.C.).

ARTERIO-SCLEROSIS (Gr. *arteria*, artery; *sclerosis*, hardening). Thickening and hardening of the coats of the arteries, to some extent a natural change as age increases. Syphilis is an important contributory cause of the condition, other influences being alcoholism and gout. Arterio-sclerosis may lead to disease of the heart, disease of the kidneys (Bright's disease), and apoplexy. An advanced stage of the condition in the larger arteries is sometimes spoken of as atheroma.

ARTERY (Gr. *airein*, to raise). Vessel which conveys blood from the heart to another part of the body. The main artery of the body, the aorta, which springs from the left ventricle of the heart, conveys arterial blood through its branches to all parts of the body. The pulmonary artery conveys venous blood from the right side of the heart to the lungs. In structure the wall of an artery consists of three coats: (1) the external coat or tunica

adventitia, the strongest and toughest part, formed mainly of areolar tissue; (2) the middle coat or tunica media, composed of muscular and elastic fibres with some areolar tissue; and (3) the internal coat or tunica intima, formed of elastic tissue. The smallest arteries are called arterioles.

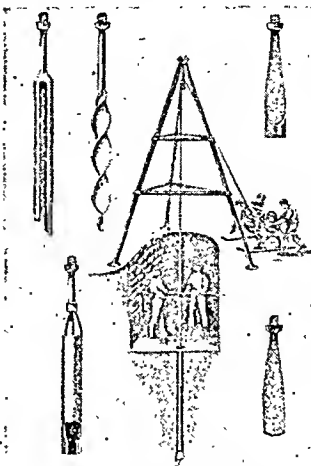
ARTESIAN WELL. A small-diameter well sunk with a boring or drilling apparatus into water or oil-bearing strata from which the liquid rises by its own pressure to the top of the bore. Such wells are so called from having been first sunk in Artois. See Well.

ARTEVELDE, JACOB VAN (c. 1290-1345). A Flemish popular leader. In 1337, when the import of English wool for the Flemish weaving industry was stopped by the opening of the Hundred Years' War, he headed a movement against Louis, count of Flanders, a supporter of France, banded together the Flemish towns, and made a commercial treaty with England. He was designated Captain-General of Ghent, and by 1340 the whole of the Netherlands had joined the federation. His despotic government and his suggested deposition of the count of Flanders in favour of the Black Prince provoked a popular rising, in which he was killed by the mob, July 24, 1345.

His son Philip (c. 1340-82) led the burghers of Ghent against the count of Flanders in 1381, but they were defeated and their leader was killed, Nov. 27, 1382.

ARTHRITIS (Gr. *disease of the joint*).

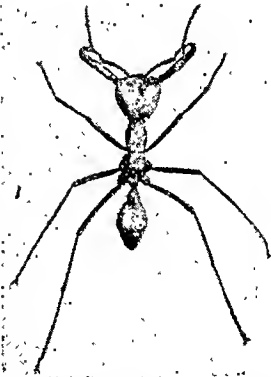
A term which, strictly speaking, should be applied only to inflammation of a joint, but which is in practice used to signify almost any disease of a joint. Gouty arthritis and gonorrhoeal arthritis are common forms. Arthri-



Artesian Well. Method of boring and some of the implements used



Arthropoda. The general structure is shown in these photographs of the Lobster and (above) a Brazilian species of Ant (*Eciton hamatum*)—the body composed of segments with jointed limbs and other appendages



tis deformans, or rheumatoid arthritis, is a definite disease, the cause of which is unknown; it has probably little relation to true rheumatism. See Gout; Rheumatism.

ARTHROPODA (Gr. *arthron*, joint; *pous*, foot). A phylum of the Invertebrates. It includes arachnids, insects, centipedes, and crustaceans. Jointed feet or appendages are a distinguishing feature of the class, and the body is segmented. One or more pairs of appendages are modified to form jaws, and in many cases others are adapted for seizing prey. The body and limbs are covered with a

horny cuticle. Nearly all the arthropods are active in habit, and some pass through a series of metamorphoses. Propagation is usually sexual, and in most cases life begins as an egg. See Arachnida; Spider.

ARTHUR. British king or chief. His name first occurs as that of a military leader in *The History of the Britons* by Nennius, ascribed to the close of the 8th century. There he is said to have been twelve times chosen as commander of the British kings against the Saxons, and to have been as often victorious. It was after battle with his nephew Mordred in 542 that Arthur, mortally wounded, passed to the island of Avalon. A popular belief that he did not die, but would return when needed, connects his story with those of several other national heroes.

The earliest detailed account of Arthur is in the *Historia Regum Britanniae* of Geoffrey of Monmouth, 1147. Geoffrey's history contains much of the legendary story of Arthur, as the son of Uther Pendragon, the friend of Merlin, the conqueror of all enemies, and the founder of a court of chivalrous knights. Here is found the earliest ascertained foundation of much of the Arthurian legend. The knightly king of chivalry, Arthur of the Round Table, became definitely established in literature as a British figure of romance by the compilation of the *Morte d'Arthur*, completed 1469 or 1470 by Sir Thomas Malory, and it is this romance figure which is celebrated by Tennyson in *The Idylls of the King*.

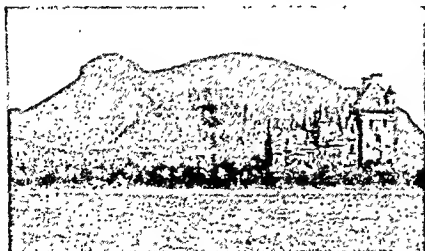
The name has been borne by several princes. Arthur, duke of Brittany (1187-1203), the nephew of King John, figures in Shakespeare's play. Arthur (1486-1502), the eldest son of Henry VII, was married to Catherine of Aragon just before his death.

ARTHUR, CHESTER ALAN (1830-86). President of the U.S.A. During the Civil War he served as inspector-general and quartermaster-general of New York State. Appointed collector of customs for the port of New York in 1871, he was dismissed in 1878 for opposition to civil service reform. Elected vice-president on the republican ticket in 1881, he became automatically president on the death of Garfield, holding office 1881-5. His presidency was marked by the passing of the Tariff Act, 1883, and by a law prohibiting polygamy in the territories. He died Nov. 18, 1886.



Chester A. Arthur, American President

ARTHUR'S SEAT. Hill in Scotland overlooking Edinburgh. From the summit,



Arthur's Seat, the commanding hill near Edinburgh, as seen from St. Leonard's Gate
Valentine

said to be named after King Arthur, an unrivalled view is obtained of the city and its surroundings. At its base is the palace of Holyrood, and close by are the Salisbury Crags. See Edinburgh.

ARTICHOKE (Arab. al kharshuf). Name of two distinct edible vegetables, the globe artichoke (*Cynara scolymus*) and the Jerusa-

lem (girasole, sunflower) artichoke (*Helianthus tuberosus*). Globe artichoke is propagated from seed. The edible portion is the leaves or scales of the flower heads, which are produced from about June to August.

Jerusalem artichoke was introduced from America, and is prepared and grown similarly to the potato. The root resembles a turnip in colour, and a sweetened swede in flavour.

ARTICLE. A distinct proposition, statement, or condition, usually one of a series. Such are articles of apprenticeship and the articles which are signed when a person is articleed to a solicitor or other professional man in order to learn the business. Another kind are the articles of a creed, such as the 39 Articles.

Articles of association are rules and regulations drawn up for the conduct of a limited liability company. Under English law they deal with the number, qualifications, and remuneration of directors, payment of dividends, matters affecting capital, and the general conditions of management and organization. The articles must be circulated among those interested, and a copy deposited with the registrar of joint-stock companies. A stamp duty is payable on them. The Companies Acts provide a model set of articles which may be adopted wholly or in part. See Company Law.

ARTICLES OF WAR. This is a code of discipline for the British army. It was drawn up in the 15th century or earlier, for the period of a war, foreign or domestic, at a time when the troops were ordinarily subject only to the law of the land, i.e. before the passing of the first Mutiny Act in 1689. The present code dates from 1881.

ARTIFICER. In the British navy, a skilled rating of the engineer branch. The majority enter between the ages of 21 and 28 as engine-room artificers, 4th class, ranking as chief petty officers on passing a thorough examination in their trade. There are opportunities for rising to warrant and commissioned rank (artificer engineer and engineer lieutenant) and accelerated promotion is possible for artificers of exceptional ability.

ARTIFICIAL LIMB. The functions of artificial limbs are twofold: first, to perform as far as possible the work of the lost part, and, secondly, to conceal mutilation.

Modern artificial arms may be divided into two classes: (a) working, (b) ornamental. The well-known bucket and hook is the prototype of the first class. The second kind is made to fill the sleeve with as close an approach to natural appearance as is possible and terminates in an artificial hand. In a combination of the two the ornamental part can be detached and the working appliance substituted. Artificial legs also may be divided

into two classes: peg-legs or pylons, and complete limbs with artificial feet.

The cardinal difficulty in the application of artificial limbs lies in their attachment to the living stump. This is generally obtained by enclosing the latter in a hollow bucket or socket, either rigid or adjustable, which is made to fit as closely as possible, and is retained in position by straps encircling other parts of the trunk or of the limb.

Some control of movements of the forearm and hand is obtained by attaching cords which move an artificial elbow joint or thumb by means of movements of the shoulders. By perseverance and skill wonderful results may be achieved with these mechanical arms.

In an artificial leg the most important desideratum is accurate fitting of the stump. With a long enough stump the patient can control the movements of the thigh socket, but the power of extending the leg on the thigh, and so bringing the shin forward, has to be supplied either by elastic webbing in front of the knee, or, better still, by braces passing over the shoulders which are connected with a strap running over a roller attached inside the knee-piece to the top of the shin. By this means the patient is able, by throwing back his shoulders, to counteract any tendency of the knee to give. With practice this movement becomes instinctive.

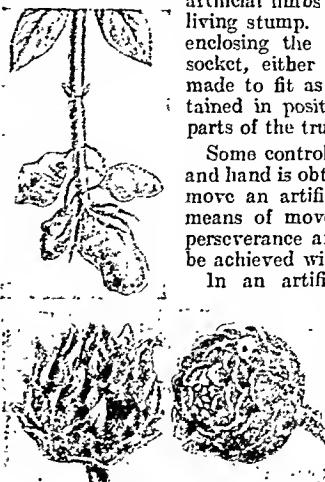
The type of limb chosen varies greatly with the site of the amputation. Strength and lightness must be studied, and the mechanical construction must be sound. The materials used for artificial limbs are, besides steel for joints and uprights, wood, leather, and alloys of aluminium. Celluloid and fibre have been used, while the Belgians make a bucket of shavings and glue.

At Roehampton, London, S.W., soldiers maimed in the Great War are provided with artificial limbs and trained in handicrafts. It was estimated in May, 1919, that the number of artificial limbs so supplied was between 40,000 and 50,000. Consult *Artificial Limbs*, A. Broca and Ducroquet, trans. and ed. by R. C. Elmslie (*Military Medical Manuals*), 1918.

ARTIFICIAL RESPIRATION. Method of restoring breathing to the apparently drowned. The finger is introduced into the mouth in order to clear out any mud or froth, and the patient is then placed face downwards, the head being turned toward the side. The attendant kneels either by the side of or astride the patient and throws his weight forward so as to exert a firm, steady pressure upon the thorax. He then swings backwards, so as to relax the pressure and allow the lungs to expand. This backward and forward movement should take about five seconds, and should be repeated at the rate of about twelve times a minute. It should be continued for at least 30 minutes, unless the patient revives before. The above is known as Schaefer's method. See Drowning.

ARTIFICIAL SILK. Fibre mechanically produced, which ranks in utility with the natural fibres. In the U.S.A. it is often called rayon.

The idea of making a fibre more or less in the same



Artichoke. Two heads of the globe artichoke and (above) tubers of the Jerusalem artichoke



Artificial Respiration. In Schaefer's method the ribs are alternately compressed from behind (2) and released, (1) this last causing chest expansion

way as the silkworm does was suggested in 1743 by the French physicist Réaumur. A British patent for the production of a nitro-cellulose silk from mulberry wood was taken out by a Swede in 1863, but led to no practical success. An Englishman, Swan, in 1883, patented a system of forcing jelly through small orifices in order to dry the jets and utilise them as fibre.

Henri do Chardonnet of Besançon was the first to make a commercial success of artificial silk, producing by his process an extraordinarily brilliant fibre, suitable for the manufacture of trimmings and articles exposed to little actual wear. Chardonnet worked upon a base of cotton waste, first bleaching and purifying, and then drying it in ovens. The resultant is a pure cellulose, which is convertible into nitro-cellulose, or gun-cotton, by treatment in sulphuric and nitric acids. In this form the material is soluble in a mixture of ether and alcohol, and is in fact collodion. Chardonnet forced a purified collodion through fine capillary tubes, drying the fibres into the solid state again, and combining several to form a thread. His process was completed by denitrating the fibre in sodium sulphide, bleaching, washing, dyeing, and winding the yarn.

Viscose silk is made from wood pulp. The latter is converted by the aid of caustic soda and carbon bisulphide into a yellow jelly, xanthate of cellulose. Fine streams of the jelly are forced into a hardening and purifying solution, and these are brought together to form a single thread.

In 1928 the world's output of artificial silk was estimated at 157,000 metric tons, of which Britain produced 25,000 tons and the U.S.A. 42,000 tons. Italy came next. In 1929 it was 184,000 tons. Since 1925 there has been a duty of 33½ per cent on all goods made from artificial silk imported into Great Britain.

ARTILLERY. Artillery is properly the name for every form of missile, but its use is now confined to cannon. It is the most powerful auxiliary that infantry, the decisive factor in battle, possess. By breaking down hostile defences and overcoming opposition it facilitates their advance, and by the heavy casualties it inflicts on troops in the open, it is the most potent factor in checking a hostile attack. In naval warfare it is the decisive factor.

Although England possessed metal cannon before 1621, they must have been obtained from abroad, for the first brass cannon were cast that year in England, to be followed in 1643 by the first casting of iron cannon.

For practising their weapons, archers, musketeers, and gunners had places termed artillery gardens, one of the most important of these being at Moorgate, London. In 1683 the Board of Ordnance adopted the broad arrow B A O as their mark on all their stores.

Owing to the long and ever-increasing ranges of modern guns, they are the first weapons employed in battle. Modern artillery is divided into guns and howitzers. Guns are long-range weapons firing projectiles of high velocity with a comparatively flat trajectory. Howitzers are in themselves shorter weapons than guns; they fire at high angles of elevation, and their projectiles fly at a slower rate and take a steeper curve in their flight than the shells from guns. The function of the gun is to fire at long or short ranges, and destroy personnel and matériel in the open.

In all armies artillery is attached to units of infantry and cavalry. Normally, what is termed field artillery is allotted to the infantry, while specially light guns, with gun teams mounted on horseback, follow the cavalry wherever they can go. The latter are the horse artillery. Almost all the heavier kinds of ordnance which are outside the horse and field artillery are tractor-drawn. In the field a British infantry division has from 48 to 54 field guns and field howitzers.

Artillery schools are maintained for the technical training of the personnel of artillery units and the elucidation of gunnery problems. The chief British school is the Royal Military Academy, Woolwich, founded and endowed by a warrant of George II in 1741, though it was in existence before that date. The experimental station conducts the proof tests of ammunition, guns, and armour, and makes practical tests of new weapons, etc. The School of Gunnery, at Shoeburyness, provides instruction for selected officers and N.C.O.'s which will fit them to act as instructors, courses for junior officers, special courses, and quick-firing practice. A branch school for siege artillery was established at Lydd in 1900, and elsewhere there are schools of instruction for reserve and territorial units.

The Royal Regiment of Artillery is the name of the corps or body of artillery in the British Army. Organized in two small companies in 1716, horse artillery was added in 1793. Its headquarters are at Woolwich. Divided at one time into Royal Horse, Royal Field, and Royal Garrison Artillery, the Field and Garrison artillery were amalgamated into one branch in 1925. There is an anti-aircraft section and a survey company.

The king is colonel-in-chief of the regiment. Its mottoes are Ubique (Everywhere), and Quo Fas et Gloria ducunt (Where Duty and Glory lead). During the Great War the regiment expanded from 13,000 of all ranks to over 500,000. Its casualties were 34,844 killed; 129,156 wounded; and 6,689 missing and prisoners of war. See Ammunition; Gun; Howitzer; Shell; Shrapnel.

ARTISTS' RIFLES. Name given to the 28th battalion of the London regiment. Founded as a volunteer corps in 1859 by Lord Leighton and other artists, it was originally recruited from artists and sculptors. The uniform is grey with black and silver facings. A contingent fought in the S. African War. Mobilised on the first day of the Great War, the Artists went to France, Oct., 1914, and were established as a training corps for officers in the field. In 1915 the regiment was reorganized as an officers' training corps, and the 2nd battalion was created a school of instruction for officers. This school supplied over 10,000 officers. In 1917 the 1st battalion became part of the 63rd (Royal Naval) division. During the Great War eight V.C.'s and over 700 military crosses were gained by the Artists, and about 2,000 members died on service.

ARTOIS. One of the provs. into which France was divided before the Revolution. It was the district around Arras, its capital. At present the name is used in a vague sense for the district, as Wessex or East Anglia are used in England.

Artois gives its name to a battle fought in May-June, 1915. It was undertaken by the Allies in order to hold the German forces in France and prevent the dispatch of troops to Russia, then hard pressed. The attack was from Arras to Notre Dame de Lorette. On May 9 the French began the assault, the British cooperating by a demonstration in force against Aubers Ridge. The French advanced rapidly and stormed La Targette, while fierce house-to-house fighting took place in Neuville-St. Vaast and Carency. A furious struggle took place for the height known as Notre Dame de Lorette, and at first only a portion was carried by the French. Ablain and Carency were finally captured, and by

May 15 most of Neuville-St. Vaast had been taken. On May 22 the whole of the plateau of Notre Dame de Lorette was in French hands. This victory gave the Allies good observation of Lens and paved the way for an attack on Vimy Ridge. Further advance was held up by the German system of trenches known as the Labyrinth, which was later captured in the second battle of Arras (q.v.).

ARTS, ROYAL SOCIETY OF. Abridged name of a British learned society, the Royal Society for the Encouragement of Arts, Manufactures, and Commerce. Founded in 1754 and incorporated in 1847, it assists scientific and kindred interests by inviting eminent men to lecture and read papers before it, by issuing a weekly Journal, and by conducting examinations. Its headquarters are in John Street, Adelphi, London, W.C.

ARTZ, DAVID ADOLF CONSTANT (1837-90). Dutch painter. He studied at the Amsterdam Academy, and was much influenced by Joseph Israels, whom he accompanied to Zandvoort in 1859, in which year he exhibited at Amsterdam for the first time. He rendered genre subjects with fidelity and charm, and holds a high place among Dutch realists of the 19th century. Among characteristic works are *With Grandmother and Scene at the Orphanage of Katwijk* (Amsterdam Gallery), *In the Dunes* (Rotterdam), and *The Return of the Flock* (The Hague). He died Nov. 5, 1890.

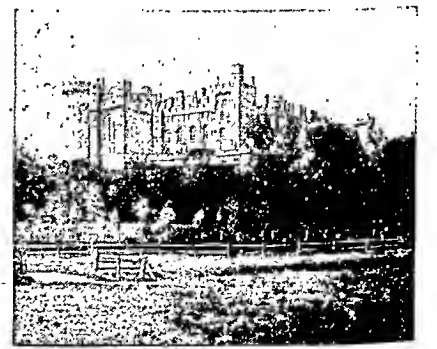
ARU OR ARKU. Group of more than 80 islands in the Dutch E. Indies. Situated about 80 m. S.W. of New Guinea, they cover an area of 3,250 sq. m., and are separated by narrow channels. Low lying, with steep and rugged coasts, they are well wooded, and on the E. are bordered by coral reefs. Dobbo is the chief town. Pop. 25,000.

Arun. In botany, variant name of the wake robin (q.v.).

Arun. River of Sussex, England. Rising in St. Leonard's Forest, it flows W. and S. for 36 m. to the English Channel at Littlehampton.

ARUNDEL. Mun. bor. and market town of Sussex, England. It stands on the declivity of a hill overlooking the Arun, 10 m. E. of Chichester by the S. Rly. At the summit of this hill is the castle, formerly the seat of the Fitzalans, earls of Arundel, and now that of the Howards, dukes of Norfolk. The Perpendicular church of S. Nicholas dates from the second half of the 14th century. The Fitzalan chapel is the private property of the duke of Norfolk. The Roman Catholic church of S. Philip Neri was built by the 15th duke of Norfolk. Market day, Mon. fortnightly. Pop. 2,741. See Norfolk, duke of.

ARUNDEL, EARL OF. English title now borne by the duke of Norfolk. It dates from the 12th century, and with it went Arundel Castle. Passing to the family of Fitzalan, it was retained by them until 1580, when, in default of male issue, it passed to the Howards.



Arundel Castle, Sussex seat of the Howards, dukes of Norfolk. It dates from the 10th century

Frith

Richard, Earl of Arundel (c. 1346-97) and his brother Thomas, Archbishop of Canterbury, were leading figures in the reign of Richard II. Richard was one of the lords appellant who in 1389 overthrew the king's ministers. In 1397 he was beheaded for treason.

Henry Fitzalan, Earl of Arundel (c. 1518-80) was leader of the party that secured Mary's accession. He was succeeded by his grandson, Philip Howard, who was beheaded as a martyr in 1929.

His son Thomas (1586-1646) is best known as an art collector. His collection, ultimately arranged in Arundel House, London, comprised statues, busts, engraved stones, pictures, etc. His grandson, Henry, 6th duke of Norfolk, who had inherited the major part of his treasures, was induced by John Evelyn in 1667 to leave the bulk of the sculptures to the university of Oxford, where they are housed in the Ashmolean Museum and known as the Arundel Marbles.

ARVAL. An old English funeral feast; also a funeral loaf or cake. At the death of a person leaving property it was long customary, especially in the N. of England, to invite friends and neighbours to dinner on the day of the burial, when the corpse was exposed to avert any suspicion of foul play on the part of the heir and the beneficiaries. Arval bread or cake was given to the poor and sometimes sent to absent friends. This ancient custom may have been introduced by the Romans.

ARYAN (Skt. *arya*, noble). Name applied to the family of related languages alternatively called Indo-European or Indo-Germanic. This family of inflexional languages presents many affinities of word and syntax, pointing to an essential community of origin. Further analysis establishes well-marked differences between the W. or European and the E. or Asiatic branches. The W. branch is again divisible into groups: (1) Teutonic, (2) Celtic, (3) Italic, (4) Hellenic; the E. branch into (1) Balto-Slavonic, (2) Albanian, (3) Armenian, (4) Indo-Iranian.

While almost all the Aryan-speaking peoples are radically Caucasian, there is no place in the ethnic category for a generic Aryan stock. The tendency of modern research is to recognize in prehistoric Europe three physical types, which may be called Nordic, Alpine, and Mediterranean. Each type was developed under its own conditions of geography and climate; each probably absorbed the racial elements which it encountered. Admitting that a complex effort of the human mind, such as the invention of an inflexional language, is unlikely to have been made more than once in the same way, a primary Aryan speech, as distinct from a parent Aryan race, may be accepted. That Aryan speech began in Europe was first suggested by Latham in 1851; its eastern origin was maintained to the end by Max Müller. The rival theories are not irreconcilable, remembering that the steppe-land that extends from the Carpathians to the Pamirs is continuous and independent of modern continental demarcations.

That this inflexional speech displaced in turn the prehistoric tongues of the first Nordic, Alpine, and Mediterranean peoples, affecting their culture without coordinating their blood, accords with historic experience. See Alphabet; Ethnology; Language.

ASA. Third king of Judah, 9th century B.C. An energetic and capable ruler, he is

praised for his religious zeal. In alliance with Benhadad, king of Syria, whose services he repaid with the treasures of the Temple and the royal palace, he defeated Baasha, king of Israel (1 Kings 15).



Thomas Howard, second Earl of Arundel and Surrey, English royalist
After the original by Rubens

ASAR or **OSAR.** Swedish term for steep-sided banks and ridges of stratified deposits of sand and gravel. They are believed to have been formed in tunnels made by streams under the great glaciers and ice sheets of the Ice Age. In the lower parts of Sweden they traverse the land like great embankments which attain an elevation of from 50 ft. to 100 ft. and follow a sinuous course comparable to that of a river, often for more than 100 m. In Scotland similar ridges are called kames, and in Ireland they are known as eskers.

ASARABACCA. (Lat. *asarum*, hazel-wort; *bacca*, berry). Perennial herb of the order Aristolochiaceae. It has a creeping fleshy rootstock and dark green permanent



Ascension Island. View showing its myriads of seabirds, known as wideawakes

leaves, with a stalked, greenish-purple flower having a bell-shaped, three-lobed perianth. Both leaves and root are acrid and aromatic, and the rootstock has been used in medicine.

Asben. Variant name of the oasis in the French Sahara, known also as Air (q.v.).

ASBESTOS (Gr. *inextinguishable*). A silky fibrous mineral belonging to the group of amphiboles. Usually found in veins in association with serpentine and other rocks rich in magnesia, its value lies in its high melting point and low conductivity to heat. Woven into a kind of cloth, asbestos serves as a fireproof covering for machinery, for filtering corrosive acids, and as gloves and clothing for furnace men and firemen. Asbestos, moulded into various shapes, is employed in gas fires. The main supplies of the mineral come from Canada, South Africa, Russia, and the U.S.A. See Amphibole.

ASCALON or **ASHKELON.** In Biblical times, one of the five chief cities of the Philistines. It is situated about 14 m. N.W. of Gaza, on the Mediterranean, and was the birthplace of Herod I. It was prominent during the Crusades. The city was captured by Saladin in 1187 and was demolished by Beibars in 1270. During the Great War it was occupied on Nov. 9, 1917, by the British, who found only a few squalid huts among the ruins. The shallot or eschalot onion is named from Ascalon, where it was first grown. See Crusades.

ASCANIUS. In classical legend, son of Aeneas. According to the popular story, he sailed westward with his father after the fall of Troy to Italy, where he founded Alba Longa, and ruled over the Latins. He was also called Iulus, and the great Julian gens or clan at Rome regarded him as its ancestor. See Aeneas.

ASCARIS (Gr. *maw worm*). A genus of round worms belonging to the order Nematoda, some species of which infest the intestinal canal in man and other animals. *Ascaris lumbricoides* is a common human parasite. The male is from 4 ins. to 8 ins., the female from 7 ins. to 12 ins. in length. A few worms may be present in the body for years without causing symptoms, but when present in large numbers, especially in children, they may cause diarrhoea, colic, and vomiting.

ASCENSION. British island in the S. Atlantic. It is situated about 700 m. N.W. of St. Helena, in lat. 7° 55' S. and long. 14° 25' W., and has an area of 34 sq. m. Of volcanic origin, it rises 2,820 ft. in Green Mt., in the S.E., which has a sanatorium on its slopes. Administered by the British Colonial Office, the island is a coaling and supply station. Sea-turtle, land-crabs, rabbits, wild goats, partridges, and sooty terns or wideawakes abound. Georgetown is the capital and the only secure anchorage. Discovered by the Portuguese on Ascension Day, 1501, Great Britain acquired it in 1815. Pop. about 250.

ASCENSION (Lat. *ascensio*, an ascending). Christ's miraculous disappearance forty days after His resurrection. The apostles being assembled together, He conducted them to Mt. Olivet, where, having bade them go into all the world and preach the gospel to every creature, He lifted up His hands and blessed them; and while He blessed them He was parted from them and carried up into heaven, and a cloud received Him out of their sight.

Famous paintings of the Ascension include those of Giotto di Bondone, at Padua; and Antonio Allegri (Correggio), at Parma. A festival of the Christian Church commemorating the Ascension is observed on the 40th day after Easter Sunday.



Ascension Island. Map of this little British possession in the S. Atlantic

ASCETICISM (Gr. *askēsis*). Word meaning literally the discipline and training of athletes, and applied to the conquest of animal desires and appetites in man for the purpose of developing the faculties of the soul. Christian monasticism imposed asceticism.

Extravagances of asceticism were practised by the Encratites, the Montanists, and the Manichaeans. They and the flagellants who wandered over Europe in the 14th and 15th

centuries, scourging themselves in public processions, were all condemned by the Church.

In India the Brahmins have carried asceticism to its greatest lengths on the contention, never admitted by the Christian Church, that the greater the austerity the greater the holiness. See Christianity: Monasticism.

ASCHAFFENBURG. A town of Bavaria. It stands on the Main at its junction with the Aschaff. 26 m. by rly. S.E. of Frankfurt. It has a cathedral dating from the 12th and 13th centuries and the castle of Johannisburg, built in the 17th century, formerly a summer seat of the electors of Mainz, and now a museum and picture gallery. It manufactures paper, clothing, and tobacco, and is a centre for the trade carried along the Main. In the Middle Ages it was the capital of a principality, part of the electorate of Mainz. Pop. 34,056.

ASCHAM, ROGER (1515-68). An English classical scholar. In 1538 he was appointed Greek reader at St. John's College, Cambridge, and in 1545 published *Toxophilus*, a treatise on archery, written in the purest English and dedicated to Henry VIII, who gave him a pension of £10 a year. Tutor to Princess (afterwards Queen) Elizabeth at Cheshunt, 1548-50, Ascham then spent three years on the Continent, mainly at Augsburg, as secretary to Sir Richard Morysin (Morison), ambassador to Charles V. The remaining years of his life, passed as Latin secretary and tutor first to Queen Mary and then to Queen Elizabeth, were clouded by poverty. In 1570 his widow brought out *The Scholemaster*, his treatise on classical education, in which he pleads for a more intelligent teaching of languages.

ASCHE, OSCAR (b. 1872). Anglo-Australian actor. He made his first appearance in London in 1893 at the Opéra Comique in *Man and Woman*. After eight years in Sir Frank Benson's Repertoire Company, he joined Sir Herbert Tree in 1902. He became manager of the Adelphi Theatre with Otho Stuart in 1904, of His Majesty's Theatre in 1907, and later of the Globe Theatre. He married the actress Lily Brayton. He staged a number of spectacular plays, and played the title-role in his own successful play *Chu Chin Chow*, 1916-21. In 1929 his life by himself appeared.

ASCHERSLEBEN. Town of Germany, in the Prussian prov. of Saxony. It stands on the Elbe near its union with the Wipper, and is 36 m. by rly. N.W. of Halle. Founded in the 11th century, it possesses one of the old Latin schools and a 15th century church. It manufactures sugar, beer, earthenware, and woollen goods, and carries on a trade in agricultural produce. In the district coal is found and beet-root grown. Pop. 28,269.

ASCIDIAN (Gr. askidion, little skin bag). Order of tunicates or sea-squirts. Found attached to the rocks round the shore, they resemble in appearance a leathery bottle with two necks, but in the larval stage, when they swim about freely, they possess a tail which contains a notochord—the embryonic representative of the backbone in vertebrates.

The common sea-squirt has a leathery cuticle, largely composed of cellulose. Food is taken in with the water inhaled through an orifice in the cuticle. The particles adhere to the slime in the mouth-tube, and are thus passed into the stomach.

ASCITES. Accumulation of fluid within the peritoneal or abdominal cavity. Most frequently it is the result of chronic Bright's disease, heart disease, cirrhosis of the liver, or a tumour pressing upon the veins and obstructing the circulation. In mild cases ascites can be relieved by the administration of drugs, which abstract water from the body through either the urinary or intestinal systems. In severer cases the abdomen must be tapped and the fluid drained off.

ASCLEPIADACEAE.

A large natural order of shrubs, herbs, and trees, mostly with poisonous, acrid, milky juices, and chiefly natives of the tropics. There are many genera and more than 1,000 species. They agree in having the pollen grains aggregated in waxy masses, sometimes enclosed in a bag which is the lining of the anther cells. These masses become attached to the disk of the pistil, and self-fertilisation is effected. The name is derived from Asclepios (Aesculapius), the mythical Greek god of medicine. See Carrion-flower, Swallow-wort; Wax-flower.

ASCOLI PICENO. City of central Italy. The capital of the province of Ascoli Piceno, it stands on the Tronto, 20 m. by rly. W. of Porto d'Ascoli and 73 m. by rly. S.S.W. of Ancona. The Aesulum Picenum of the Romans, it retains portions of its walls, gateways, and bridges. It has a cathedral said to have been founded by Constantine the Great, several churches, a communal palace containing a museum, a castle, a fortress, a convent, and a picture gallery. Majolica, silk, glass, cloth, and leather are manufactured. Pop. 36,397.

ASCOMYCETES (Gr. askos, bag; mykētes, fungi). Large primary division of fungi. It contains many genera and thousands of species, most of them very small and little known. The character of the order is that the spores are contained in a microscopic cell (ascus) embedded in the spore-bearing membrane (hymenium).



Ascomycetes. *Gyromitra esculenta*, of this division of fungi

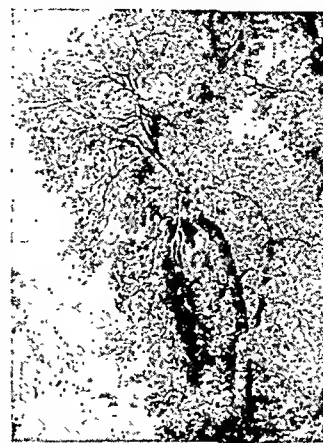
because larger, forms are truffles, morels, and the saucer-shaped Pezizas.

ASCOT. Village of Berkshire, England. It is 29 m. S.W. of London and 6½ m. S.W. of Windsor by the Southern Rly. By order of Queen Anne a racecourse was laid out on Ascot Heath in 1711, and the annual meeting in June, notable for the royal procession instituted in 1820, is one of the most popular and fashionable fixtures under the auspices of the Jockey Club. It is a right-hand circular course of a little less than 1½ m., the last mile being straight and slightly uphill.

The principal event of the meeting is the Ascot Gold Cup, run over a course of 2½ m. See Horse Racing.

ASEPSIS (Gr. a, not; sepsis, putrefaction). The treatment of wounds by solutions and dressings which have been made absolutely sterile, i.e. free from micro-organisms. See Antiseptics.

A large natural order of shrubs, herbs, and trees, mostly with poisonous, acrid, milky juices, and chiefly natives of the tropics.



Ash. Study of ash trees, by John Constable, R.A.

ASGARD (Old Norse äss, god; gārðr, home). In Norse mythology, city of the Æsir, Sited high in the heavens, it was reached from the lower worlds by the bridge Bifröst. Round its walls was a moat with inflammable vapour floating upon it (clouds and lightning). In the city the gods first built a great hall shining with gold, in which were twelve lofty seats; and then beautiful houses for themselves. See Æsir; Bifröst.

ASH (*Fraxinus excelsior*). Large tree of the order Oleaceae, a native of Europe, N. Asia, and N. America. It attains a height of from 50 ft. to 80 ft. or 100 ft., with a girth of about 3 ft. The leaves, which are very large, are divided into from 9 to 15 lance-shaped leaflets. The flowers are degenerate, having lost their petals and sepals to adapt them for

wind pollination. They are of several kinds: male, female, and bisexual, the two latter producing each a strap-shaped fruit, 1½ in. long. Botanically known as samaras, these fruits are popularly called "ash-keys" or "spinners." A secretion from the inner bark of the ash is known as manna—an old-fashioned laxative. The tough, elastic timber, which is harder and more durable when grown on limestone soil, is used in farm, carriage, and furniture work.

ASH. Village of Surrey, England. It is 4 m. N.E. of Farnham, on the Southern Rly. Rifle practice is here engaged in by the troops from Aldershot.

ASHANTI. British possession in West Africa. It is attached to the Gold Coast colony, and has an area of 24,560 sq. m. and a pop. of 407,000. The French Ivory Coast colony is on the W., Togoland on the E., and the Gold Coast colony on the S. Much of the country is thickly covered with forests. The Volta is the only navigable river. Kumasi, the capital, is connected by rly. with Sekondi and Accra in the Gold Coast colony. The chief products are gold, rubber, cocoa, palm oil, bananas, and timber, especially mahogany and cedar. The Ashantis are a number of associated tribes akin to the Fantis.

In 1896 Ashanti was made a British protectorate, and in Sept., 1901, it was annexed. It is governed by a chief commissioner at Kumasi, subject to the governor of the Gold Coast. It is divided into two provinces, an eastern and a western, with headquarters at Kumasi and Sunyani respectively.

ASHANTI WARS. There have been four wars between Great Britain and the Ashantis. The first began in 1821, but it was ten years before the Ashantis recognized Britain's authority over the neighbouring Fanti tribes. The second (1873-74) was conducted by Sir Garnet Wolseley because the Ashantis invaded territory under British protection. In the third (1896), a bloodless campaign, King Prempeh, who had refused to accept the treaty of 1874, was made prisoner and his capital entered. In 1900 a British force marched to relieve Kumasi (q.v.), which was besieged by turbulent tribesmen.

ASHBOURNE. Urban district and market town of Derbyshire, England. It stands on the Henmore, near its junction with the Dove, 13 m. W. by N. of Derby, on the L.M.S. Rly. It has a cruciform church, dating from 1241, with a central tower surmounted by a spire, 212 ft. high, referred to locally as the Pride of the Peak, and a grammar school founded 1585. Ashbourne Hall was occupied by Prince Charlie in 1745. The manufactures include cotton and corsets. Market day, Sat. Pop. 4,137



Ascot Gold Cup

ASHBOURNE, EDWARD GIBSON, 1ST BARON (1837-1913). Irish lawyer and politician. He was called to the Irish bar in 1860, sat in Parliament 1875-85 as member for Dublin University, and was attorney-general for Ireland from 1877 to 1880. In 1885 he was made lord chancellor of Ireland with a seat in the Cabinet, and was raised to the peerage. A strong advocate of land purchase, he was largely responsible for the Ashbourne Acts. His son, William Gibson (b. 1868), the 2nd baron, as president of the Gaelic League of London, was a conspicuous adherent of the Gaelic revival.

ASHBURNHAM, EARL OF. British title borne by the family of Ashburnham 1730-1924. John Ashburnham was made a baron in 1689, and his son John an earl in 1730. John, the 2nd earl, was a courtier under George III, and from him the later earls are descended. Bertram Ashburnham, the 5th earl (1840-1913), succeeded to the peerage in 1878, having become a Roman Catholic in 1872. He was prominently associated with the Carlist movement in Spain. Ashburnham Place in Sussex was the family residence. On the death of the 6th earl in 1924 the peerage became extinct.

ASHBURTON. River of Western Australia. Rising S.W. of the Great Sandy Desert, it flows 400 m. N.W. and enters the Indian Ocean at Onslow. It traverses Ashburton goldfield, but is not navigable.

ASHBURTON. Urban district and market town of Devonshire, England. It lies in a beautiful valley, near the Dart. 24 m. N.W. of Plymouth, on the G.W.R., and close to Dartmoor and Holne Chase. The 15th century church of S. Andrew has a tablet to the first Baron Ashburton, who was educated at the grammar school. Serge is manufactured, and close by amber is worked. Market day, Sat. Pop. 2,362.

Another Ashburton is a town of South Island, New Zealand, in Canterbury county. It stands on Ashburton river, 53 m. by rly. S.W. of Christchurch. Pop. 2,851.

ASHBURTON, ALEXANDER BARING, BARON (1774-1848). British statesman and financier. He was the second son of Sir Francis Baring, founder of the financial house of Baring Brothers & Co. He sat in Parliament 1806-35 for Taunton, Callington, Thetford, and North Essex, and opposed the Reform Bill. In 1834 he was president of the Board of Trade and master of the mint, and in 1835 was raised to the peerage. In 1842 he was sent to America to inquire into the north-west boundary and other questions, the treaty which ended the dispute being known as the Ashburton or Webster-Ashburton treaty. It provided for the cession of about seven-twelfths of the 12,000 sq. m. of disputed territory to the U.S.A. He died May 13, 1848, and the title is still in the Baring family.

The Ashburton Challenge Shield is a trophy competed for annually at Bisley by the public schools officers' training corps. It was presented in 1861 by the third Lord Ashburton.

ASHBY-DE-LA-ZOUCH. Market town and parish of Leicestershire, England. It stands on the Mease, 21 m. N.W. of Leicester, and 118 m. N.N.W. of London by the L.M.S. Rly. The church of S. Helen has monuments to the Huntingdon family. The Moira mineral springs supply the Ivanhoe baths, frequented by sufferers from rheumatism. Coal, lead, and other minerals are worked and hosiery and leather manufactured. There are remains of Ashby Castle, which figures in Scott's *Ivanhoe*. Market day, Sat. Pop. 4,983.

ASHDOD. Philistine city, about 3 m. from the sea between Gaza and Joppa (Josh. 15). Here, in the temple of Dagon, the Philistines placed the ark (1 Sam. 5-6). On a hill commanding the road into Palestine and Egypt, it was repeatedly captured (2 Chron. 26;

Is. 20), and its idols and temple were destroyed by the Maccabees. It became a centre of Greek civilization as Azotus, and is so called in Acts 8. Its modern name is Sdud.

ASHDOWN. Park and seat of the earl of Craven in Berkshire, 3 m. N. of Lambourne. As Aescandune or Assandune it was the scene in 871 of the defeat of the Danes by Ethelred and Alfred. Near are ancient camps and a cromlech, Wayland the Smith's Cave, the legend of which is referred to in Scott's *Kenilworth*. See Wayland the Smith.

Ashdown Forest is a district in Sussex. It lies between Crowborough and E. Grinstead, and is the only remaining part of the forest known to the Saxons as the Andredsweald. It covers about 14,000 acres.

ASHFIELD, ALBERT HENRY STANLEY, 1ST BARON (b. 1875). British business man and politician. Born at Derby, he spent his early years in the United States, where he entered the railway world. His success there led to his return to England in 1910, when he became managing director of the Underground Electric Rly. Co. and the London General Omnibus Co. He was knighted in 1914, and in 1916 was invited to join Mr. Lloyd George's Cabinet. He became president of the Board of Trade and M.P. for Ashton-under-Lyne. In 1919 he resigned office and seat, and was made a peer as Baron Ashfield of Southwell.

ASHFORD. Urban district and market town of Kent, England. It stands on the Stour, 14 m. S.W. of Canterbury, on the Southern Rly., and has agricultural implement works, brickfields, and engineering works of the Southern Rly. It has a fine Perpendicular church and an old grammar school. During the Great War there was a Canadian ordnance depot here. Market day, Tues. Pop. 14,355.

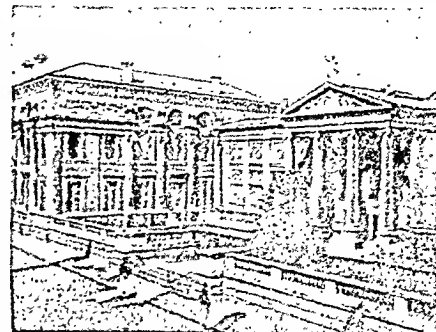
ASHFORD. Parish and village of Middlesex, England. The ancient Exeford, it is 2 m. E. of Staines on the Southern Rly., and has a Gothic church. Pop. 7,673.

ASHINGTON. Urban district of Northumberland, England. It is 4 m. E. of Morpeth by the L.N.E.R., in a coal-mining district. There was an aerodrome here during the Great War. Pop. 29,583.

ASHLAR (Lat. axilla, small board). A term generally used to denote hewn and squared blocks of stone, as opposed to unfinished stone from the quarry. More particularly, ashlar is such stone used to face a wall composed of less durable materials.

ASHLEY, ANTHONY EVELYN MELBOURNE (1836-1907). British politician. Usually known as Evelyn Ashley, he was the fourth son of the 7th earl of Shaftesbury. He was private secretary to his uncle, Lord Palmerston, 1858-65, and in 1876 completed the standard biography of that statesman begun by Lord Dalling. In 1864 he cooperated with Algernon Borthwick (afterwards Lord Glenesk) in founding *The Owl*, a pioneer society newspaper. He entered Parliament in 1874 as Liberal member for Poole, Dorset, and became under-

secretary to the Board of Trade in 1880 and to the Colonial Office in 1882. He died at



Ashmolean Museum, built for the collection presented to Oxford by Elias Ashmole. See below

Broadlands, Hants, which he had inherited from Palmerston, Nov. 15, 1907.

ASHLEY, SIR WILLIAM JAMES (1860-1927). British economist. He was professor of political economy at Toronto, 1888-92, and of economic history at Harvard, 1892-1901. In 1901 he returned to England as professor of commerce in the new university of Birmingham. He supported Chamberlain's proposals for Tariff Reform, and in 1914 helped to draw up the report of the Unionist Social Reform Committee on industrial unrest. He was knighted in 1917. His writings include: *Introduction to English Economic History and Theory*, 1888-93; *The Rise in Prices*, 1912. He died July 23, 1927.

ASHLEY, WILFRED WILLIAM (b. 1867). British politician. Born Sept. 23, 1867, he was a son of the Hon. Evelyn Ashley, from whom he inherited Lord Palmerston's old home, Broadlands, near Romsey. Educated at Harrow and Magdalen College, Oxford, he served in the Grenadier Guards before entering Parliament in 1906 for the Blackpool Division. In 1918 he was elected for the Fylde Division of Lancashire and in later elections for the New Forest Division. After having filled subordinate ministerial positions, he was Minister of Transport 1924-29. Ashley's first wife was a daughter of Sir Ernest Cassel, and one of their daughters married Lord Louis Mountbatten.

ASHMEAD-BARTLETT, SIR ELLIS (1849-1902). Anglo-American politician and writer. Born in Brooklyn, New York, he came to England in boyhood and was educated at Christ Church, Oxford. After being a government inspector of schools, 1874-77, he was called to the bar. He entered Parliament as Conservative M.P. for Eye, 1880, and from 1885 sat for Ecclesall (Sheffield). In 1885 and 1896 he was civil lord of the Admiralty, and in 1892 was knighted. His younger brother, William

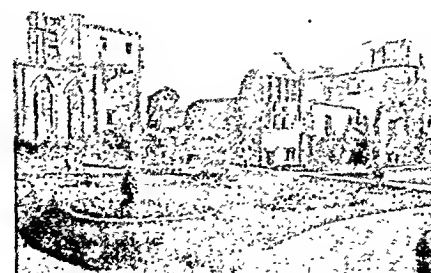


Sir Ellis Ashmead-Bartlett, Anglo-American politician
Elliott & Fry

Lehmann Ashmead-Bartlett (1851-1921), married the Baroness Burdett-Coutts (q.v.).

Sir Ellis's son, Ellis Ashmead-Bartlett (b. 1881), was a well-known war correspondent and author of *Despatches from the Dardanelles*; *The Riddle of Russia*, etc.

ASHMOLE, ELIAS (1617-92). English antiquary. Born at Lichfield, May 23, 1617, he became a solicitor, and as a royalist was captain of horse and comptroller of the ordnance during the Great Rebellion, being appointed Windsor Herald after the Restoration. Although he declined the office of Garter king-at-arms, his chief work deals with *The Institutions, Laws and Ceremonies of the Order of the Garter*, 1672. In 1677 he presented to his university, Oxford, the first



Ashby-de-la-Zouch. Ruins of the 15th century castle, in which Mary, Queen of Scots, was imprisoned

public collection of antiquities in England, now in the Ashmolean Museum, a structure erected 1893-4, adjoining the Taylorian Institute. His books and natural history exhibits were taken to the Bodleian and the University Museum respectively. The Ashmolean Museum contains Egyptian, Greek, Roman, British and other antiquities, which were gradually added to Ashmole's gift.



Elias Ashmole,
English antiquary
Contemporary print

ASHMORE, EDWARD BAILEY (b. 1872). British soldier. He served with the R.H.A. in the South African War, being severely wounded at Sanna's Post in 1900. Having passed through the Staff College, he joined the general staff in 1908, and in 1914 was assistant secretary to the inspector-general of Oversea Forces. He had, however, joined the reserve of the R.F.C., and joined that corps in Nov., 1914. He remained at the front, as commander of a brigade, until the middle of 1917, when he returned to England as a major-general to take charge of the air defence of London. In 1924-28 he was G.O.C. Territorial Air Defence Brigades. He published *Air Defence*, 1929



Ashridge Park, given to the Conservative Party as an educational centre and training college

ASHRIDGE PARK. Estate in Hertfordshire, England. It was long the property of the dukes of Bridgewater, and later of the Earls Brownlow. When the last Earl Brownlow died in 1921 the park was sold. About 2,200 acres, including Ivinghoe Beacon, were bought for the National Trust, and another tract by the Zoological Society for an outdoor garden. The house and the gardens were presented by Mr. U. H. Broughton to the Conservative party for a training centre as a memorial to Mr. Bonar Law. The stained glass of the chapel was presented to the S. Kensington Museum. There was a monastery at Ashridge in the 13th century, and later this became a royal residence.

ASHTAROTH. Ancient city of Palestine. It is named in the Bible (Deut. 1; Joshua 9, 12, 13) as the capital of Og, king of Bashan, 6 m. from Abila, and has been identified with Ashteroth-Karnaim (horned Ashtaroth), Carnion or Carnain, scene of Chedorlaomer's defeat of the Rephaim (Gen. xiv. 5); but Eusebius mentions Ashtaroth and Karnaim Ashtaroth as two villages between Adara (Edrei) and Abila, Karnaim Ashtaroth being in Bashan.

ASHTAROTH. The plural of Ashtoreth, Hebrew name for the Sidonian goddess Astarte, referred to in the O.T. (1 Kings 11; 2 Kings 23). The plural is used because the later mythology made separate deities of her several manifestations. See Astarte.

ASHTED. Village of Surrey and a residential suburb of London. It has a station on the Southern Rly., and is 15 miles from London. Near the village is a large common on which, in 1925, remains of a Roman villa were found. Excavations have brought to light a quantity of coins, pottery, ornaments, etc., of Roman times. Pop. 3,226.

ASHTON-IN-MAKERFIELD. Urban district and market town of Lancashire. It is 4 m. S. of Wigan by the L.N.E. and L.M.S. Rlys., has coal mines, potteries, and cotton mills, and manufactures nuts, locks, hinges, files, and nails. Market day, Sat. Pop. 22,489.

ASHTON-UNDER-LYNE. Borough and market town of Lancashire. It is on the Tame, 6 m. E. of Manchester, on the L.M.S. and L.N.E. Rlys. Cotton and silk spinning, dyeing, bleaching, iron-founding, and hat making are the chief industries, and there are considerable collieries in the neighbourhood. The 13th century church has been almost entirely rebuilt. The old manor hall, with prison, and the Gallows Meadow recall the feudal powers of the Ashtons, lords of the manor. On Hartshead Hill there is a tower, 80 ft. high, formerly used for a signalling station. Stamford Park, the gift of Lord Stamford, is the joint possession of Ashton and Stalybridge. It returns one member to Parl. Market days, Mon. and Sat. Pop. 52,274.

ASHURBANIPAL. King of Assyria 668-626 B.C. The Biblical Asuapper—Osnapper in R.V.—(Ezra iv), son of Esarhaddon, his campaigns were marked by much barbarity. He plundered Thebes, 666; sacked Babylon, 648; and destroyed Susa, 644. Under him Assyrian art and literature reached their zenith. See Assyria; Babylon.

ASHURNATSIRPAL OR ASHURNAZIRPAL. Name of three Assyrian kings. The greatest, Ashurnatsirpal III, 883-858 B.C., greatly extended the empire northward and westward. With the capture and tribute brought from Lebanon, Phoenicia, and elsewhere he rebuilt Calah, and erected luxurious palaces. He was succeeded by his son Shalmaneser III.

ASH WEDNESDAY. Day observed in the Christian Church since the beginning of the 9th century, partially, and since 1191 generally, as the first day of Lent. The name dies cinerum or day of ashes (Fr. mercredi des cendres) originated in the custom in the primitive Church, still practised in the Roman Catholic Church, of strewing ashes on the head as a sign of penitence. In the Church of England the Communion Service was substituted for this ceremony in the 16th century.

ASHWELL, LENA (b. 1872). British actress. The third daughter of Commander Pocock, R.N., she studied at the Royal Academy of Music. Giving up music for the stage, on the advice of Ellen Terry, she made her début in 1891, became manager of The Savoy Theatre in 1906, and in 1907 obtained a lease of The Great Queen Street Theatre, Holborn, which she reopened as The Kingsway Theatre. One of her greatest parts was Mrs. Dane, in Mrs. Dane's Defence, 1900. In 1908 she married Sir Henry Simson. During the Great War she organized concert parties, and later touring companies to act in London suburbs. In 1929 she published her experiences as The Stage.



Lena Ashwell,
British actress
Russell

ASIA. The largest of the world's continents. Its area is more than 17,000,000 sq. m. and its pop. over 1,000,000,000. It is bounded on the N. by the Arctic Ocean, on the E. by the Pacific, on the S. by the Indian Ocean, and on the W. by Europe, with water-fronts on the Caspian, Black Sea and Mediterranean, and by Africa, to which it is joined by the isthmus of Suez, and from which it is separated by the Red Sea.

Asia includes some of the hottest and some of the coldest lands in the world, some of the most productive regions and some of the most barren, some of the grandest scenery,

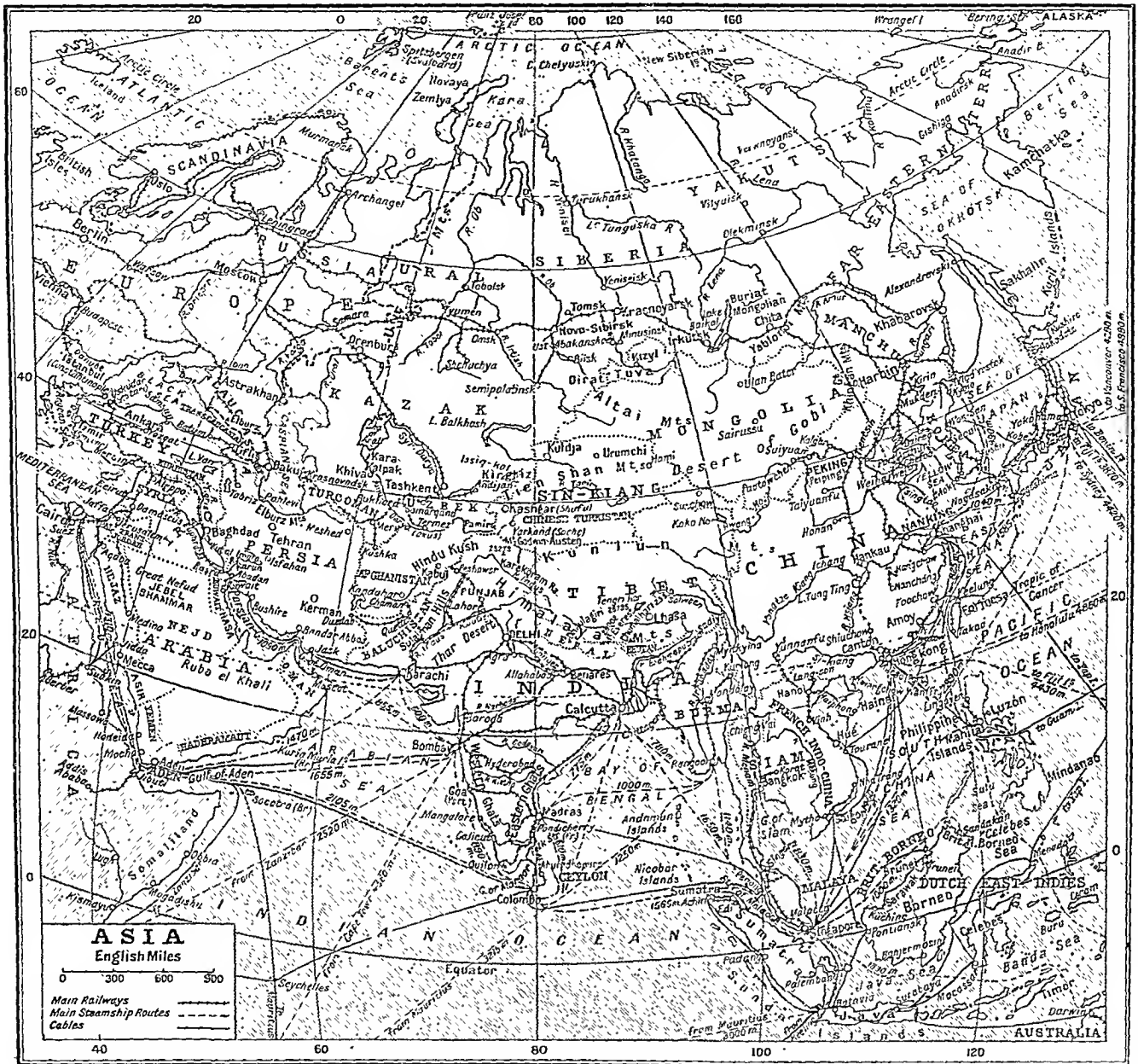
as in the Himalayas, and some of the dreariest, as in the Gobi desert. It contains the highest mountain peaks in the world—Mt. Everest and Godwin-Austen, the most elevated plateaux where life is supportable, and depressed areas that have sunk to a lower level than that of the sea. For its size, it is not rich in rivers suitable for inland navigation. In the N. all the rivers are icebound for months. China is well served by its mighty central river, the Yang-tse-Kiang, but the Hwang-ho has been rendered useless for access to and from the sea by sandbanks. In India inland steamer navigation is almost entirely confined to the Irawadi and to the Ganges-Brahmaputra-Meghna group of waterways. The Indus is not navigable by steamers. Asia has few lakes of consequence, and Baikal, the largest, is ice-bound for a great part of the year.

The fauna and flora of Asia comprise nearly every known tree, plant and animal. Typically Eastern trees are the palm, cedar and oak, in the production of which India and Indo-China rank highest, while spice trees, tea and indigo are not found in commercial quantities outside Asia. The oak, ash, walnut and other western trees are plentiful, and coffee, cotton, sugar cane, the poppy, camphor, fruit, wheat, rice and other cereals have been cultivated from time immemorial. The animals of Asia include the lion, tiger and leopard, as well as several beasts of burden not found in Europe, such as the elephant, camel, buffalo and yak. Among the fur-bearing animals of the N. are the sable, ermine, marten, bear, seal and fox. Asia is very rich in minerals, having long been famous for diamonds, rubies, emeralds, pearls, gold and silver. There are vast coalfields in China and iron and lead deposits in Asiatic Russia.

The countries of Asia include Turkey, Syria, Palestine, Caucasia, Arabia, Iraq, Persia, Baluchistan, Afghanistan, the Central Asian states, the Indian Empire, Burma, Siam, Malaya, Indo-China, China, with Mongolia and Tibet, Korea, Japan and Siberia. These may be considered in five divisions—the Middle East, which includes broadly the first seven countries mentioned above, is agricultural and pastoral. Its characteristic exports are carpets, mohair and fruit, chiefly figs, from Turkey; coffee, dates and spices from Arabia, and carpets and rugs from Persia.

India includes in its economic range Afghanistan, Baluchistan, Siam, Malaya and Ceylon. Its trade and commerce, though increasingly directed by natives, are fostered and controlled mainly by the British. The country is covered with a network of railways, and its ports—Karachi, Bombay, Madras, Calcutta, together with Colombo in Ceylon and Singapore in the Straits Settlements—are among the most important in the world. In the Far East, comprising Indo-China, China and Japan, the prevailing political influence is Japan, except in Indo-China, which is under French control, and at Hong-Kong, which is a British possession. Considering its vast size and population and its wealth of natural resources the economic development of China is imperfect, although its commerce and trade are enormous. Canton, Shanghai, Chefoo and Tientsin are the principal ports of China. In Dalny Japan has a good port on the mainland, the chief ports of the islands being Yokohama, Nagasaki, Kobe and Hakodate.

Russian Asia includes territories settled or occupied by Russians, such as Siberia and Caucasia. In Siberia cattle raising and dairying are the main industries. The forests produce timber and furs, and gold is found in some of the rivers. Caucasia is rich in oil. In the Dutch East Indies, which include Borneo, Sumatra, Java and the Celebes, the Dutch are predominant, although Britain has a part of Borneo. The islands produce rubber, tobacco and coffee and some contain oil.



Asia. Map showing the relative positions of the countries that make up this vast continent. Fuller details will be found on the larger scale maps which accompany the articles on the different countries, e.g. Arabia, Afghanistan, Japan, etc.

The Royal Asiatic Society was founded in 1823 for the investigation and encouragement of science, literature, and the arts in relation to Asia. Its offices are 74, Grosvenor Street, London, S.W.1. The Society of Biblical Archaeology was amalgamated with it in 1918.

Consult *The Empires and Cities of Asia*, A. G. Forbes, 1873; *Problems of the Far East*, Lord Curzon of Kedleston, new ed., 1896; *Through Asia*, Sven Hedin, 1898, and numerous other works; *The Nearer East*, D. G. Hogarth, 1902; *The Face of the Earth*, E. Suess, Eng. trans. H. B. C. Sollas and W. J. Sollas, 1904-9; *The Far East*, A. Little, 1905; *Asia*, A. H. Keane, 2nd ed. rev. 1906; *A Third Journey of Exploration in Central Asia*, 1913-16, M. A. Stein, 1916, and numerous other works; R. G. S. *Proceedings and Journals*.

ASIA MINOR. Geographical expression sometimes applied to the peninsula forming the W. extremity of Asia. The territory so designated corresponds broadly to the Turkish territory in Asia known as Anatolia. See Anatolia; Angora; Turkey.

ASIAGO. Town of Italy, in the prov of Vicenza. The chief town of the district known as the Seven Communes, it lies 25 m. by rly. N. of Vicenza, at an alt. of 3,280 ft. It has a museum of antiquities. Pop. 2,500.

BATTLES. On the Asiago plateau battles were fought between the Austrians and the Allies, 1917-18. In the first battle the Austrians endeavoured to repeat the success they had recently won at Caporetto by a break-through from the Asiago Plateau to the plain. On Nov. 10 they captured what was left of the town of Asiago and the village of Gallio, and compelled the Italians to fall back to a line reaching from Monte Sisemol to Monte Meletta, which they unsuccessfully attacked on Nov. 13. The battle was renewed on Dec. 4, when the Italians drove back the enemy from Monte Sisemol, but were defeated at Monte Badeneceh and elsewhere, with a loss of 15,000 prisoners. A few days later the Austrians took Sisemol, and on Dec. 23 stormed Col del Rosso and Monte Molaga, which the Italians later retook. In Jan., 1918, they took the offensive and gained

a little ground around Col del Rosso. The battle then died down.

The second great battle began on June 15, when the Austrians attacked from S.W. of Asiago to the Brenta, from the latter to E. of Monte Grappa, and from the Montello to below San Dona di Piave, a front of 45 m. Opposed to them were Italian, British and French troops. At first the Austrians made progress, taking the Col del Rosso and Costalunga, but Allied counter-attacks won back the latter. Fierce assaults on the British sector were defeated, and soon the two British divisions advanced, the enemy retreating in confusion. The effect of the Allied victory was profound, leading to riots in Austria, and relieving Foch from the necessity of sending more troops to the Italian front.

In the third battle the Allies took the offensive. On Oct. 30 the British occupied Asiago and stormed Monte Catz on Nov. 1, while the Italians steadily advanced. On Nov. 4 the Austrians were in retreat northwards, pursued by the Allies until the armistice put an end to hostilities at 3 p.m. on Nov. 4.

ASIENTO (Span. *asentar*, to place, or make a contract). Agreement signed between Great Britain and Spain in 1713. By this Britain obtained for a period of thirty years the privilege of importing 4,800 slaves annually to the Spanish colonies of America, and also of sending each year to S. America one ship filled with wares. By various tricks more goods were sent to America than the treaty allowed, and this caused much trouble between the two countries. At length war broke out, and when this came to an end in 1748, the Asiento was renewed for four years. Shortly afterwards Spain paid Britain £100,000 and it was cancelled.

ASIR. Principate of Arabia. Much encroached upon by Ibn Saud and the Imam of Sana, it now consists of a mere strip of coast on the E. shore of the Red Sea between Hali Point and Jizan. Ruled by an amir of the Idrisi family, it revolted against the Turks when Turkey entered the Great War and co-operated with the Hejaz Arabs and the Allies. In 1926 it was placed under the protectorate of Ibn Saud. See Arabia; Hejaz.

ASKARI (Arab. *askar*, army). Term used in Africa for a native soldier trained and officered by Europeans. They were employed effectively in the Allied forces in the campaign against the Germans in East Africa, 1914-18, and also by the Germans.

ASKE, ROBERT (d. 1537). Leader of the English Pilgrimage of Grace. When the popular discontent at the suppression of the smaller monasteries developed into an insurrection, he was chosen as leader. York was occupied Oct. 16, 1536, and on Oct. 20 Pontefract Castle surrendered to Aske, who proposed to lead the rebels to London. Aske was then invited to London by Henry VIII under a safe-conduct pass, and he returned to Yorkshire in Jan., 1537, with the promise from the king that a parliament should be held in York. Later the same year he was again invited to London, arrested, tried for high treason, and hanged at York, in spite of promises of pardon from Henry VIII and Thomas Cromwell. See Pilgrimage of Grace.

ASKERN. Village of Yorkshire (W.R.), it is 6 m. north of Doncaster with a station on the L.N.E. Rly. It has developed from a small village into a mining centre owing to the opening of coal mines, and here the mine-owners, the Askern Coal and Iron Co., have built over 500 houses for the workers. There are works here for the low temperature carbonisation of coal.

ASKJA. The largest volcano of Iceland. Its crater is 34 sq. m. in area, over 700 ft. deep, and 4,633 ft. high. Intermittently and sporadically active, its old lava floods cover an area of 1,500 sq. m. Ashes from the eruption in 1875 floated as far as Sweden.

ASKRIGG. Market town of Yorkshire (N.R.). It stands on Ure river, 11 m. W. of Layburn by the L.N.E.R. It is noted for its grouse moors. Market day, Thurs. Pop. 481.

ASKWITH, GEORGE RANKEN ASKWITH, 1ST BARON (b. 1861). British civil servant. Born Feb. 17, 1861, and educated at Marlborough and Oxford, he became a barrister in 1886. In 1907 he entered the Board of Trade as assistant secretary; and he was chief industrial commissioner, 1911-19. In 1908 he was made a K.C. and in 1911 a K.C.B. In March, 1919, he was raised to the peerage as Baron Askwith of St. Ives. He published *Industrial Problems and Disputes*, 1920; *Taverns, their History and Laws*, 1928.



Baron Askwith,
British civil servant
Russell

ASMARA. Capital of Eritrea, N.E. Africa. It is 75 m. by rly. S.W. of Massawa, stands 7,765 ft. above sea level, and is strongly fortified and garrisoned by Italian and native troops. Occupied in 1889 by the Italians, it has a wireless station, and is a busy agricultural and trading centre, with gold mines in the neighbourhood. Asmara superseded Massawa as the capital in 1900. Pop. 14,711, of which about 2,500 are Europeans.

ASMODEUS. Evil genius of Hebrew tradition. The name is supposed to be derived from the Aeshma daeva, or demon of evil, of ancient Persian religion. In the Book of Tobit the seven husbands of Sarah, daughter of Raguel, are said to have been successively killed by Asmodeus, hence he is sometimes regarded as the spirit opposed to matrimonial happiness. He is the principal character in Le Sage's romance, *The Devil on Two Sticks*.

ASODAKE OR **ASOSAN.** Volcano of Japan, in Kiushiu. It is situated 27 m. E. of Kumamoto, and consists of one active, Nakadake, and four quiescent peaks, the highest, Takadake, being 5,500 ft. above sea level. The outer crater, 17 m. N. to S., 10 m. E. to W., contains the five peaks and is the largest in the world.

ASOKA (d. c. 228 B.C.). Buddhist emperor of India. He was the grandson of Chandragupta, the founder of the Maurya dynasty, and began to reign 264 B.C. After conquering the kingdom of Kalinga, c. 261, he was so distressed at the horrors of war that he turned Buddhist, devoting himself to spreading the principles of Buddhism. More than thirty of his edicts, mostly concerned with his code of practical morality and his methods of disseminating it, have been found inscribed in the local vernaculars on pillars, rocks, and caves. See Allahabad; Consult Lives, V. A. Smith, 2nd ed., 1909; J. M. Macphail, 1918.

ASOLO. Town of Italy. The ancient Aceluun, it stands on a ridge 685 ft. high, 10 m. E. of Bassano, and has ruins of Roman baths and a theatre. The 13th century castle was once the home of Caterina Conaro, the last queen of Cyprus. Asolo was a favourite resort of Robert Browning: his house is marked by a tablet and the street bears his name. The parish church has a fine altar-piece by Lorenzo Lotto. Pop. 6,500.

ASP. Term for various poisonous snakes. It is applied to the *Vipera aspis* of S. Europe, and especially to the Egyptian snake used by Egyptian jugglers. Cleopatra's asp is believed to have been the N. African horned viper. Asp and the variant aspie are used in poetry to denote any venomous snake. See Snake.

ASPARAGINE OR **AMINO-SUCCINIC ACID.** Crystalline nitrogenous body originally discovered in asparagus. It also occurs in the juices, growing buds, and germinating seeds of many other plants.

ASPARAGUS. Genus of plants of the order Liliaceae. The best-known species is the common asparagus (*A. officinalis*), a native of the sandy S. and W. districts of Britain, and of the sea-shores of Europe generally. The young, tender shoots are cut and eaten as a vegetable. Asparagus is grown from seed, and a period of five years must elapse from the sowing until the plant is fully matured for cutting. *Asparagus plumosus* and *A. spre-*



Asparagus. On the left is a clump of the cultivated vegetable, showing the way the edible shoots spring from the roots. On the right are two pieces of wild asparagus, showing the partly opened and fully developed upper growth

gheri are two climbing greenhouse perennials known as asparagus ferns, and grown for their feathery foliage.

ASPASIA. The wife of Pericles. The daughter of Axiochus and a native of Miletus or Megara, she removed to Athens, where her wit and intelligence captivated Pericles, who divorced his wife and married her. Her influence with Pericles was greatly exaggerated by contemporary writers, Aristophanes accusing her of instigating the Samian and Peloponnesian wars. When Pericles was indirectly attacked by an accusation of impiety brought against Aspasia, he successfully defended her.

Another Aspasia was the wife of Cyrus the Younger. On his death she became the mistress of Artaxerxes, who later gave her up to his son Darius. Later Artaxerxes took her back and made her priestess of Artemis at Ecbatana.

ASPATRIA. Urban district and market town of Cumberland, England. It is on the river Ellen, 7½ m. N.E. of Maryport, by the L.M.S. Rly. It has an agricultural college, established 1874, and engages in coal mining. Market day, Wed. Pop. 3,525.

ASPEN (*Populus tremula*). Tree of the natural order Salicaceae. A native of Europe, N. Asia, and N. Africa, it attains a height of from 50 ft. to 80 ft. It has a grey bark and spreading branches. The leaves are oval or roundish with irregularly toothed edges. They are moved by the slightest breeze, and to this is due the popular im-



Aspen leaves, which are set in motion by the faintest breeze aspen leaf and physical trembling. See Poplar.

ASPERGES (Lat. *Thou shalt sprinkle*). Service preceding the principal Mass on Sundays in the Roman Catholic Church. The celebrant, having entered the sanctuary, sprinkles holy water from a portable vessel called the aspersorium, by means of a kind of brush called aspergill or aspersol, on the altar, clergy, and people. During the ceremony the choir sing the antiphon, *Asperges me, Domine, hyssopo, et mundabor*, etc. (*Thou shalt purge me, O Lord, with hyssop, and I shall be clean*).

ASPERN. Village of Austria. Here a battle between the French under Napoleon and the Austrians under the Archduke Charles was fought, May 21-22, 1809. The French had occupied Vienna, but the Austrian army was in being on the other side of the Danube. Napoleon sent his army across the river, and though unmolested while they crossed, as soon as they were over the last branch of the river, early on the 21st, the Austrians came on in five columns. Fighting ensued round the two villages, which were lost and regained, the Austrians in the end holding one and the French the other. Napoleon then attacked and broke the Austrian centre, but the battle ended in the defeat of the French, the first ever suffered by Napoleon. The losses on both sides were heavy.

ASPHALT. Material consisting of a natural mixture of hydrocarbons and mineral substances. Of natural asphalts there are two principal varieties: (a) soft asphalt, consisting of bitumen and earthy matter, which is used, with other ingredients, as a paving material and for other purposes; (b) rock asphalt or bituminous limestone, which is a stone of liver-brown hue containing 5-20 p.c. of natural mineral tar.

The most useful quality is that consisting of pure carbonate of lime uniformly mixed with 10-12 p.c. of mineral bitumen, which merely requires the application of heat and subsequent ramming to render it one of the most durable paving materials known. Asphalt is also employed for roofs, floors, and damp courses, and for covering arches. Large quantities of asphalt are obtained from a lake in Trinidad. Artificial asphalt often consists of a mixture of coal tar, powdered chalk or slaked lime, and fine sand. This is boiled and poured, while hot, over the surface to be covered. See Roads.

ASPHODEL (*Asphodelus*). Small genus of perennial herbs of the natural order Liliaceae. Natives of the Mediterranean region, they have



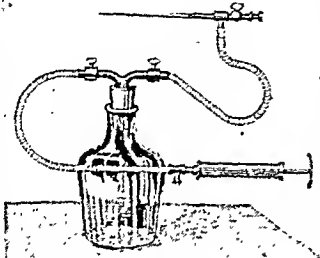
Asphodel. *Asphodelus ramosus*, one of the species of this Mediterranean genus

fleshy roots in bunches and long, slender leaves. The white or yellow blossoms are clustered around the upper part of the tall stem, and are very showy. They are old-fashioned garden flowers, particularly the white asphodel (*A. albus*) of S. Europe and the yellow asphodel (*A. creticus*) of Crete. The name daffodil is a corruption of asphodel. The bog asphodel belongs to the genus *Narthecium*.

ASPHYXIA (Gr. a, not; sphyx, pulsation). Condition produced by arrest of the respiratory functions ultimately terminating in death. Asphyxia may be due to natural causes, or to violent causes, such as drowning, suffocation. See Artificial Respiration; Drowning.

ASPIC. Savoury jelly made from calves' feet, containing meat, fish, etc., flavoured with herbs, vinegar, and sherry. Aspic is also a poetical form of asp, and the jelly is perhaps so called from its being cold to the touch, like a snake.

ASPIDISTRA. Foliage plant of the natural order Liliaceae. A native of Japan and China, it was introduced into Britain in 1822. Ordinary garden



Aspirator. Surgical form, used for the removal of fluid matter from the body

soil with a mixture of leaf mould suits it best. The pot should be plunged in water weekly, and the leaves sponged.

ASPIRATOR. Appliance employed in ventilating, filtering, and in several industrial and chemical processes. It is used to draw a current of air from one vessel or from the open into or through another vessel. In the usual form the flowing out of water from a receptacle causes air or some other gaseous fluid to be drawn in from another vessel.

The name aspirator is also given to a surgical instrument used to remove fluid matter from the body.

ASPIRIN. Short name for acetyl-salicylic acid ($C_9H_8O_4$), also sold under other names. The drug is used in rheumatism and to relieve neuralgia, headache, sciatica, etc.

ASQUITH. Family name of the earl of Oxford and Asquith. Raymond Asquith (1878-1916), Lord Oxford's eldest son, a brilliant Oxford scholar and a barrister, was killed while serving with the Guards near Ginchy in Sept., 1916. His son Julian became the 2nd earl on his grandfather's death in 1928. Lord Oxford's second son, Herbert, has published volumes of verse and several novels, including *Wind's End* and *Young Orland*. The third son, Arthur Melland, won the D.S.O. in the Great War, and rose to be a brigadier-general; afterwards he became a director of Sudan Plantations and other companies. Lord Oxford's two daughters are Violet, the wife of Sir M. Bonham-Carter, and Elizabeth, who married Prince Antoine Bibesco, Rumanian minister in Madrid. See Oxford and Asquith, Earl of.

ASS. Name applied generally to one of the four divisions of the genus *Equus*, the other three being the horse proper, the zebra, and the quagga. Asses differ from horses in the possession of an erect mane, a tufted tail, and long ears, and in the absence of the chestnuts or callosities below the hock; and from zebras and quaggas in the suppression of the striping.

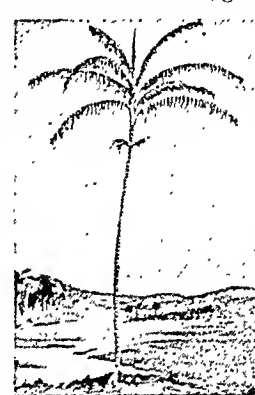
In the wild state the ass inhabits Asia and Africa and includes several subspecies. The kiang of Tibet is the largest. The dziggeta of Mongolia and the onager of Persia, Syria, and W. India are smaller and more lightly

built. The African wild ass inhabits Nubia, the Sudan, and Somaliland, and is of rather stouter build. It is from this species that the domestic breeds have been derived. The largest of the domesticated asses is that of Poitou, which attains a height of from 14 to 16 hands, and is mainly used for mule breeding.

ASSAB. Harbour of Eritrea. It stands on the W. coast of the Red Sea, at the entrance to Assah Bay. Its wireless station communicates with the radio-telegraphic system of Italian Somaliland and with Italy. In 1928 Italy leased land here to Abyssinia to give that country a port on the Red Sea. The commissariat of Assab has an area of 5,523 sq. m. and a native pop. of 3,926. See Eritrea.

ASSAGAI OR **ASSEGAI.** Missile of the javelin kind employed by certain African tribes. The word is Berber, and came into English through Arabic and Portuguese, the form assagai being the more correct. The name was originally given to a Berber weapon adopted by the Moors, a kind of slender spear or lance of hard wood, usually pointed with iron.

ASSAI PALM (*Euterpe edulis*). Native of Brazil. It is a slender, graceful tree from 40 ft.



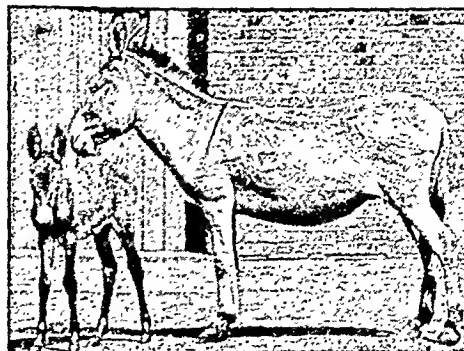
Assai Palm, Brazilian tree, parts of which are edible

to 100 ft. in height, the bare cylindrical stem being surmounted by a head of long pinnate leaves with narrow leaflets. The centre of this leafy tuft, including the growing point and leaf-buds, is plucked out to be cooked as a vegetable or pickled, this entailing the sacrifice of the tree. It is more profitably allowed to flower and produce its sloe-like fruits, whose pulp, kneaded in water, and mixed with sugar and cassava farina, forms a nutritious food.

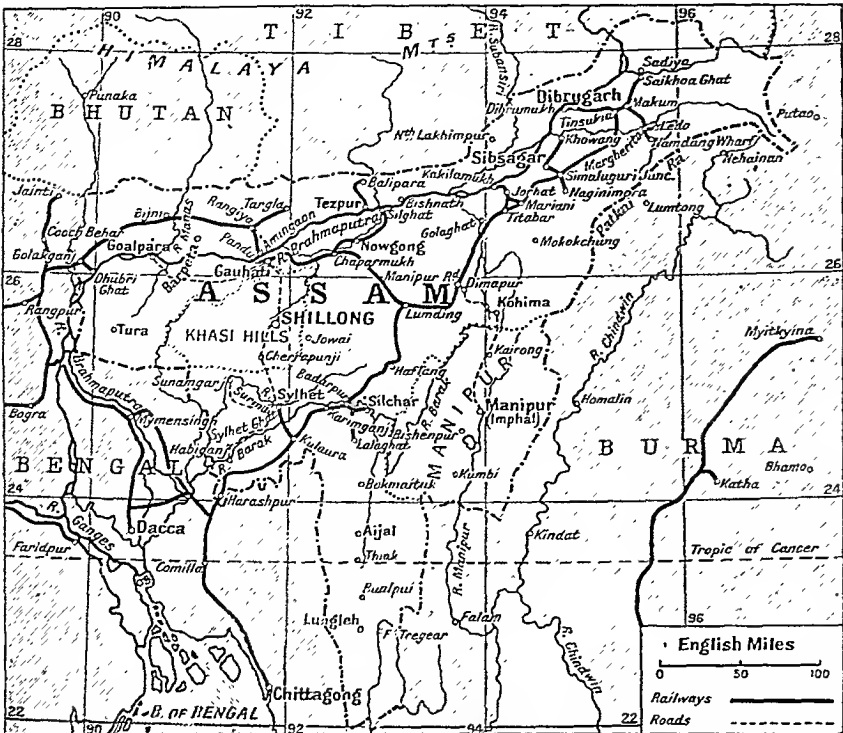
ASSAM. Northern prov. of British India. In the extreme N.E. of the peninsula, bounded N. by Bhutan and Tibet, W. and S.W. by Bengal, and E. and S.E. by Burma, comprises numerous valleys, mainly watered by the Brahmaputra and its tributaries and the Surma, and their elevated watershed. Its area, exclusive of the native state of Manipur,

is 53,015 sq. m. Tea and rice are the principal products, and silk weaving and cotton weaving the chief home industries. There is an important system of railways. In 1927 24½ million gallons of crude oil were extracted, Pop. 7,606,230, of which over half are Hindus. The capital is Shillong.

Originally attached to Bengal, Assam became a separate province



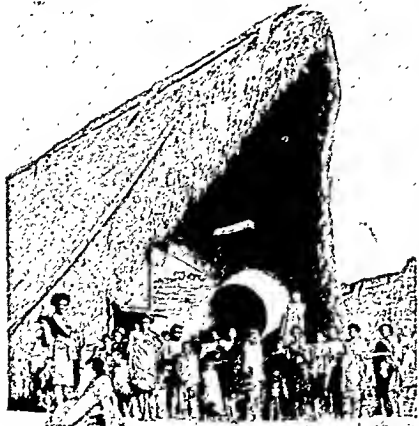
Ass. African wild ass and her foal. From this species the domestic breeds have been derived
Gambier Bolton, F.Z.S.



Assam. Map of a province of British India which is a great centre of the tea-growing industry, more than half of the entire area given up to tea cultivation in India lying within its boundaries. See article p. 143

in 1874; part of the new province of Eastern Bengal and Assam in 1905; in 1912 again a separate province under a chief commissioner, and in 1921 was placed under a governor.

ASSASSINS. Name originally given by Europeans to the members of a powerful secret sect among the Mahomedans in Syria. It is a corruption of Hashishin (hashish eaters), since it was the custom to intoxicate the votaries of this sect with hashish before they discharged their tasks. Their law was unquestioning obedience to their head; their method mainly the organized murder of the victims selected by him. Their founder was Hassan Ibn Sabbah, who took the title of Sheikh-al-Jahal, the "old man of the mountains." He settled in Persia towards the end of the 11th century, but later the seat of authority was transferred to Syria. The sect was suppressed in the 13th century.



Assam. A chief's house in North Cachar. The large basket is used as a grain measure. See p. 143

ASSAULT. In English law, a present threat of using force to the person of another, accompanied by a real or apparent intention

and ability to carry the threat into effect. Words alone cannot be an assault. But the raising of a band, with the apparent intention of striking a blow, is an assault, though the blow is never struck. If the blow is struck it is a battery, though in common speech it would be called an assault. Assault with intent to rob is a felony.

ASSAYE. Village in Hyderabad, India. It is about 260 m. N.W. of the city of Hyderabad. It is notable for the battle between British and Mahrattas, Sept. 23, 1803. In this the Mahrattas were totally routed.

ASSAYING. Method of determining the fineness or purity of a metal and the metallic value of an ore. A wet assay is one in which chemical solvents, liquid at normal temperatures, are used to separate from the ore the metal which it is the object of the assay to determine. The dry assay is one in which solid reagents are used; the process involves putting the sample of ore and the reagents into a state of fusion. The residue of metal remaining after treatment of the ore is weighed to determine its percentage.

In a volumetric assay the final result is measured, the percentage of metal in a solution of the ore, for example, being determined by the quantity of a standard reagent added to the solution to produce a given reaction. See Gold; Silver; Metallurgy.

ASSEMBLY (Lat. ad, to: simul, at one time). In general, a meeting of any kind. The term is used especially for an organized body of persons meeting together for some common purpose. In a more particular sense the word is used to describe the second or upper house of certain legislative bodies. It has a wide vogue in ecclesiastical matters. Presbyterians especially adopted it about the time of Knox, as in the case of the Assembly of Divines or Westminster Assembly. To-day the governing body of most of the Presbyterian churches is called the General Assembly. See National Assembly.

The phrase unlawful assembly has a legal significance. The best definition is by Stephen: "An assembly of three or more persons (a

with intent to commit a crime by open force: or (h) with intent to carry out any common purpose, lawful or unlawful, in such a manner as to give firm and courageous persons in the neighbourhood of such assembly ground to apprehend a breach of the peace." An unlawful assembly may be dispersed by force.

ASSENT, ROYAL. Final stage in the passage of a bill through Parliament. The ceremony takes place in the House of Lords, and the assent is given at one time to a group of bills which have passed three readings in each house. The king is represented by three commissioners, who sit in front of the throne, while the Speaker and members of the House of Commons stand at the bar. A clerk reads out the king's commission empowering the three peers to act for him, and the clerk of the crown reads out the title of each bill. The clerk of the parliament replies in Norman French, *Le roy le veut* (the king wishes it), and the bill is law. See Act of Parliament.

ASSER (d. c. 909). English historian and bishop. A monk of St. David's, he was invited to court by King Alfred about 885, where he assisted the king in his studies. Some time before 900 he was appointed bishop of Sherborne. He was the author of a *Life of Alfred*, *De rebus gestis Aelfredi Magni*, the best edition of which is that of W. H. Stevenson, 1904.

ASSER, SIR JOSEPH JOHN (b. 1867). British soldier. Attached to the Egyptian army, he first saw active service in the expeditions down the Nile in 1897, '98, and '99. In 1907 he was made adjutant-general of the Egyptian army, and had just retired from that position when the Great War broke out. He was employed as a commandant on the lines of communication from Aug., 1914, to July, 1915, and from then until Dec., 1916, as a commandant at the base. Later he was promoted to supervise the departments behind the lines. Knighted in 1917, he was commander-in-chief in France and Flanders in 1919 and governor of Bermuda, 1922-27.

ASSESSMENT (Lat. ad, to; sedere, to sit). Term used in Great Britain chiefly in connexion with the levying of rates and taxes. A person's income is assessed for income tax, and on the sum assessed he must pay. Business premises, houses and land are assessed for rates. Here the assessable value, which is something less than the rent, is fixed, and on this the rates are paid. Thus if a house is assessed at £60 a year and the rates are 10s. in the £, the owner or occupier must pay £30 a year in rates. Since the passing of the Rating Act of 1925 every county, borough and other rating authority must have an assessment committee which is responsible for valuing property for rates. See Rates.

The word is also used for the damages fixed by a jury in a law case.

ASSESSOR. Name given to one called in by a court to assist in technical matters. The assessor is not a judge. Thus, in Admiralty cases the Elder Brethren of Trinity House may be, and always are, called in as assessors to advise the judges on matters of navigation and the like. In workmen's compensation cases the county court judge can call in a medical man to advise him on medical or surgical matters. Under the Clergy Discipline Act, 1892, lay assessors sit with the bishop's chancellor as a sort of jury to determine questions of fact.

ASSETS (Latin ad, to: satis, enough). Commercial term most frequently employed when an account of debts and credits is made. Such occasions are when the estate of a bankrupt is being investigated, or a company is in liquidation, or the property of a dead person is being distributed.

ASSHUR or **ASSUR**. Greatest of the ancient gods of Assyria. He was regarded as self-created, and the father and king of the other gods. There was a great temple to him in Nineveh. See Assyria (illus. p. 146).

ASSHUR or **ASSUR**. The earliest Assyrian capital. It stood at Kalat Sherghat, on the right bank of the Tigris, 55 m. S.E. of Mosul, Irak. Spelt more correctly Ashshur, it gave its name to Assyria. A prehistoric settlement, it was occupied by Semitic Babylonian migrants before Hammurabi, was deserted for Calah by Shalmaneser I, and was rebuilt by Tiglath-pileser I. Andrae's excavations, from 1904 onwards, revealed its Asshur temple, royal palaces and tombs, and house foundations. See Patesi.

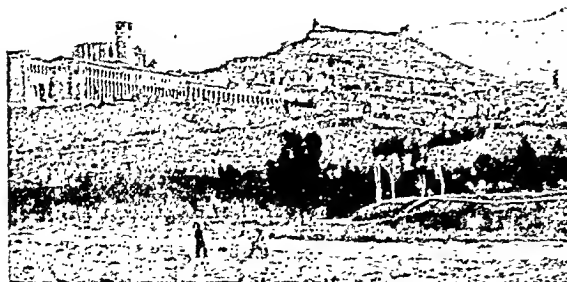
ASSIGNAT (Lat. assignatus, assigned). Name given to a species of paper money issued in France during the Revolution. The security behind the notes was the land forfeited to the state, which was assigned to the holders of the assignats, hence the name. The nation's creditors were paid by assignats, and with them they could buy blocks of the public land. On the notes interest at the rate of five per cent was promised.

In 1790 more public debts were discharged by a larger issue of assignats. They were made legal tender, and soon the country was flooded with them. By 1796 the assignats had become almost valueless, a state of affairs made worse by the circulation of forgeries.

ASSIGNATION. In Scots law, the transfer of rights or movable property to another, the equivalent of the English assignment. Such a transfer must be notified to the debtors concerned in order to make it valid. The word is also used for an appointed meeting, e.g. a secret meeting of lovers.

ASSIGNMENT. Word used to indicate the legal transfer of property from one person to another. Every species of property has its own legal mode of assignment or transfer. Thus personal chattels are assignable by delivery or by a writing called a bill of sale. Freeholds are assigned by deed of grant; leaseholds by deed of assignment: choses in action, except negotiable instruments, by writing under the hand of the assignor, and notice thereof to the debtor whose debt has been transferred.

ASSINIBOIA. Former district of the North-West Territories of Canada. It was bounded N. by Saskatchewan, S. by the U.S.A., E. by Manitoba, and W. by Alberta. Under the Dominion Act of 1905 the greater portion of the district was merged into the new province of Saskatchewan, and the remainder in the new province. The name is derived from the Assiniboins, a native tribe, who also gave their name to the Assiniboine, a river of Manitoba, Canada, that enters the Red River at Winnipeg and is 700 m. long.



Assisi. The town is built upon a hill, dominated by a castle. To the left are seen the church and monastery of S. Francis. See above

It is navigable by ships of 100 tons to Fort Ellice. See Alberta: Saskatchewan.

ASSISI. City of Italy, in the prov. of Perugia. It is 15 m. by rly. E. by S. of the town of Perugia, and is the birthplace of S. Francis (1182-1226). The monastery has two churches, built one above the other, with frescoes and pictures by Cimabue, Giotto, and others. Other ecclesiastical buildings are the cathedral, erected in 1140 and restored in 1572, and the churches of S. Maria, converted from a temple of Minerva, and S. Chiara, containing the remains of S. Clara, founder of the Poor Clares. To the S.W. is the church of S. Maria degli Angeli, built over the oratory of S. Francis. Pop. 18,537.

ASSIUT, **ASYÛT** or **SIÛT**. Town of Upper Egypt. It is situated near the Nile, 248 m. S. of Cairo, in the province of Assiut. The Greek Lycopolis, Assiut has been, and still is, a centre for caravan trade with Darfur and the interior. Below El Hamra, its port, is a harrage across the Nile. In the hills behind the town are rock tombs. Pop. 57,132.

ASSIZE (Lat. assidere, to sit beside). In early England, a word with several meanings. It denoted an assembly, the decisions or laws of such an assembly, a method of judicial procedure, and a jury. The first sense passed into the second, hence the assize or laws of Clarendon and the assize or law of arms, by which, in 1181, every freeman was ordered to provide himself with arms and armour suited to his rank and wealth. Prices were fixed by an assize, and so we have the assize of bread, ale, etc. The assize meaning a legal action was not finally abolished in England until 1835, and in Scotland the criminal jury is still called the jury of assize.

ASSIZES. Word, the plural of assize, used in England for the periodical visits of the judges to various provincial towns, where they try the more important civil and criminal cases. The whole of England and Wales, outside the metropolitan area, is divided into circuits which are visited by the judges twice, or sometimes three or four times a year. The towns at which they sit are called assize towns. Scotland and Northern Ireland similarly are divided into circuits for the holding of assizes. The official who records the doings of the judges is called the clerk of assize, one being appointed for each circuit. See Circuit.

ASSOCIATE (Lat. ad, to; socius, companion). Name given to certain clerks of the Crown Office, and certain officials of circuits. They may be either barristers or solicitors, and their business is to help the court by drawing up a list of causes, drawing the jury ballot, entering the verdict, making a note of the judgement, and the like. The associate always sits robed, under the judge, and facing the court. The word is also used for a member of a society, e.g. the Royal Academy, whose status is not that of a full member.

ASSOCIATION. Term for any society or combination existing for a common purpose. Thus there are business associations, of both masters and men, religious and philanthropic associations, political associations, sporting associations, and so on.

The word is used in a special sense for associations formed to protect the life of a sovereign in times of marked danger, e.g. in 1584, for the protection of Elizabeth against Roman Catholic plots and in 1696, after the failure of a plot to murder William III. The word was also applied to a union formed by the eastern counties of England in the early days of the Great Civil War.

ASSOCIATION CUP. Trophy competed for annually by football clubs in England playing the Association game. It was arranged in 1871. Fifteen clubs, all amateur, entered, and the first final was played at Kennington Oval, March 16, 1872.



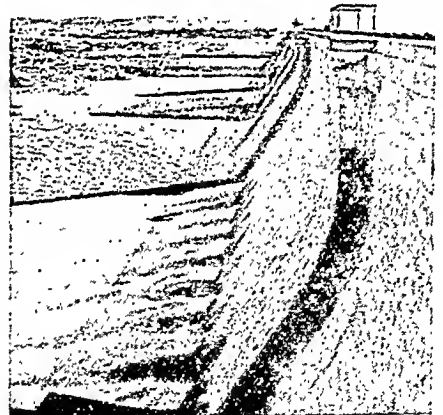
Association Cup, English football trophy

There are six rounds in the competition, in addition to the final and semi-final. From the first two, the more important clubs are excused, leaving the others to fight for places in the third round. In this 64 clubs, including those hitherto exempt, compete. The games for the Cup are controlled by the Football Association, and since 1923 the final tie has been played in the stadium at Wembley. There are other cups—Amateur Cup, Scottish

Cup, etc.—competed for by football clubs.

WINNERS OF THE ASSOCIATION CUP			
1900 Bury	1913 Aston Villa		
1901 Tottenham Hotspur	1914 Burnley		
1902 Sheffield United	1915 Sheffield United		
1903 Bury	1920 Aston Villa		
1904 Manchester City	1921 Tottenham Hotspur		
1905 Aston Villa	1922 Huddersfield		
1906 Everton	1923 Bolton Wanderers		
1907 Sheffield Wednesday	1924 Newcastle United		
1908 Wolverhampton Wanderers	1925 Sheffield United		
1909 Manchester United	1926 Bolton Wanderers		
1910 Newcastle United	1927 Cardiff City		
1911 Bradford City	1928 Blackburn Rovers		
1912 Burnley	1929 Bolton Wanderers		

ASSONANCE (Lat. ad, to; sonare, to sound). Repetition of vowel sounds without regard to the consonants, as a substitute for rhyme. Instances are dwell and tread, sleep and feel, gloaming and boating. It is a distinguishing characteristic of the lyrical and dramatic literature of Spain and Portugal. In



Assuan. Sluice gates in the great dam constructed across the Nile at the head of the First Cataract

France, assonance is found in the romances of the trouvères, but was rejected early in the history of French poetry. Assonance is found in Celtic poetry. See Poetry; Rhythm.

ASSOS. Ruined city of Asia Minor. It stands at the entrance to the Gulf of Adramyti, opposite Mitylene, near the modern village of Bahram. It was founded by colonists from Mithymna. In 1881-83 the American Institute of Archaeology found fragments of bas-reliefs of the Doric Temple of Athene, and enabled a plan of the temple to be outlined. Some sculptured panels of the temple are in the Louvre, Paris.

ASSUAN or **ASWÂN**. Town in Upper Egypt, in the province of Assuan, on the right bank of the Nile, near the first cataract. It is the ancient Syêné. Near are granite quarries whence materials for monuments and temples were obtained. The neighbourhood is rich in

archaeological remains, especially some of the islands in the Nile, such as Elephantine and Philae. Pop. 16,453.



Assumption of the Virgin. Famous painting by Andrea del Sarto in the Pitti Gallery, Florence.

Three m. S. is the dam across the Nile, opened Dec. 10, 1902. It is $1\frac{1}{2}$ m. long, with 180 steel sluice gates, and was planned by Sir William Willcocks. In 1912 it was made higher and the capacity of the reservoir increased from 1,000 to 2,420 million cubic metres. In 1929 a contract for raising again the height of the dam was signed.

ASSUMPTION (Lat. ad, to; sumere, to take). Term used for the taking up into bliss of the souls of departed saints, but more distinctively applied to the festival of the Assumption of the Virgin Mary, Aug. 15. It is the principal festival in her honour, and a day of obligation for Roman Catholics, but it has no place in the prayer book of the Church of England.

The Assumption is the theme of many famous pictures, e.g. by Perugino, in the Academy at Florence; Guido Reni, in the Munich Gallery; Titian, in the Academy at Venice, regarded as this artist's masterpiece.

Assumptionists is the name given to several Roman Catholic religious communities, e.g. that of the Little Sisters of the Assumption, or Nursing Sisters of the Poor, founded at Paris in 1864.

Assurance (Lat. ad, to; securus, safe). Alternative name for insurance of life. See Insurance.

ASSYNT. Loch of Sutherlandshire, Scotland. It is 6 m. E. of Lochinver, lies 215 ft. above sea level, is $6\frac{1}{2}$ m. long by about $\frac{1}{2}$ m. wide, and contains sea and loch trout. On its shores Montrose was captured in 1650.

ASSYRIA. Ancient empire of Mesopotamia. The Assyrian homeland was an arid, treeless, upland region. It stood high above the alluvial plain of Babylonia to the S., and was bounded on the N. by the Armenian highlands, on the E. by the Zagros ranges, and on the W. by the middle Tigris. Originally Assyria embraced no more than the city Asshur, which occupied a spur guarding the right bank of the Tigris. It was long a dependency of Babylonia, but under Tiglath-pileser I, who came to the throne about 1120 B.C., the positions were reversed.

Vast accessions of territory were made by the usurping general Tiglath-pileser IV (745-727 B.C.), with Nineveh as the centre of government. The campaigns of another usurper, Sargon II (722-705 B.C.), were eminently successful, and his son Sennacherib, (705-681 B.C.), kept the empire intact. Under Sennacherib's son Esarhaddon (681-668 B.C.) Egypt was added to the Assyrian empire, which then attained its greatest extent and power.

At Esarhaddon's death the empire was divided between his two sons. But dangers were threatening. The Medes and other enemies were gathering on the borders, Egypt was lost, and other parts of the empire were tottering to their fall. A Chaldaean prince became king of Babylon and added continually to his gains. Finally, in 612 B.C., the Medes and Babylonians made a united and successful attack on Assyria, and Nineveh was taken and destroyed.

The Assyrian language is essentially the same as that of Babylonia. The cuneiform script employed in Assyria and Babylonia was peculiarly suitable for Babylonia, where the writing material was clay, there being no rocks in Babylonia. Assyria copied, though without the same necessity, the Babylonian custom of writing on clay, which was afterwards dried in the sun or in kilns. Assyrian literature consists chiefly of dried bricks or tablets and of inscriptions

on palaces, temples and rocks. Much of the contents of the great library of Nineveh (Kuyunjik) is in the British Museum. Examples of an Assyrian palace and a ziggurat (temple-tower) are those of Sargon II in his capital Dursharrukin (Sargon's fortress), the modern Khorsabad, 10 m. N. of Nineveh. The Assyrian sculptors usually worked in bas-relief; their work is seen chiefly on slabs covering the walls of palaces and temples, and on rocks.

The religion of the Assyrians, like the language, was virtually that of the Babylonians. The chief god of Assyria was Asshur (Assur), the chief god of Babylonia Marduk. Both Assyria and Babylonia recognized and to some extent worshipped evil spirits, astral gods, and gods representing natural forces. This ancient religion was polytheistic in that each city had its own deity, but with the progress of thought Asshur and Marduk became each the supreme deity of his own country, inferior



Assyria. Sculptures from the Royal Palace at Nineveh. Below, the ruthless monarch Ashurnasirpal II with an attendant; above, Assur, chief Assyrian deity, holding a basket. British Museum.

gods being regarded as their representatives. Worship consisted of sacrifices accompanied by prayer for protection against evil spirits. See map p. 147.

Consult: Assyria: its Princes, Priests, and People, A. H. Sayce, 1885; History of Babylonia and Assyria, R. W. Rogers, 2 vols., 1900 (6th ed. much enlarged, 1915); Ancient Assyria, C. H. W. Johns, 1912; History of Assyriology, Sir E. A. W. Budge, 1925.

ASTARTE. Principal female deity of the Phoenicians, her male counterpart being Baal. She is identified with the Ashtoreth of the O.T. (1 Kings 11 and 2 Kings 23), with Ishtar, the Assyrian goddess, Hathor, the Egyptian goddess, and later with the Greek Aphrodite.

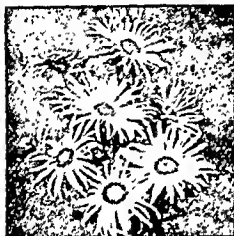


Astarte. Ancient bronze statuette of the goddess.



Assyria. Map showing the position of the ancient empire, with its capital, Nineveh, midway between the Mediterranean and Caspian seas. See p. 148.

ASTER (Gr. star). Large genus of mainly perennial herbs of the order Compositae. Natives of most of the temperate and cold regions of the earth, particularly America, they have undivided leaves and daisy-like flower-heads, the disk-florets of which are always yellow, and the ray-florets lilac, blue, purple, or white.



Many species are cultivated in gardens. From their general habit of flowering in autumn they are popularly known as Michaelmas daisies. The garden plants known as China

asters are summer annuals belonging to another genus (*Callistephus*).

ASTERIA. In Greek mythology, daughter of one of the Titans. When pursued by Zeus, she was changed into a quail, flung herself into the Aegean Sea, and became a floating island, called Asteria, star island, or Ortygia, quail island. Later, this was known as Delos, the birthplace of Apollo and Leto (Latona).

The name asteria is given to certain rubies and sapphires which appear to be divided by six rays, spreading from the centre outwards, producing a star-like effect.

ASTERISK (Gr. asteriskos, little star). Mark (*) in printing or writing to indicate a marginal reference or footnote, the omission of a letter, word, or words, or, placed at the foot of a page, to indicate, for binders' guidance, an inset. In guide-books places of special interest are indicated by an *; and the mark is used with an obelus or dagger (†) in lists of names to denote respectively the birth or death of the person against whose name one sign or the other is placed.

ASTEROID (Gr. aster, star; eidos, form). Name given to a minor planetary body. The first was discovered in 1801, and the search and discovery have gone steadily on until there are now nearly 900. All circulate between the orbits of Mars and Jupiter, and there is reason to believe that they are the larger members of an innumerable swarm of small bodies rotating round the sun. The four largest are Ceres (485 m. in diameter), Pallas, Vesta, and Juno. See Astronomy; Star; Sun.

emanations or odours from flowers or animals, may bring on a paroxysm. Errors in diet, fright, or violent emotion are other causes.

The attack may last for a few minutes to several hours. In those who have long suffered from the disease chronic bronchitis may occur, with permanent changes in the lungs. Many drugs relieve attacks of asthma. Belladonna, henbane, or stramonium may be given in the form of solution, or inhaled in cigarettes. Inhalation of nitrate of amyl is often useful. To prevent an attack particular attention should be paid to diet, and the conditions known to act as exciting causes should be avoided. In 1923 an Asthma Research Council was founded in London.

ASTI. City of Italy, in Alessandria province. It stands on the Tanaro, 34 m. by rly. S.E. of Turin. The ancient Asta Pompeia, it has a cathedral dating from the 13th and 14th centuries, with two fine altar pieces by a master of the Verelli school; the church of San Giovanni, built over a 6th century Christian basilica; and an 11th century baptistry. The birthplace of the poet Alfieri (1749-1803), it has an Alfieri museum. Anciently famous for its pottery, its manufactures now include silk, leather, hats, and matches, and it is celebrated for its sparkling wine. Pop. 41,000.

ASTIGMATISM (Gr. a, not; stigma, a mark). Defect in the refracting surfaces of the eye. It most frequently occurs in the cornea, but sometimes in the lenses, which are unequally curved in different directions. The result is that rays of light are not all focused at one point, and vision is blurred. The condition can be corrected by the use of cylindrical glasses. See Eye.

ASTLEY. District of Lancashire. It is 8 m. W. of Manchester on a section of the L.M.S. Rly. It has coal mining and cotton industries. Dam House, now called Astley Hall, has been made into a hospital. Pop. 3,902.

ASTLEY, SIR JOHN DUGDALE (1828-94). British sportsman. Joining the army in 1848, he served throughout the Crimean War. He was devoted to sport, an excellent sprinter, owned several famous racehorses, and won many important races. He inaugurated the go-as-you-please races at the Agricultural Hall in 1877, in which Weston and other pedestrians

ASTHMA (Gr. gasping). Disease characterised by sudden paroxysms of difficult breathing. The disease is essentially due to a neurosis or disorder of the nervous system which brings about a spasm of the bronchial muscles, and is associated with swelling and congestion of the smaller bronchial tubes. The exciting causes of an attack are varied. Inhaling a dusty atmosphere, or air containing pollen from hay or certain

took part. He was Conservative M.P. for N. Lincolnshire 1874-80, and died Oct. 10, 1894. Consult his Fifty Years of My Life. 1894.

ASTLEY, PHILIP (1742-1814). Equestrian performer and circus manager. Born at Newcastle-under-Lyme, and brought up as a cabinet maker, in 1759 he joined the light horse in Holland during the Seven Years' War as a breaker-in and rough-rider. After serving with distinction, he went round England giving exhibitions of horsemanship. At different periods he had amphitheatres in London, Dublin, and Paris, including Astley's Royal Amphitheatre near Westminster Bridge, London. He died in Paris.

ASTON MANOR. Formerly a borough of Warwickshire. In 1911 it was incorporated with Birmingham and forms one of its parliamentary divisions. Its manufactures include arms, cycles, and motors. Aston Hall is now a museum and art gallery, and the public grounds contain the Aston Villa football ground. See Birmingham.

ASTON VILLA. Name of an English football club. Founded in 1874 at Villa Cross, Handsworth, Birmingham, by some youths connected with a Wesleyan church, and playing under Association rules, it won many local trophies, including the Birmingham Association Cup in 1889. The club adopted professionalism in 1897, and since then has won both the Association Cup and League Championship on six occasions. The club was reconstructed in 1896. Its ground is at Aston. See Association Cup; Football.

ASTOR, JOHN JACOB (1763-1848). American merchant. Born near Heidelberg, of humble parentage, Astor went to New York in 1783 and acquired a fortune by trading with the Indians for furs. His business grew rapidly; he founded Astoria in Oregon as a trading centre, and sent his wares all over the world. Much of his wealth was in land in New York City, which increased enormously in value during the 19th century. His chief heir was his son William Backhouse Astor (1792-1875). A great-grandson, another John Jacob Astor (1864-1912), was drowned when the Titanic was lost in 1912.

Another great-grandson, William Waldorf Astor (1848-1919), in 1899 became a British subject. He owned The Pall Mall Gazette and The Observer, contributed largely to war charities, was made a baron in 1916 and a Viscount in 1917. His elder son, William Waldorf Astor (b. 1879) was M.P. for Plymouth 1911-19, and Parliamentary Secretary to the Ministry of Health, 1919-21. The 1st Viscount Astor's younger son, John Jacob Astor (b.



Aston Villa. The team that won the Football Association Cup in 1887-8. Back row (left to right): F. Coulton, F. Dawson, G. Kynoch, M.P. (president), J. Warner, R. Davies, J. Borton. Middle row: D. Hodgkiss, H. Vanghton, A. Hunter, J. Simmonds. Front row (on ground): H. Yates, A. Brown

(1886) became principal proprietor of The Times after the death of Lord Northcliffe. In 1922 he was elected M.P. for the Dover division.

ASTOR, NANCY WITCHER ASTOR, VISCOUNTESS. Anglo-American politician. She was the daughter of Chiswell Dabney Langhorne, of Mirador, Greenwood, Virginia, U.S.A., and married, secondly, in 1906, W. Waldorf Astor. Interested in social work, she helped her husband in his political career, and when he succeeded his father in the House of Lords in 1919, Lady Astor was chosen as Coalition candidate for his constituency, the Sutton division of Plymouth. On Nov. 28, 1919, she was elected M.P., with a majority of 5,203, and she took her seat on Dec. 1, 1919, the first woman to sit in the British House of Commons. She was again returned in 1922, 1923, 1924 and 1929.

ASTORIA. City and port of Oregon, U.S.A. It is on the S. side of Columbia river, about 9 m. from the open sea. Grain and lumber are exported, and the canning of salmon is a big industry. Astoria owes its origin and name to John Jacob Astor, who here founded a fur trading station in 1811. It was the first settlement in the region, and was for some years in possession of the English. It became a city in 1876. Pop. 14,027.

ASTRAEA (star-maiden). In Greek mythology, daughter of Zeus and Themis. The last of the deities to leave the earth at the beginning of the Iron or Bronze Age, after her return to Olympus she was placed among the stars as the constellation Parthenos or Virgo. Dryden's poem *Astraea Redux* (Astraea brought back) celebrates the Restoration as the revival of a Golden Age.

ASTRAKHAN. Skin of certain lambs. When this is cured and the short curly wool dyed, the so-called fur is very suitable for clothing. The natural skin is imitated in astrakhan woven and knitted goods, in which curls of mohair are supported upon a foundation of threads.

ASTRAKHAN. Town of the Union of Soviet Socialist Republics, capital of the province of Astrakhan. It is situated on an island of the Volga river, about 50 m. from the Caspian Sea. It was formerly the seat of Greek and Armenian archbishops. A university was established in 1919. Astrakhan is an important entrepôt for fish, timber, grain, petrol, and other products, and for the Persian trade. There is now a through steamer service from the Baltic. Nearly half of the population live by the Volga fisheries. The speciality of Astrakhan is caviare. The city gives its name to a fine kind of fur made from the skins of young sheep. Cattle breeding, fishing and the extraction of salt from the lakes are the chief industries of the district. Pop. 176,530.

ASTRINGENT (Lat. *astringere*, to bind fast). Drug which causes contraction of vessels and thus lessens the amount of exudation from them. Astringents are most often used to stop bleeding, but are also employed to check diarrhoea and reduce discharges from mucous membranes. Alum, salts of iron, and tannic acid are examples.

ASTROLABE (Gr. *astron*, star; *labein*, to take). Instrument used by the Greeks and Arabs and in medieval Europe to take altitudes and to mark the positions and movements of sun, moon, and stars. In its simplest form it consisted of a circle with two radial pointers, one fixed and the other movable, and both fitted with sights. This was called the mariner's astrolabe. For astronomical observations the astrolabes used were more complicated

and embodied various circles (armillary circles), the rims of which lay on the surface of a sphere. The place of the astronomical astrolabe has been taken by the equatorial instrument. See Astronomy.

ASTROLOGY (Gr. *astron*, star; *logos*, science). Science professing to establish a connexion between the changing aspects of the stars and the changing course of human life, and thence to predict events and advise on the conduct most likely to achieve desired ends. It was the forerunner of astronomy.

The cardinal assumption of astrology was that a man's life was governed primarily by the aspect of the stars at the hour and place of his birth; this aspect was represented by a figure called a horoscope. For the purpose of the horoscope the celestial sphere was considered in relation to the horizon visible from the birthplace, and divided, in a way on which agreement was not general, into twelve parts called houses, six being above the horizon and six below.

The astrological planets—Saturn, Jupiter, Mars, Sun, Venus, Mercury, and the Moon—had each its own peculiar influence, Jupiter being the most propitious and Saturn the most unfavourable. The twelve signs of the zodiac were allotted to the governance of the various planets, the sun and moon ruling one each, and the other five each ruling two. The planet whose sign was rising, and therefore occupying the upper portion of the first house or ascendant, was considered to be the governing planet of the individual. It had an intimate relation to his temperament; he might be, e.g. of a saturnine, a jovial or a mercurial disposition—words which have permanently left the mark of astrological ideas on the English language. Consult *The Mystery and Romance of Astrology*, C. J. S. Thompson, 1929.

ASTRONOMY. Science dealing with the celestial bodies, their positions and motions, apparent and real, and the phenomena resulting therefrom, and with their physical conditions and characteristics and their arrangement in space. It deals also with the earth as a planet revolving round the Sun.

There are three main subdivisions. (a) Telescopic astronomy, dealing with direct observation. (b) Spectroscopic astronomy or astrophysics, treating of the celestial bodies observed with the aid of the spectroscope attached to the telescope. (c) Photographic astronomy. The celestial bodies can be divided into two great systems: (1) solar and planetary; (2) stellar.

The solar system is composed of eight primary planets and their satellites and an indefinite number of asteroids, comets and meteors, in revolution round the Sun at various distances and in varying periods. The Sun (q.v.) is the central body of the solar system.

The planets fall into two well-defined groups.

(a) The inner planets, whose orbits lie at mean distances of from 26 million to 141 million m. from the Sun. Of these the Earth is the largest, with a mean diameter of 7,918 m.; Venus, Mars, and Mercury are the other three. Of the inner planets only two possess satellites. The two attendants of Mars are very tiny, and for many years escaped the notice of astronomers. Our own satellite, the Moon, is, relatively to the size of our world, the largest secondary in the solar system.

(b) The outer planets, Jupiter, Saturn, Uranus, and Neptune, are situated at

mean distances from the Sun ranging from 484 to 2,792 millions of miles. They are much larger than the inner planets and appear to be in a much earlier stage of development. They are also much less massive than the inner planets in proportion to size, and are further characterised by their extremely rapid rotation. The



Astronomy. Reflecting telescope at Mount Wilson Observatory, California. Its mirror measures 100 in. Royal Astronomical Society

outer planets all have satellites, and Saturn possesses the wonderful ring system, composed of myriads of tiny meteorites.

The stars are divided into types, according to their spectra. The classification of Secchi divides the stars roughly into four spectral types: (1) Sirian or white stars; (2) solar, or yellow stars; and (3) and (4) red stars. That these types represent a real evolutionary sequence admits of no reasonable doubt.

The stellar system is composed of several hundreds of millions of stars and a large number of gaseous nebulae. The Milky Way or Galaxy is the ground-plan of the stellar system—the equatorial zone of the universe. The stars composing the system are in ceaseless motion, and there appears to be a preferential motion in two well-defined directions. Star-clusters are outlying subordinate systems.

HISTORY. Astronomy is the oldest of the sciences. The first effort to co-ordinate the known facts was made, in Greece, by Eudoxus of Cnidus (4th century B.C.). His theory of the motion of the celestial bodies on concentric spheres was accepted by Aristotle, who made it the basis of his theory of the universe. Hipparchus (190–120 B.C.) was probably the greatest of ancient astronomers. He discovered the precession of the equinoxes and developed theories of solar and lunar motion.

Ptolemy developed (A.D. 137) the theory that the earth was fixed in the centre of creation, rejected later by Copernicus (1473–1543), whose theory that the Sun and not the Earth was the centre of the planetary system roused fierce hostility. Kepler (1571–1630) discovered the three great laws of planetary motion, and Newton (1642–1727) proved that they are the result of universal gravitation. Galileo (1564–1642), working with the newly discovered telescope, was the founder of observational astronomy, and still further confirmed the Copernician theory.

In 1676 Greenwich observatory was founded, with Flamsteed as astronomer royal. Great names of the 18th century were those of Halley, famous for the first prediction of the return of a comet, and Herschel, who discovered the planet Uranus. In the 19th century astronomic progress was unparalleled, and since then it has been very rapid.



Astrolabe. The astrolabe of Regiomontanus, an instrument to measure the angular distance between two heavenly bodies

From the original made in 1462, in the Museum at Nuremberg

partly due to the invention of the spectroscope and to the great telescopes of America.

The astronomer royal for England is the head of the Royal Observatory at Greenwich. The office was founded in 1675. Scotland has an astronomer royal also, who is the head of the observatory on Blackford Hill, Edinburgh. There are astronomers in charge of observatories at Oxford, Cambridge, Hendon, Dublin, Cape Town, Poona, and elsewhere. Societies founded for astronomical observation include the British Astronomical Association, and the Royal Astronomical Society. See *Altazimuth*; *Asteroid*; *Observatory*; *Planet*; *Relativity*; *Spectroscopy*; *Star*; *Sun*. Consult also General Astronomy, H. S. Jones, 1922; *Astronomical Physics*, F. M. Stratton, 1925.

ASTROPHYSICS. Science of the physical properties of the stars. The introduction of the spectroscope and the photographic camera has made it possible to investigate the constitution of the stars, the structure and composition of nebulae, and the hypothetical structure of the universe more precisely than could have been attempted before. The new science is called astrophysics. See *Spectroscopy*; *Star*.

ASTURIAS. District in northern Spain, bordering on the Bay of Biscay. At one time a small kingdom, it is now represented by the province of Oviedo, although the older name is retained in a general sense.

When the Moors completed their conquest of Spain, the few remaining Christians maintained their independence in Asturias. In 910 the capital was transferred from Oviedo to Leon, and soon the kingdom of Asturias became the kingdom of Leon. Asturias is thus the nucleus of the kingdoms of Christian Spain and the heir to the throne bears the title of prince of Asturias. See *Spain*.

ASUNCION. Capital of Paraguay, S. America. It stands on the Paraguay, at the head of navigation for sea-going vessels. It has through rly. connexion with Buenos Aires, and communicates with Encarnacion, on the Paraná, by the Central Paraguayan Rly. It has a cathedral, a university, the headquarters of the Bank of Paraguay, a wireless station, shipyards, distilleries, foundries, and mills, and trades in maté, tobacco, sugar, hides, cedar, and fruits. It was founded on Assumption Day, 1536. Pop. 103,750.

Aswān. Alternative name for the town in Upper Egypt more generally known as Assuan (q.v.).

ASYLUM (Gr. *as*, not; *sylo*, right of seizing). Place of refuge. Among the ancient Hebrews asylum was afforded in the cities of refuge—three on each side of the Jordan—to those who had committed homicide unawares. In Greece slaves, debtors, criminals, and others sought asylum at temples, altars, sacred groves, and statues of the gods, from which it was sacrilege to drag them. In Rome statues and other representations of the emperors, and also the Roman eagles, were deemed inviolable refuges. In modern times the name is specially applied to institutions for the care of the mentally afflicted.

The right of asylum is the right of a state to receive and protect those who have broken the law in other lands. It is to-day much limited by extradition treaties.

An asylum board is a body of men and women chosen to manage the asylums for a group of local authorities. The principal was the Metropolitan Asylums Board, which was abolished in 1929, its duties being transferred to the London County Council, as from April 1, 1930. See *Extradition*; *Sanctuary*.

ATACAMA. Desert of N. Chile. It comprises the greater part of the provs. of Atacama and Antofagasta, and covers an area of about 70,000 sq. m. It rises from the coast in rocky plateaux, broken by mt. ridges, and attains

an elevation of from 7,000 ft. to 13,000 ft. in the Cordillera. Rain seldom falls, except in the E. It is almost devoid of vegetation, and is partly covered with saline, nitrate, and borax deposits. dried lake beds, and shallow ponds. The province of Atacama has an area of 30,711 sq. m. Its capital is Copiapo.

ATAHUALPA (c. 1495-1533) Last Inca ruler of Peru. Born probably at Cuzco, he was the son of the Inca sovereign Huayna Capac. On his father's death in 1525 he received Quito, and his half-brother, Huascar, the rest of the realm. In the spring of 1532, refusing to recognize Huascar as overlord, Atahualpa defeated and captured him and became sole ruler. In Nov., 1532, Pizarro invited Atahualpa to a friendly interview, and took him prisoner. After paying a large ransom, Atahualpa, still in captivity, plotted to murder Huascar; but his plans were discovered and he was condemned to be burned. On professing Christianity this sentence was altered, and he was garrotted Aug. 29, 1533.

ATAKPAME. Town in British Togoland, W. Africa. A terminus of the rly. from Lome, it is the centre of a rich agricultural and rubber- and cotton-producing district. Its powerful wireless station was destroyed by the Germans during the Great War. Pop. 8,000.

ATALANTA. In Greek mythology, the name of an Arcadian maiden. Wishing to avoid marriage, she made it a condition that her suitors should run a race with her. The one who beat her in the race was to have her hand; those whom she overtook she slew with a spear-thrust in the back. At last she was beaten by Milanion, who as he ran dropped three golden apples given him by Aphrodite. Atalanta, stopping to pick them up, lost the race, and became the wife of Milanion. She is said to have accompanied Jason on the Argonautic expedition and to have taken part in the Calydonian boar hunt, an incident which forms the subject of Swinburne's poem *Atalanta in Calydon*. See *Calydon*; *Meleager*.

Ataman. A variant form of hetman, a Cossack chieftain. See *Cossacks*; *Hetman*.

ATARGATIS. Syrian goddess. This Greek name, often transliterated Derceto, embodies the Aramaic form of Ishtar with the Syrian *Atê* or the Lydian *Attis*. Goddess of life-giving water, her chief temples were at Hierapolis, Edessa, and Ashteroth-Karnaim. Mostly represented in human form as the Philistine Ashkelon, she became fish-tailed.

ATAULF (d. 415). King of the Visigoths. He was the brother-in-law of Alaric, whom he succeeded in 410. After assisting Alaric in his invasion of Italy, Ataulf crossed into Gaul. In Jan., 414, he married at Narbonne his captive Placidia, sister of Honorius, emperor of the West, and later went to Spain to quell a revolt of the Vandals and Suevi. He was assassinated at Barcelona in 415. The name, variously spelt, appears in the latinised form *Adolphus*. See *Visigoths*.

ATAVISM (Lat. *atavus*, father of a great-grandfather). Term used in biology. It expresses the occurrence in an organism of some feature or structure not usually present in the existing generation of that species, but suggesting reversion to a type present in former generations. See *Biology*; *Heredity*; *Life*.

ATAXIA or **ATAXY** (Gr. *a*, not; *taxis*, order). Term for defective coordination of the muscles of movement and balance, or loss of the power of coordinating them. It is a late symptom of the disease locomotor ataxia. See *Locomotor Ataxia*.

ATBARA. Tributary of the Nile. Rising near Lake Tana (Tsana), in Abyssinia, it joins the Nile below Berber, and is the last tributary to enter the Nile before that river reaches the Mediterranean Sea.

The town of Athara is a rly. junction, 388 m. from Wady Halfa to Khartoum.

The battle of the Athara was fought April 8, 1898, between a British and Egyptian army under Sir Herbert (afterwards Earl) Kitchener and the followers of the Mahdi under Mahmud. The force, consisting of four brigades of infantry, one British under General Gatacre, and three Egyptian, with cavalry and artillery, arrived in front of the Mahdi's zareba just before dawn. The zareba was stormed, and by 8.30 the fight was over and Mahmud a prisoner. The losses of the Anglo-Egyptians were 34 officers and 525 men, out of about 12,000 engaged, mostly incurred during the passage through the zareba. Consult *With Kitchener to Khartoum*, G. W. Stevens, 1898; *The River War*, Winston S. Churchill, 1899.

ATE (Gr. *infatuation*). In Greek mythology, daughter of Zeus, or of Eris (strife). The goddess of mischief, *Atê* figures in Greek tragedy as the power who lures the guilty to further deeds of evil until they compass their own doom.

ATEF. Symbolic crown or headgear worn by Egyptian gods. It consists of a tall white cap with a plume at each side, and bearing the solar disk and uraeus, or serpent emblem.

ATELIERS NATIONAUX. French national works or workshops, especially those set up in Paris in 1848. In Feb. of that year the provisional government guaranteed work and subsistence to all, starting experimental works in Paris and in the neighbourhood.

The number of unemployed increased until there were more than 115,000 names on the pay roll, while many of those employed did as little as possible. In May the new National Assembly dismissed all single men under 25 years old who refused to join the army, all who refused offers of private employment, and all who had been in Paris for less than six months. These and other changes led to the insurrection of June, 1848, and the system collapsed.

These ateliers must be distinguished from the ateliers de charité, societies formed to assist destitute workmen; and from the ateliers sociaux, productive societies established by Louis Blanc, who was also largely responsible for the ateliers nationaux.

ATH or **AATH.** Town of Belgium, in Hainaut prov. It stands on the canalised Dender, 32 m. by rly. S.W. of Brussels. The Tour du Burbant dates from the 12th century, and the church of S. Julian from the 14th century, although it has been almost wholly rebuilt since its destruction by fire in 1817. Ath is noted for its annual procession of giants. During the Great War it was the scene of the last fighting on the western front, Nov. 11, 1918. Pop. 10,672.

ATHABASKA. Former district of the North-West Territories of Canada. It covered 251,000 sq. m. In 1905 the W. part was merged into the new prov. of Alberta, and the E. part, with the exception of a strip on the extreme E., was united with the district of Saskatchewan to form part of the new prov. of that name. The remainder was absorbed into the North-West Territories, and was acquired in 1912 by Manitoba. It is watered by Athabaska, Peace, Reindeer, and other rivers and the Athabaska, Reindeer, and other lakes. The name, sometimes spelled *Athapaskan*, is that of an Indian tribe who lived in the district and are still found in N. America.

The Athabaska river, also called the Elk, rises in the Rocky Mts. and, after a course of 776 m. through Alberta and Saskatchewan, enters Lake Athabaska. It is navigable from McMurray. Lake Athabaska, also in Alberta and Saskatchewan, is 195 m. long and covers 2,840 sq. m. The Slave river carries its waters to the Great Slave Lake. Athabaska Pass in the Rockies leads from British Columbia into Alberta. It is 10,500 ft. high.

ATHALIAH. Daughter of Ahab and wife of Jehoram, king of Judah (2 Kings 8). A worshipper of Baal, after the assassination of her son and Jehoram's successor, Ahaziah, she seized the throne and had all the royal children killed except Joash, who was rescued by his nurse. After she had reigned six years, the high priest Jehoiada arranged with the officers of the army to have Joash suddenly proclaimed king and crowned. When Athaliah appeared on the scene she was seized and slain (2 Kings 11; 2 Chron. 22-23).

ATHANARIC (d. 381). Ruler of the Visigoths. After three campaigns against the East Roman emperor Valens he was compelled in 369 to sue for peace, the negotiations between the emperor and the Goth taking place on a barge on the Danube. In 376 Athanaric was defeated by the Huns and fled to the court of Theodosius I. He died at Constantinople in 381.

ATHANASIUS (c. 297-373). Saint and doctor of the Church. Born at Alexandria, he was present as a deacon at the council of Nicea, 325, and was made bishop of Alexandria the same year. For his refusal to recall Arius from exile in 330 he was banished by the Emperor Constantine in 336, but on the deaths of Arius and Constantine he was allowed to return. The Arian party drove him out of Alexandria again in 340, but he was again restored in 346.

For ten years he laboured in his diocese, and then by the decree of the council of Milan, 355, he was once more banished. From 356-362 he withdrew to the desert, to be restored in 363, exiled, and finally restored in 364. His last nine years were spent in Alexandria, where he died May 2, 373—the date of his festival. It is due more to Athanasius than any other man that the faith as defined at Nicea prevailed in the Church. The saying, Athanasius contra mundum, Athanasius against the world, passed into a proverb, so considerable was the Arian majority against whom he contended. See Arianism.

ATHANASIAN CREED. This symbol of the Christian faith contains a short exposition of the doctrines of the Trinity and the Incarnation. It is one of the three creeds of Western Christendom, and in the Church of England is ordered to be recited at Morning Prayer in place of the Apostles' Creed on Trinity Sunday

and on twelve festivals during the year. In the Roman Catholic Church it is said at Prime every Sunday, and in the old Sarum rite it was said daily at Prime. Its authorship remains problematical. Known sometimes by its opening words, *Qui cum vult—Whoso wills or wishes*—its so-called "damnatory" clauses have provoked considerable criticism in the Church of England and in some churches it is not used. See Apostles' Creed.

ATHEISM (Gr. a, not; theos, God). System of thought opposed to theism or belief in God. The term has been applied in an accusatory sense to the denial of current beliefs on divinity—e.g. to Socrates by his accusers, and to the early Christians by the supporters of Roman mythology. Atheism is not the declining to assert an affirmative belief in theism, but is the assertion of the negative to theism. See Christianity: Freethought.

ATHELING (A.S. of noble birth). The root of the word appears in the names of some early kings, e.g. Ethelbert and Ethelred. Before the 8th century atheling was used of anyone of noble birth, but later was employed only for members of the royal family.

ATHELNEY. Tract of land in Somersetshire. It lies within the angle formed by the confluence of the Tone and Parret rivers. After his defeat by the Danes in 878-9 King Alfred (q.v.) took refuge here. In gratitude for the asylum, he later founded a Benedictine monastery on the site. In 1693 the Alfred Jewel was found here.

ATHELSTAN (c. 895-940). Anglo-Saxon king, the first to be called King of the English. The son of Edward the Elder and grandson of Alfred the Great, he was crowned at Kingston, Surrey, in 925. In 937 he overthrew all his

rivals at Brunanburh. He died at Gloucester, Oct. 27, 940, and was buried in Malmesbury.

ATHENA. Major deity of ancient Greece. Also called *Athēnē*, *Pallas Athene* or *Pallas*, she was identified by the Romans with *Minerva*. A daughter of *Zeus*, she is represented as having sprung fully armed from the head of her father. Pre-eminently the goddess of wisdom, she was also the goddess of war, regarded as a master of strategy and tactics, not, like *Arēs* (*Mars*), the deity of blood and slaughter. *Athena* was also patron of the useful arts and the protectress of Athens.

A magnificent temple, the Parthenon, was erected in her honour on the Acropolis. In the Trojan war, *Athena* espoused the cause of the Greeks, and *Achilles*, *Odysseus*, and *Dionedēs* were under her special protection. She was always regarded as *Parthenos*, or the maiden goddess, and in art she is represented as of a somewhat masculine appearance, wearing a helmet and shield. There were three famous statues of *Athena* by *Pheidias*. See *Athens*, *Minerva*; *Mythology*.

ATHENAEUM (Gr. temple of *Athena*). Name given in classical times to schools of science and art. Such institutions existed at Athens, Alexandria, Rome, and elsewhere, one of the most famous being that founded by the emperor *Hadrian* at Rome (A.D. 135). At first much used for the recitation of their productions by poets and rhetoricians, they developed into something like the modern teaching university, with a system of lectures and salaried professors.

The Athenaeum Club, London, was founded in 1824, and its house at the corner of Pall Mall and Waterloo Place was built soon afterwards, the frieze of the building being a copy of that of the Parthenon at Athens. Persons eminent in public life, science, literature, and art are eligible for membership. The club contains a fine library.

A weekly journal, *The Athenaeum*, existed from 1828 until incorporated with *The Nation* in 1921.

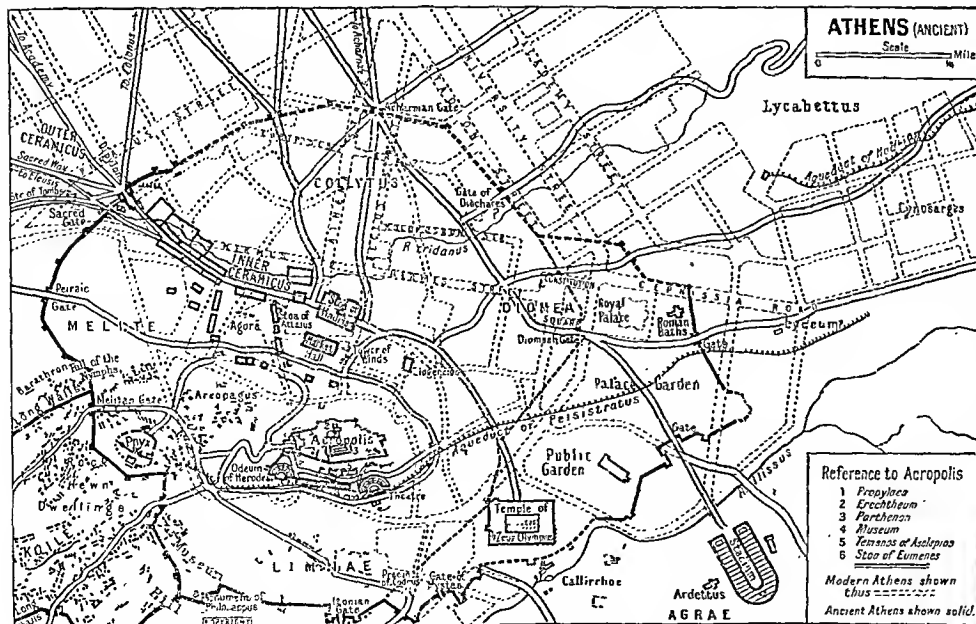
ATHENS. The most famous of Hellenic cities, and now the capital of the Greek republic. It is situated in Attica on and around a group of hills, about four miles from its harbour town, the Piræus (*Peiræus*).

The earliest town consisted, according to *Thucydides*, of the Acropolis and its immediate surroundings. The tyrant *Peisistratus* began the great temple of *Zeus Olympius*. Shortly before the Persian invasion in 480 B.C. the Athenians became the chief sea power of Greece. It was one of the great achievements of *Themistocles* that he made them realize the value of the Piræus. The age of *Pericles* was the time of the highest artistic activity. The Parthenon was built between 447 and 433 B.C., and the great columned gate house, or *Propylæa*, was begun in 437 B.C. The Erechtheum was probably begun in an interval of the *Peloponnesian* war.

In the Hellenistic age Athens had become the literary and artistic metropolis of the world. The rebuilding of the temple of



Atheaa. "The Mourning Athena," a 5th century B.C. Greek memorial to fallen soldiers

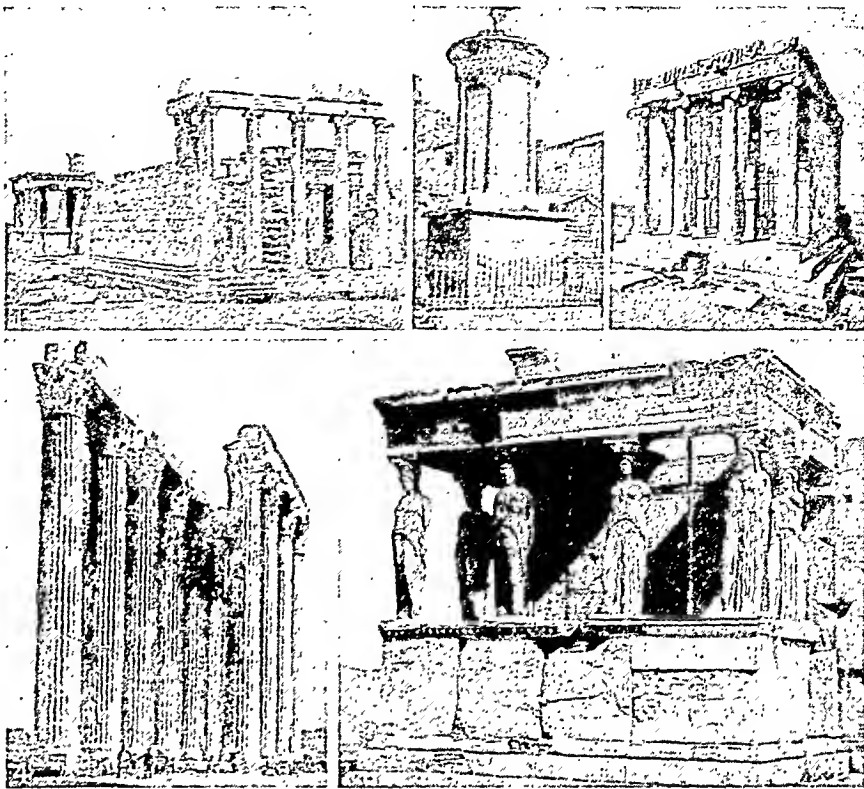


Athens. Plan of the ancient city superimposed upon a slightly defined plan of the modern one

Zeus Olympius was continued by Antiochus IV Epiphanes of Syria. In the Roman age the chief period of artistic activity was the reign of Hadrian (A.D. 117-138), during which the temple of Zeus Olympius was completed. The buildings of Athens remained practically unchanged until the 5th or 6th century A.D., when the old religion was officially abolished. After the capture of Athens by the Turks in 1456 the Parthenon became a mosque. In 1687 the Venetians exploded the powder magazine which had been placed in the Parthenon by the Turks, destroying all the central part of the temple.

Athens was a small provincial town until 1834, when it was made the capital of the new kingdom of Greece. Modern Athens occupies for the most part the N. and E. sides of the ancient city. It is the seat of a Greek metropolitan, the railway and financial centre of the country, and a centre of international archaeological study. In 1930 the city was provided with a new water supply. A dam, built at Marathon, formed a lake which feeds a reservoir capable of passing out 9,000,000 gallons a day. In 1929 a scheme was set on foot to modernise the Piraeus and to create a new port (see map, p. 152). The population, including the Piraeus, is approximately 750,000. See *Acropolis*; consult also *Ancient Athens*, E. A. Gardner, 1902; *Modern Athens*, G. Horton, 1902; *Athens and its Monuments*, C. H. Weller, 1913.

ATHERSTONE. Market town of Warwickshire, England. It is on Watling Street, 102 m. N.W. from London, on the L.M.S. Rly. It has a milestone equidistant from London, Liverpool, and Lincoln. The church of S. Mary, dating from the 12th century, was rebuilt in 1849, except for the tower and



Athens: notable remains of some of the temples. 1. Ruins of the second Erechtheum, an Ionic temple. 2. Monument set up in 334 B.C. to commemorate the victory of Lysicrates in a musical contest. 3. Temple of Wingless Victory on the Acropolis. 4. Corinthian columns of the Temple of Olympian Zeus. 5. Part of Hall of Coré on the S. side of the Erechtheum, supported by Caryatides

chancel. The remains of Merevale Abbey are near. The town gives its name to a hunt. Market day, Tues. Pop. 5,957.

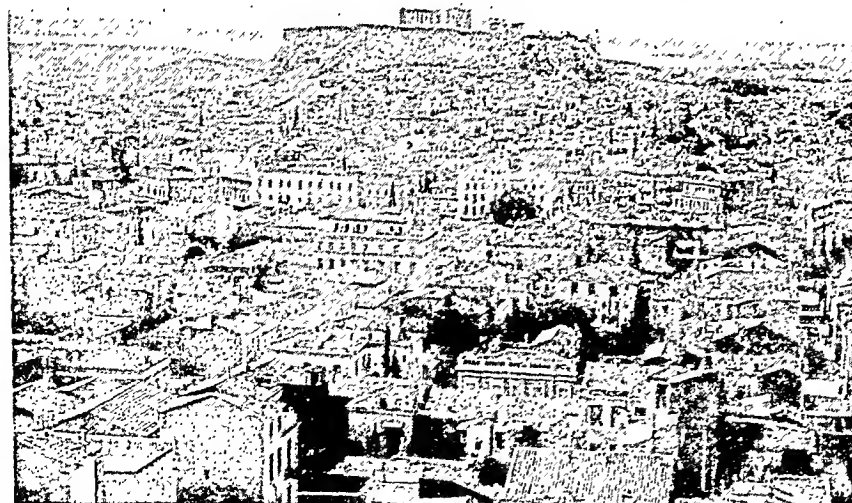
ATHERTON or **CROWBENT.** Urban district and market town of Lancashire. It is 5 m. S.W. of Bolton, on the L.M.S. Rly., and has cotton factories, iron works, and collieries. Market day, Fri. Pop. 19,863.

ATHERTON, GERTRUDE FRANKLIN (b. 1857). American novelist. Her maiden name was Horn, and Benjamin Franklin was her great grand-uncle. Born at San Francisco, she wrote many novels of Californian life, several of a political or sociological tendency. Alexander Hamilton, some of whose letters she edited (1903), is the hero of *The Conqueror*, 1902; and her other works include *Patience Sparhawk* and *Her Times*, 1897; *American Wives and English Husbands*, 1898; *Senator North*, 1900; *Tower of Ivory*, 1910; *The Avalanche*, 1919, *The Immortal Marriage*, 1927.

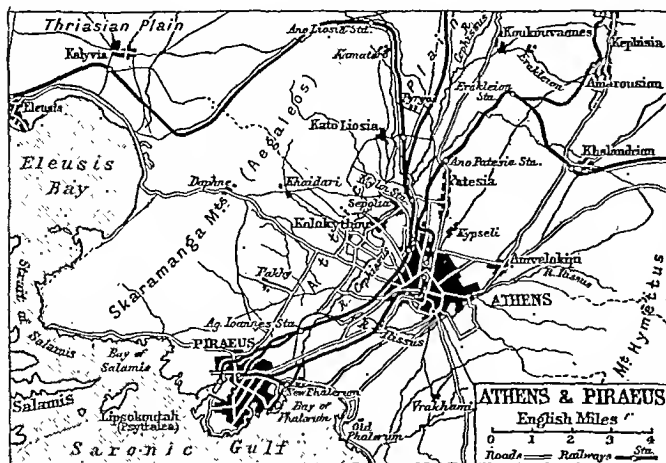
ATHGARH. Feudatory state of Orissa, India. It covers an area of 168 sq. m. on the forested Chota Nagpur plateau. The ruler is a rajah. Pop. 46,813.

ATHLETICS (Gr. *athlētēs*, contestant). Art or practice of physical games or exercises. The Olympic games of the Greeks are traceable to the forms of exercise usual among the Egyptians. Running, leaping, throwing the discus, boxing, and wrestling were popular among the early Greeks and Romans.

Young Londoners in Henry II's time indulged in leaping, wrestling, and casting the stone. During the reign of Elizabeth sports of this kind were more popular among the humbler classes than with the nobility. There was a great vogue for foot racing in the time of the Stuarts, probably due to the fashion of noblemen keeping running footmen and to the desire to match the speed of their respective servants one against another. Pepys describes a match between one of these footmen and a professional runner in Hyde Park in 1660



Athens. General view showing how the Acropolis still dominates the city. Above, white marble dam at Marathon Lake, with the Parnes Mts. in the background. The engineers have been able to make use of the aqueduct which the Emperor Hadrian began to build about A.D. 120



Athens and the Piraeus. Map showing the position of the capital of Greece and its relation to its port on the Saronic Gulf. See page 151.

One of the first athletic meetings properly so called was that convened by Major Mason in 1807, in connexion with an athletic society called the Necton Guild, at Necton, Norfolk. The various events included wrestling, jumping in sacks, foot races, etc.

Exeter College, Oxford, was the pioneer in instituting annual athletic meetings at that university; the first, held in 1850, comprised two miles cross-country, a quarter-mile flat, 300 yards, 100 yards, 140 yards, and one mile over ten fifties of hurdles. The first athletic meeting at Cambridge took place March 16-18, 1857; and the annual Inter-University Meeting began at Oxford, March 5, 1864.

In Great Britain one of the principal athletic functions of the year is the Inter-University Meeting just before Easter, at Stamford Bridge. Another important fixture is the Amateur Championship Meeting, held annually on the first Saturday in July at Stamford Bridge, just after the Scottish and Irish Meetings. Another is the public schools meeting.

In 1896 an international athletic meeting was held at Athens in the form of Olympic Games (q.v.) and except for the war period meetings were held every four years. At these gatherings, in addition to the events of an ordinary athletic meeting, were included almost every sport and game practised by the competing countries.

The governing body for amateur athletics in Great Britain is the Amateur Athletic Association, 10 John Street, Adelphi, London, W.C. The Irish Free State has the Taltann Games, and in Scotland there are Highland games at various centres. See Jumping; Running, etc.

ATHLONE. Urban district and market town of co. Westmeath, Irish Free State. It is 78 m. W. of Dublin, on the Gt. Southern Rly., and is divided by the Shannon, which river and the Grand and Royal canals enable it to trade with Limerick and Dublin. A fine bridge spans the Shannon. Athlone has linen and woollen manufactures, and salmon fishing is engaged in. Market days, Tues. and Sat. Pop. 7,472.

The title of earl of Athlone was borne from 1692 to 1844 by the family of Van Reede. Godard van Reede, a Dutch general in the service of William III, distinguished himself at the siege of Athlone in 1691, and was created earl in 1692. In 1917 the title was given to Prince Alexander of Teck, brother of Queen Mary. He was governor-general of the Union of S. Africa, Oct., 1923-30.

ATHMALIKH. Feudatory state of Orissa, India. It covers an area of 730 sq. m. on the Chota Nagpur plateau. Trade is carried on in timber, rice, and oil seed. Pop. 53,766.

ATHOLL. District in Perthshire, Scotland. It surrounds Ben Dearg in the Grampians, and

has an area of about 450 sq. m.

The Scottish title of Duke of Atholl has been borne since 1703 by the family of Stewart-Murray. The first earl of Atholl was Sir John Stewart. One of his descendants was made a marquess, and in 1703 the 2nd marquess was made a duke. In 1714, on the accession of George I, he was deprived of his offices, but did not join the rebellion in 1715. Three of his sons did so, and in consequence the dukedom, on his own death in 1724, passed to his second son James, and through his descendants to John George Stewart-Murray (b. 1871), who became the 8th duke in 1917. As Lord Tullibardine, the 8th duke had been Unionist M.P. for West Perthshire from 1910. He served in the Sudan campaign of 1898, and in the S. African War. During the Great War the duke raised mounted troops among his clansmen and served in the Gallipoli campaign.

As Lord Tullibardine, the duke married Katherine Marjory, a daughter of the historian, Sir J. H. Ramsay, Bart. She took an active part in local affairs in Perthshire and in 1923 was elected Unionist M.P.



John, 4th Duke of Atholl
After J. Hopner, R.A.

Man. In 1765 this sovereignty and certain rights were sold to the British Government for £70,000, and John, the 4th duke, sold the remaining rights for a further £417,000 in 1828. The duke's chief seat is Blair Castle, near Blair Atholl, Perthshire. His eldest son is called the marquess of Tullibardine, and he himself sits in the House of Lords as Earl Strange.

ATHOLSTAN, HUGH GRAHAM, 1ST BARON (b. 1848). Canadian newspaper proprietor. Born at Huntingdon, Ontario, he started life in 1863 in the office of The Montreal Daily Telegraph, of which he became general manager. In 1868 he projected The Montreal Star, which was first issued Jan. 16, 1869, which he

controlled for the next 50 years. Created a knight in 1908, he was made a baron in 1917.

ATHOR or **HATHOR**. Egyptian goddess, sometimes identified with the Greek Aphrodite. Associated with the rising and the setting of the sun, she was symbolised by a cow, and as one of the deities of the dead the sycamore was sacred to her. See Aphrodite.

ATHOS. Mt. of Greece, famous for its monasteries. It is about 80 m. S.E. of Salonica. The majority of the monks are Greek; they engage in farming, fishing, and weaving, in addition to their religious offices. Each monastery is ruled by an abbot elected for life or a board of overseers elected for a term of years. Pop. 4,858. See Monasticism.

ATHY. Urban district and market town of Kildare, Irish Free State. It is 45 m. S.W. of Dublin, by the Gt. Southern Rly., and has water communication with Waterford by the Barrow river, and with Dublin by a branch of the Grand Canal. It engages in a brisk grain trade. There are monastic and other remains, including those of Woodstock and White Castles. Market day, Tues. Pop. 3,535.

ATITLAN. Lake in the S. of Guatemala. About 24 m. long by 10 m. broad, it is 64 m. in circumference. It occupies a crater of great depth, and lies about 4,700 ft. above sea level. On the S. side is the Indian town of Santiago de Atitlán. Pop. about 10,000. At the S. end of Lake Atitlán is the volcano Atitlán. It is 11,720 ft. high, and was occasionally active during the 19th century.

ATLANTA. Capital and largest city of Georgia, U.S.A. It is situated in the N.W. part of the state, is the centre of several rlys. and the seat of the Atlanta and Clark Universities. It exports cotton, tobacco, and mules. Pop. 253,783.

The battle of Atlanta was fought July 22, 1864, during the American Civil War, when the Northerners under Sherman besieged Atlanta. To relieve the pressure the Confederates under Hood made desperate attacks, but on Sept. 1 were forced to abandon Atlanta. See American Civil War.

ATLANTIC CITY. City and seaside resort of New Jersey, U.S.A. It is 56 m. S.E. of Philadelphia, on the Atlantic City rly., and stands on a long, narrow, sandy island. It has a splendid beach, six long ocean piers, and a promenade 8 m. long. Atlantic City has an aerodrome covering 160 acres, and was the scene of the Pan-American Aeronautic Expedition in May, 1919. Pop. 53,287.

ATLANTIC OCEAN. Second largest of the four great oceans. From N. to S. it is about 8,500 m. and from E. to W. between 2,500 m. and 4,500 m.; its area is about 30 million sq. m.

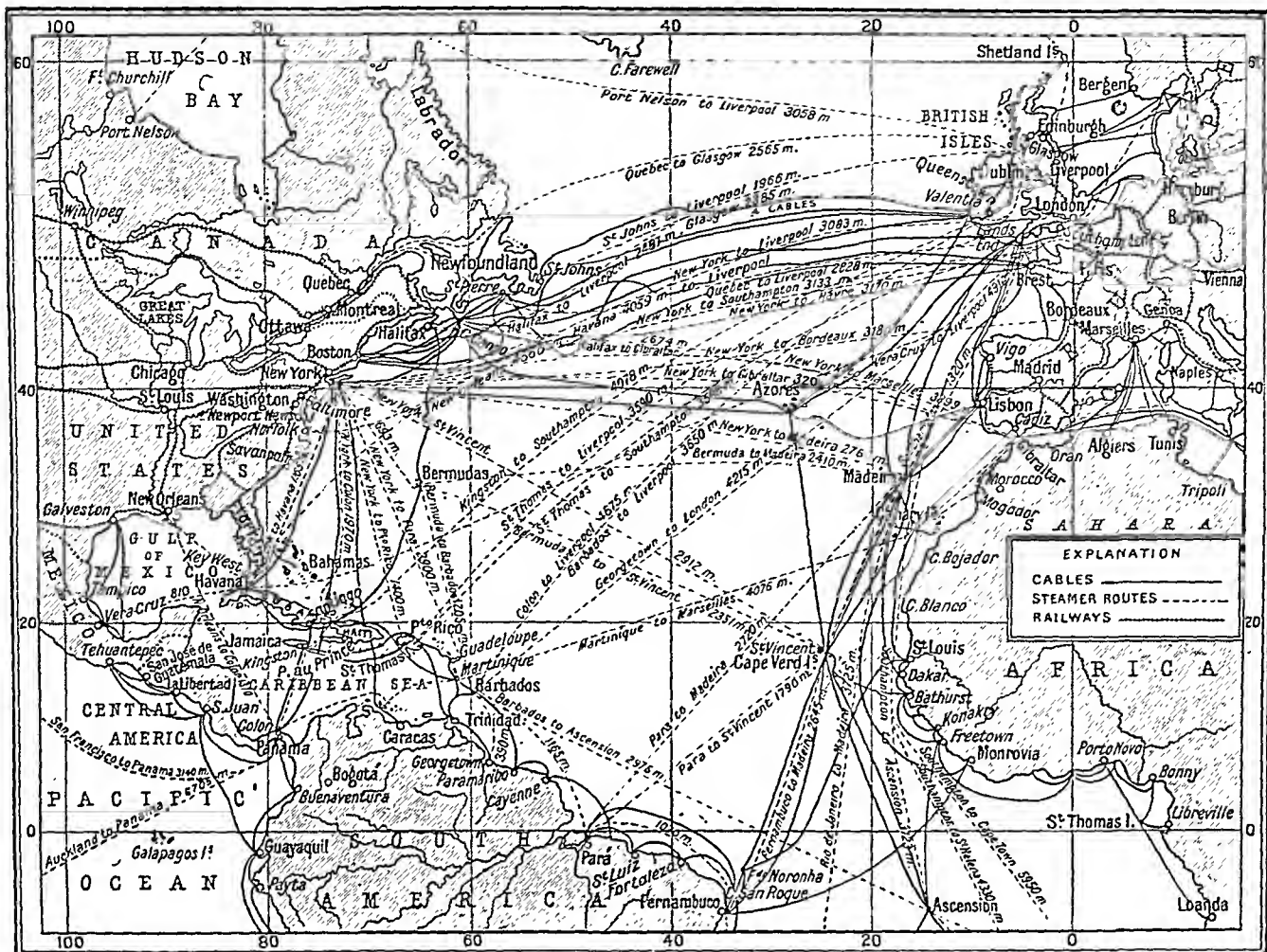
Roughly midway between the E. and W. margins, a long ridge rises from the floor of the Atlantic to within about 1,700 fathoms, nearly 2 m., of the surface. The N. end of this edge forms the Telegraph Plateau between Ireland and Newfoundland; farther S. the Azores rise above it, whence to the Equator it is called the Dolphin Ridge. Near the Equator the ridge is less definite, but as the Challenger Ridge stretches beyond lat. 50° S.; from it rise Ascension and Tristan da Cunha.

Between the ridge and the margins the hollows contain a series of deeps more than 3,000 fathoms, 3½ m., below the surface; in two places the floor slopes steeply beyond 4,000 fathoms. The border seas of the north—Hudson Bay, the Baltic and North Seas—are shallow; the Gulf of Mexico and Caribbean Seas are deep. The British Isles and Newfoundland rise from extensive continental shelves which are the most important fishing grounds of the world.

The first cable across the Atlantic was laid between Ireland and Newfoundland in 1858,



Duchess of Atholl,
British politician
Russell



Atlantic Ocean. map showing the relation of the European, African, and American continents to this ocean, with the principal cable lines and steamer routes

but it was a failure. The one laid by the Great Eastern in 1866 was, however, a success.

ATLANTIC FLIGHTS. The first aircraft to fly across the Atlantic was an American seaplane which flew from Newfoundland to Plymouth in May, 1919. In June 1919, J. Alcock and A. W. Brown won The Daily Mail prize of £10,000 by crossing in an aeroplane in 15 hours, 57 min. On May 20-21, 1927, Charles Lindbergh flew from New York to Paris—a distance of 3,700 m.—in a monoplane, having been in the air 33 hours, 50 minutes. On June 4-6, 1927, Clarence Chamberlain, with Charles Levine as passenger (the first to cross the Atlantic by air) flew from New York to Eisleben in Germany, a non-stop flight of about 3,906 m., in 42½ hours.

On June 29, 1927, Adm. R. Byrd, with three companions, left New York in the aeroplane America and having crossed the Atlantic made a forced landing near Ver-sur-Mer, Normandy, on July 1. On April 12, 1928, Capt. Köhl and Baron von Hünefeld, German airmen, accompanied by Com. Fitzmaurice, of the Irish Free State Air Force, left Dublin in the German aeroplane Bremen and landed on Greenly Island, off Labrador, having accomplished the first east to west aeroplane flight across the Atlantic. In June, 1928, the seaplane Friendship flew from Trepassy Bay, in Newfoundland, to Burry Port, near Llanelli. It carried Miss Amelia Earhart, who was the first woman to fly across the Atlantic. The ocean has also been crossed by airships.

ATLANTIS. Mythical island in the Atlantic. Larger than Asia Minor and Libya together, according to Plato it was populous and flourishing. But its immortality brought

upon it the wrath of the gods, and it was swallowed up in a day and a night. The island has been variously identified with the Azores, the Canaries, and Crete, but some modern scholars believe that Plato's idea of it as a great land mass in the Atlantic is correct. (Consult Our Wonderful World, Vol. I, 1930.) Bacon's New Atlantis is a description of an ideal commonwealth.

ATLAS. In Greek mythology, a giant. Having, with other Titans, rebelled against Zeus, he was condemned to hold up the heavens on his shoulders in the extreme far west, near the garden of the Hesperides (q.v.).



Atlas. Giant of Greek mythology compelled to hold up the universe
National Museum, Naples

upon it the wrath of the gods, and it was swallowed up in a day and a night. The island has been variously identified with the Azores, the Canaries, and Crete, but some modern scholars believe that Plato's idea of it as a great land mass in the Atlantic is correct. (Consult Our Wonderful World, Vol. I, 1930.) Bacon's New Atlantis is a description of an ideal commonwealth.

Atlantes are sculptured figures of men used as supports in place of columns, corresponding to caryatides. Examples are on the great temple of Zeus at Girenti in Sicily. The word is the plural of Atlas.

ATLAS. Term first applied by Mercator to a collection of maps. It was derived from the figure of the giant Atlas bearing the

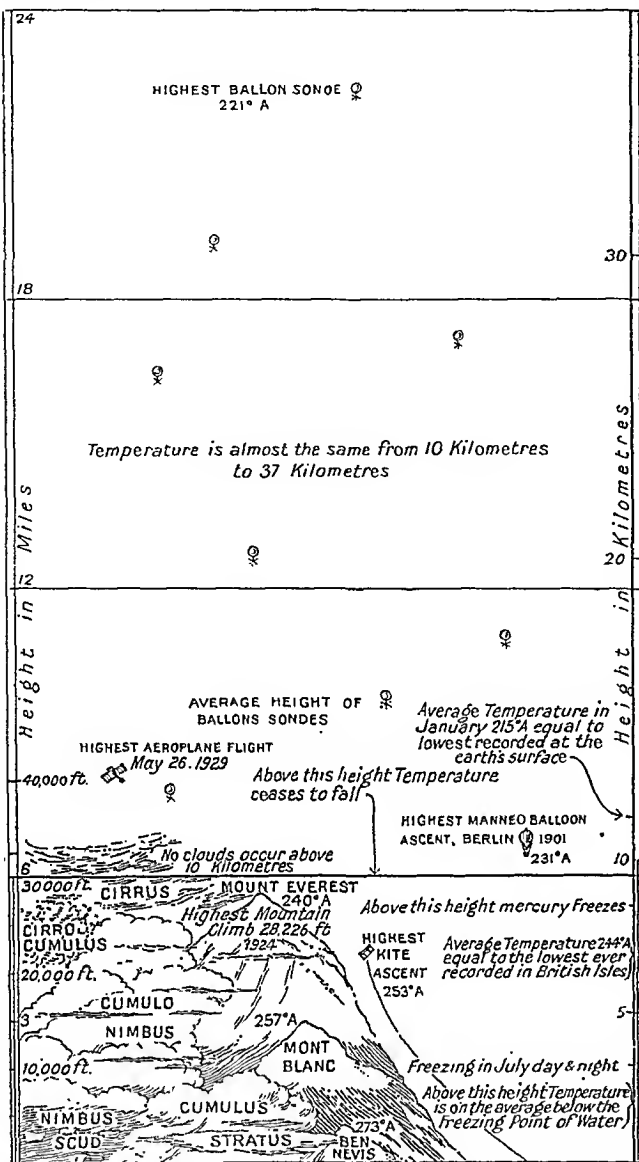
universe on his shoulders, which was used to decorate the title page of the early volumes in which maps were collected. See Map.

ATLAS. In anatomy, the first cervical vertebra, supporting the globe of the head. It articulates above with the condyles of the occipital bone, two processes at the base of the skull; below, with the axis or second cervical vertebra; and in front with the odontoid process of the axis.

ATLAS MOUNTAINS (Berber adrar, a mountain). Mountain system in the N. of Africa. It consists of two main ranges with many minor ramifications, and extends for about 1,500 m. from the Atlantic coast through Morocco and Algeria to the E. coast of Tunisia on the Mediterranean. Tagharat, nearly 15,000 ft. high, is the culminating peak of the entire system. The minerals include copper, iron, antimony, salt, and marble. Vegetation is mostly of the Mediterranean and African varieties, but Alpine flora occasionally occurs. The well-watered valleys are fertile.

ATMOMETER (Gr. atmos, vapour; metron, measure). Instrument for measuring the rate of evaporation, also called an evaporimeter. Piche's evaporimeter is used to determine the rate of evaporation in the atmosphere, and measures the rate at which water from a closed vessel replaces the water evaporating from a vetted or saturated surface. The Babington atmometer, another type, reveals the evaporation by a form of balance.

ATMOSPHERE (Gr. atmos, vapour; spaira, sphere). The gaseous envelope which surrounds the earth. Samples of air freed from water vapour have been found to



Atmosphere. Diagram showing condition of the air at different elevations, based on that published by the Meteorological Office. Ballons sondes generally rise until they burst and drop their self-registering instruments. Temperatures are recorded on the Absolute Scale on which 273° A. = 0° C. and 212° A. = - 52° C. At the highest altitude reached by an aeroplane, 40,000 ft., the temperature was 220° A.

contain approximately the following percentages by volume: nitrogen, 78·03; oxygen, 20·99; argon, 0·94; carbon dioxide, 0·03; and other gases in minute amounts.

Nitrogen appears to act as a diluent of the oxygen. Oxygen is directly concerned with the phenomenon of combustion and respiration. Carbon dioxide is derived from the respiration of animals, from the combustion of organic matter, and from volcanoes or earth fissures. It is taken in by the green cells of the leaves of plants, and under the influence of sunlight it is decomposed, the oxygen being freed and the carbon retained for food. Helium, neon, krypton, and xenon are also present in minute quantities in the air.

Water vapour is invariably present, but is constantly changing in both quantity and condition. The moving air conveys water vapour from the ocean surface to the land; the water is absorbed from the sea surface until the atmosphere is full, and the wet air moves landwards to drop the rain from the clouds. Solid impurities held in suspension in the atmosphere as dust play a part in

all very low. Usually the reef is closely grown with coconut palms, which take root in the sand formed by the decayed coral. The shallow lagoon often contains numerous pearl oysters. Frequently the coral ring is broken, and the atoll is horseshoe in shape. See Coral.

ATOM (Gr. *atō*, not; *temnō*, to cut). Term formerly used to denote the smallest particle of matter, incapable of further division. It is now used to mean the smallest portion of any element which goes into and out of combination and still retains its identity. An electron is called an atom of electricity.

John Dalton (1766-1844), who formulated the atomic theory, perceived that elements always combined in definite proportions; he framed the working hypothesis that molecules of a compound consisted of atoms of the elements composing the compound. Dalton assigned atomic weights to the elements, taking hydrogen as unity, with a value of 1. In 1827 Berzelius showed that many atomic weights were not whole multiples of the hydrogen unit, and proposed a new series of weights, which came into general acceptance about 1833.

producing the glows of sunrise and sunset, in illuminating the sky and forming its blue colour.

At the earth's surface the temperature of the air varies with the latitude, ranging from about 80° F. at the tropics to a point below freezing near the poles. Temperature decreases with altitude, so that the air surrounding a mountain is colder by about 1° C. for each 600 ft. of elevation. The warmth of the air is obtained by direct contact with the land and water surfaces. The air layer below 30,000 ft. is subject to continuous movements. Near the earth's surface the edges of the great atmospheric streams produce whirls and eddies which largely govern the weather.

The pressure of the air decreases with altitude, so that at a height of about 3½ m. the pressure is half, and at a height of 7 m. it is less than one-quarter of the sea-level pressure. There is clear evidence that the atmosphere extends to considerable heights. Meteorites are invisible until they come into contact with the atmosphere, when they become incandescent; some have become luminous at a height of nearly 200 m. See Meteorology: Relativity.

ATOLL. Ring-shaped coral reef which constitutes an island enclosing a lagoon in the middle. Atolls vary considerably in size, but are

Dulong and Petit discovered in 1818 that there is a more or less constant relation between the specific heat of an element and its atomic weight; the specific heat multiplied by the atomic weight yields as product a number approximating to 6·3. To this product the name atomic heat has been given. Avogadro in 1811 put forward a theory that the molecular weights of gases were proportional to the densities of the gases, and that equal volumes of gases under like conditions would contain the same number of molecules. Ten years later Mitscherlich found that the salts of related elements showed a similarity of crystalline structure.

Avogadro's law, the rule of Dulong and Petit, and the discovery of Mitscherlich all assisted in the determination of the atomic weights of elements. Experimentally the combining proportions of an element may be found out by chemical analysis or by positive ray analysis. (See Isotope.) In 1905 oxygen, with a nominal value of 16, was substituted for hydrogen as a standard; although the actual atomic weight of oxygen, as compared with hydrogen, is 15·878, it was found convenient to use the round number 16.

When the elements are set down in a serial order according to their atomic weights a marked periodicity of those elements having like chemical and physical properties is noticeable. Mendeleef postulated the Periodic Law, which states that the properties of elements are functions of their atomic weights. A serial number, called an atomic number, is assigned to an element according to its position in the periodic classification.

In 1878 Sir W. Crookes, experimenting with the electrification of rarefied gases, found in the cathode rays what he termed a fourth state of matter—radiant matter. J. J. Thomson in 1897 demonstrated that the cathode rays consisted of particles two thousand times smaller than the atom of hydrogen. These particles, called electrons, are now recognized to be atoms of negative electricity. The atom of an element consists of one or more such electrons revolving in orbits about a globular mass of positive electricity—the nucleus of the atom—some-what in the manner of a planetary system.

These discoveries paved the way to the acceptance of the idea of the disintegration of the atom, and the study of radio-active phenomena provided examples of atoms disintegrating within view. Rutherford and Soddy showed that some atoms of uranium, for example, break up every second, throwing out an alpha particle, which is a charged atom of helium, and leaving a residual atom which throws out two kinds of rays, the beta rays, which are electrons, and the gamma rays, which have great penetrating power, and resemble X-rays. Later discoveries show that the element uranium passes in progressive degradation through a series of forms until it is ultimately transmuted into an end-product identical with lead. See Electron; Molecule.

ATONEMENT. Word used in a religious sense to imply reconciliation with God through sacrifice. The conception of atonement, as it meets us in the history of religions, is not merely at-one-ment, or reconciliation, a restoration of the interrupted relation, moral and religious, of God and man; reconciliation is the result, but atonement is the means by which the end is brought about. The complementary conceptions of expiation and propitiation must not be excluded. In offering the sacrifice the sinner offers a compensation for the wrong he has done; by thus recognizing his own ill-desert, and the claim the deity has for some such compensation, he turns displeasure into favour: in expiating his sin, he propitiates the god worshipped, and so his sacrifice atones in restoring him to that relation to his god which his sin had interrupted.

The day of atonement is the great fast day of the Jews. Defined in the Talmud as The Day, and observed on the 10th day of the seventh month of the sacred year, or Tishri (Sept.-Oct.), it is the one day of humiliation or expiation commanded in the Mosaic law. It is said to have been instituted either on account of the sin and punishment of Nadab and Abihu, or as commemorating the day on which Moses came down from Sinai with the tables of the law and proclaimed forgiveness for the worship of the golden calf. The day is known as Yom Kippur.

ATREK. River of Persia. It rises in Khurasan (Khorassan) and flows into the Caspian after a course of 350 m. At its mouth it is normally only 30 ft. wide, but when flooded in spring spreads to a width of 2 m.; during the rest of the year the river is almost exhausted by evaporation.

ATREUS. In Greek mythology, son of Pelops and grandson of Tantalus. He became king of Mycenae, whither he had fled with his brother, Thyestes. Owing to jealousy he banished Thyestes, and after frustrating the latter's attempt to have him slain, took his revenge by causing his brother's own children to be served to their father at a banquet. This crime called down upon the house of Atreus the curse of the gods. The tragic fortunes of the Atreidae, notably Agamemnon and Orestes, were favourite subjects of Greek drama. See Agamemnon; Orestes.

ATRIUM. Originally the entrance hall of a Roman house. In a building of the simple type it was the principal room, and contained the hearth whereon the cooking was done. The more elaborate atria of Pompeian houses were courts partly covered by a roof. In the early days of Roman Christianity many upper-class houses were places of reunion for converts, and in the atrium penitents had to await their turn. Hence, when the basilica was adopted as the model of the Christian place of worship, the atrium or forecourt became essential to the ritual. It was usually surrounded by covered ambulatories or cloisters.

ATROPHY (Gr. *a*, not; *trophē*, nourishment). In biology, a change in the living process of a plant or an animal, as the result of which the individual diminishes in size or function, either as a whole or in part. General atrophy is usually the result of lack of nutrition or disease. Local atrophy may affect either a single organ or tissue in whole or part, or a group of allied tissues. Examples of normal local atrophy are to be found in certain organs, which disappear or become smaller at definite periods of life. Thus, the thymus gland diminishes during childhood. Certain bones, such as the lower jaw, undergo the same process in old age, constituting senile atrophy. Local atrophy may also occur as the result of disease, especially if nourishment cannot reach the part affected.

Atropine. Alkaloid prepared from the deadly nightshade (*Atropa belladonna*). See Belladonna.

ATROPOS (Gr. *a*, not; *trepein*, to turn). In Greek mythology, the eldest of the three Fates, the others being Clotho and Lachesis. Clotho spun the thread of life, Lachesis distributed men's lots, and Atropos, the inflexible, cut the thread. See Fates.

AT SIGHT. Commercial term meaning payable on demand. It applies chiefly to bills of exchange and promissory notes. If on these the words "at sight" are written they are not entitled, like ordinary bills of exchange, to the customary days of grace. See Bill.

ATTACHÉ (Fr., attached). Subordinate official attached to an embassy to gain diplomatic experience, and enjoying some of the privileges appertaining to the official diplo-

matic service. Military and naval officers are also detailed for duty as attachés on the staffs of ambassadors, to observe and report on matters of professional interest. See Diplomacy.

ATTACHMENT. In English law, the writ by which a person against whom a judgement has been given or order made by the court is arrested, or attached, to compel his obedience. It can only be issued by leave of the court. See Writ.

ATTAINDER (Old Fr. *ataindre*, Lat. *attingere*, to attack). Legal term now obsolete. In feudal times any person found guilty of treason or felony of a capital kind was declared attainted, i.e. his lands were forfeited, and no one could inherit land from or through him. Attainders began in England about the time of Edward II, and were common during the Wars of the Roses, when each party condemned its opponents in this way, thus securing their lands. In 1459 bills of attainder were first introduced into Parliament, this being a legislative, not a judicial, method of removing obnoxious persons and acquiring their land. The last case of this kind was in 1697, but attainders were only formally abolished in 1870. See Treason.

Attar of Roses. Alternative name for Otto of Roses (q.v.).

ATTERBURY, FRANCIS (1662-1732). English divine and politician. He was ordained in 1687 and became one of the royal chaplains. In 1701 he was made archdeacon of Totnes, and in 1704 dean of Carlisle. He was the principal composer of Sacheverell's defence before the House of Lords in 1710, and in 1712 was appointed dean of Christ Church, Oxford, and in 1713 Bishop of Rochester and dean of Westminster. In 1722 he was imprisoned in the Tower for plotting the restoration of the exiled Stuarts. He defended himself before the House of Lords, but was condemned, on certain compromising letters, and banished for life. He died in France, Feb. 22, 1732, and was buried privately in Westminster Abbey. Consult Francis Atterbury, H. C. Beeching, 1909.

ATTESTATION (Lat. *ad*, to; *testis*, a witness). Subscribing, testifying, or witnessing, either by signature or oath. By the Wills Act, 1837, all wills are required to be attested by two witnesses, who are to be present at the same time and subscribe their names in the testator's presence.

The word attest had another application in Great Britain in 1915-16. Under the Derby scheme for obtaining recruits for the army during the Great War, men were invited to enlist, not for immediate service, but to be called up in order of age. This deferred form of enlisting was called attesting. See Derby Scheme; Will.

ATTICA. District of ancient Greece, bounded by Boeotia on the N., Megara on the N.W., and the Aegean Sea on the E. and S.W. The surface is partly plain and partly mountainous, among the well-known mts. being Hymettus, Pentelicus, and Cithaeron. Attica and Boeotia together form a modern dept. of Greece with a pop. of 1,024,667.

The language of the people of Athens and Attica was considered to represent the highest standard of literary Greek, and correct diction was therefore called Atticism. A refined incisive form of wit was characterised as Attic salt. See Greec.

ATTICUS, TITUS POMPONIUS (109-32 B.C.). Roman literary man and publisher. His most intimate friend was Cicero, whose letters to Atticus are a model of familiar correspondence. An Epicurean in philosophy, familiar with Greek and Roman literature, and a man of great wealth, he possessed a large library and carried on an extensive publishing and

bookselling trade. He was the author of a chronicle of Roman history, and of an account of Cicero's consulship written in Greek.

ATTILA (c. 400-453). King of the Huns. He succeeded to the chieftainship in 434, when his people were masters of E. Europe N. of the Danube and the terror of the west up to the Rhine, and of W. Asia. Attila broke over the Danube (447) into the Balkan peninsula, compelling the emperor at Byzantium to cede him territory and pay a huge tribute. In 451 he stormed westwards. But the Roman general Aëtius and Theodoric of Toulouse, the king of the West Goths, united to resist the invading horde. On the Catalaunian plains near Châlons, in June, 451, a terrific battle took place, and the eastern hordes were decisively defeated. Next year (452), with reorganized hosts, he devastated northern Italy and threatened Rome.

ATTLEBOROUGH. Market town of Norfolk. It is 16 m. S.W. of Norwich by the L.N.E. Rly. The ancient capital of Norwich, it had a Holy Cross college, founded 1387. Market day, Thurs. Pop. 2,453.

ATTOCK. District of the Punjab, India, in the Rawal Pindi division. Bounded on the W. by the river Indus, it contains over 500,000 people, mostly Mahomedans, within an area of 4,025 sq. m., of which only two-fifths are cultivated. The rainfall is scanty and the crops insecure. Attock bridge across the Indus links Peshawar with Lahore.

ATTORNEY (late Lat. *attornatus*, turned to). In English law and kindred systems, one who acts as agent for another, especially in legal matters. As a rule, an agent is not now called an attorney unless he is appointed under a deed, called a power of attorney, to act in the absence of his principal abroad or in similar circumstances. Before 1873 an attorney was a person entitled to conduct proceedings on behalf of his clients in the common law courts. The Judicature Act, 1873, abolished attorneys-at-law in England, and made them all solicitors of the Supreme Court.

The attorney-general is the chief law officer of the British Government, and head of the English bar. Chosen from among the prominent lawyers who belong to the party in power and sit in the House of Commons, he is a member of the Government of the day, and is usually included in the Cabinet. He conducts cases on behalf of the Crown, advises the various departments of state on legal matters, and, if necessary defends such advice and action in Parliament. He receives a salary of £7,000 a year and professional fees.

The various British Dominions and the duchies of Lancaster and Cornwall have each an attorney-general. In Scotland the lord advocate is the equivalent of the attorney-general, who was first appointed in England in the reign of Edward I, when there was a king's attorney to look after his interests.

ATTRACTION (Lat. *ad*, to; *trahere*, to draw). Tendency of two or more bodies to approach each other. When some stress exists between two bodies and no material connecting link can be traced it is usual, if the stress tends to make the bodies move towards one another, to say that the bodies attract one another. If the stress tends to make the bodies separate, they are said to repel one another.

ATWOOD'S MACHINE. Device for verifying the velocities and accelerations of falling bodies. Invented by George Atwood (1746-1807), it consists of a light pulley balanced very truly on its axis and moving with very little friction. A cord passes over it and carries two equal weights, one of which passes in front of a graduated vertical scale. Attached to the scale are two movable platforms, the lower of which will bring the descending weight to rest; the upper is ring-shaped.

and can detach small brass slips placed on the top of the main weights and too long to pass through the ring.

The brass slip, when placed on one of the main weights, makes that side heavier and causes it to descend with a uniform acceleration; thus, when this weight reaches the upper platform, it has attained a certain velocity. The brass slip is now automatically detached, and the weight moves on with constant speed until it reaches the lower platform. This constant speed can be calculated by means of a stopwatch, and thus the acceleration due to the brass slip may be measured.

ATYS or **ATTIS**. In Greek mythology, a shepherd beloved by Cybele, the Great Mother of the Gods. Driven mad by her in revenge for his amour with a nymph, he mutilated himself and died. Atys was originally a Syrian divinity, and the myth, like that of Adonis, symbolises the death of vegetation in winter and its revival in the spring. His cult early made its way into Greeco and was introduced into Rome with that of Cybele. Consult Adonis, Attis, Isis, J. G. Frazer, 1906.

AUBE. Department of France. In the N.E. of the country, it is an agricultural district watered by the Seine and the Aube, a river 150 m. long. Much of it is sterile soil, but the vine, vegetables, wheat, and other cereals are grown. Fruit is cultivated and cattle and horses are reared. Troyes is the capital. Aube was formerly part of Champagne. Its area is 2,326 sq. m. Pop. 238,253.

AUBERGINE. Plant of the natural order Solanaceae. It is a half-hardy annual growing to a height of 2 ft.-3 ft., with blue flowers and white or purple fruit shaped like an egg, whence its familiar name egg-plant. It prefers light rich soil and sunny positions, but may be grown as a greenhouse plant. The so-called eggs are edible.

AUBERS RIDGE. A line of low heights overlooking the plain of the river Lys in France. It came into prominence in the Great War when on May 9, 1915, the British attacked the German positions here. Their object was to assist the French army operating N. of Arras, and to hold the German forces on the British front. The artillery opened a bombardment which did not destroy the German parapets. The troops went over the top with the intention of creeping up to the German works while the bombardment continued, but owing to many projectiles falling short, this plan could not be carried out. The Germans opened a terrific fire on the British. Notwithstanding this, the infantry at points broke through the wire and reached the German positions. The 13th London Regiment carried in succession three lines of trenches, but was caught by a deadly flank fire. Further attacks were made later in the day, but with no better success. The British losses were very heavy. Early in Oct., 1918, the village of Aubers and the ridge were occupied by the Allies. See Arras; Artois.

AUBERVILLIERS. Town of France, in the dept. of Seine. It lies near the river Seine, on the canal St. Denis, and is a N.E. suburb of Paris. Pop. 40,832.

AUBIGNÉ, JEAN HENRI MERLE D' (1794-1872). Swiss ecclesiastical historian. Of Huguenot stock, he became court preacher at Brussels in 1823. He returned to Geneva in

1831 to assist in the foundation of the Evangelical Church and to occupy the chair of church history in its theological college. His most popular work was the History of the Reformation in the 16th Century, 1835-53.

AUBIGNÉ, THÉODORE AGRIPPA D' (1552-1630). French historian and soldier. Of Huguenot family, he enlisted in 1567 under Condé, and rendered distinguished services to Henry IV. The last years of his life he spent in exile at Geneva, pursuing his studies and superintending the fortifications of Berne and of Basel. He died April 29, 1630. He is best known by his Universal History from 1550-1601 (1616-1620), the third volume of which was so outspoken that it was burnt by the common hangman in Paris.

AUBREY, JOHN (1626-97). English antiquary. Born at Easton Piers, Wilts., March 12, 1626, he was educated at Blandford Grammar School and Trinity College, Oxford. He described the stone circle at Avebury, 1649, but his voluminous notes upon the antiquities of Surry and Wiltshire were not utilised until 1718 and 1847. He published his Miscellanies in 1696, and furnished Minutes of Lives for the Athenae Oxonienses of Anthony à Wood.

AUBURN or **LISBOY**. Village in co. Westmeath, Irish Free State, 7 m. N.E. of Athlone. The name is derived from the popular association of Lissoy with the sweet Auburn of Goldsmith's poem The Deserted Village. There is a town of the same name in New South Wales.

AUBURN. City of New York, U.S.A., the co. seat of Cayuga co. It is 24 m. W.S.W. of Syracuse, on the New York Central and other rlys., and manufactures woollens, cottons, twine, and farming implements. It has a state prison, which adopts the Auburn or silent system of treatment. Water power is supplied by Lake Owasco. Pop. 35,677.

Another Auburn is on the Androscoggin river in Maine. It is 34 m. from Portland and is a manufacturing town. It dates from 1786. Pop. 17,000.

AUBUSSON. Town of France, in the dept. of Creuse. It stands on the river Creuse, 24 m. by rly. S.E. of Guéret, and is noted for its manufacture of carpets, an industry 400 years old. Pop. 6,485.

Pierre d'Aubusson (1423-1503) was grand master of the Knights Hospitallers of St. John of Jerusalem and defender of Rhodes.

AUCHINLECK. Town of Ayrshire, Scotland. It stands on Lugar Water, 4½ m. S.E. of Mauchline on the L.M.S. Rly., in a rich coal district. Auchinleck House was the ancestral home of the Boswells, lairds of Auchinleck, one of whom was the biographer of Johnson. Sir Alexander Boswell established in 1815 the Auchinleck Press for rare works in early Scottish and English literature. The Auchinleck MS., consisting of old English poetry, presented by Alexander Boswell to the Faculty of Advocates, is in their library at Edinburgh. Pop. 7,178. See Boswell, James.

AUCKLAND. Largest city of New Zealand. The capital of the prov. of Auckland and formerly of the dominion, it is in North Island, standing on the river Waitemata, which here makes a magnificent harbour. It is over 13,000 m. from London and the passage takes just over 40 days. It was founded in 1848, was named after Lord Auckland and, as the first borough in the country, was the capital until 1865, when Wellington (q.v.) superseded it. In addition to being the distributing and banking centre of the island, Auckland has shipbuilding yards, various manufactures, and does a large import and export trade.



Auckland, New Zealand. Plan of the capital of the province

The inner harbour is over 5 m. long and possesses graving and other docks, equipped with modern appliances for handling the cargoes. There is railway connexion with Wellington and a service of electric tramways. The chief buildings are the cathedrals, Anglican and Roman Catholic; the art gallery and museum; banks and other commercial edifices. The city has a university college and a wireless station. Pop. 206,800



Auckland. Queen St., a fine thoroughfare. Above, the Museum, an imposing building set upon a height overlooking the city and erected as a war memorial. Courtesy of the High Commissioner for New Zealand

The province of Auckland covers nearly half of North Island; the area is 25,364 sq. m.

AUCKLAND, BARON. British title borne by the family of Eden. William Eden, one of Pitt's associates, held a series of public offices between 1772 and his death May 28, 1814. In 1789 he was created an Irish baron and in 1793 a British one. His younger son, George, 3rd Baron (1784-1849), was president of the board of trade 1830-34, governor-general of India 1835-41, and first lord of the admiralty 1846-49. He was made an earl in 1839, but this title became extinct when he died Jan. 1, 1849. The barony passed to a brother and is still held by the Edens.

AUCKLAND ISLANDS. Volcanic group of uninhabited islands in the S. Pacific. Situated 180 m. S. of New Zealand, to which they politically belong, and discovered in 1806, they have an area of 329 sq. m. The largest, Auckland Island, covers about 280 sq. m.

AUCTION BRIDGE. A card game, developed from ordinary bridge. The chief differences between the two lie in the scoring and declaration. Instead of the dealer or his partner making trumps, the determination of the suit in which the game shall be played is put up to auction, the highest bidder obtaining the privilege of playing the hand with his partner's cards lying exposed on the table.

Since 1914 the game has been known as royal auction bridge, American players having in 1910 introduced a variation called royal spades or lilies, whereby the old value of spades, two points a trick, was increased to 10 points in a call of royal spades, ranking next to no trumps, 12. The committee of the Portland Club in May, 1914, framed a new code of laws and the following scoring values:

	C's.	D's.	H's.	S's.
Each trick above six scores ..	6	7	8	9
Three honours	12	14	16	18
Four honours	24	28	32	36
Five honours	30	35	40	45
Four honours in one hand ..	48	56	64	72
Five honours, four in one hand ..	54	63	72	81
Five honours in one hand ..	60	70	80	90

No trumps.—Each trick above six scores 10; three aces, 30; four aces, 40; four aces in one hand, 100.

The game consists of 30 points, obtained by tricks only. Tricks are counted below and honours above the scoring line. Little slam is 50, grand slam, 100, and rubber, 250.

Since January, 1928, no honours score has been allowed for chicane, which means the entire absence from a hand of any trump card. The penalty for each trick which a declarer fails to make less than his declaration is 50 points above the line, proportionately increased if the call has been doubled or re-doubled. When a player who has been doubled makes his declaration, he scores 50 points above the line, and 50 for each extra trick beyond his declaration. If he or his partner has re-doubled the bonus is doubled. The penalty for a revoke is 100 points above the line. When one of his adversaries revokes a declarer may score 100 points above the line or take three tricks from the offending side and add them to his own to make good his contract. See Bridge; Contract Bridge; consult Royal Auction Bridge, W. Dalton, 1919.

AUCTIONEER. One licensed to sell property by public auction. In England an auctioneer pays £10 a year for his licence, which is renewable every July 5; no licence is required for selling under an order of the court, or for fish when landed. An auctioneer is liable for negligence in the custody of goods or misrepresentations in particulars of sale.

In the case of real estate, land, houses, leases, shares, mining or fishing rights, etc., particulars are printed and distributed beforehand, together with the conditions of sale. The signing of the memorandum of sale accompanying this paper by purchaser and auctioneer constitutes a legal binding sale.

A bid may be withdrawn any time before the fall of the hammer. The seller may fix a reserve price below which he will not sell, but this must be stated in the particulars of sale.

A mock auction is a sale by persons who illegally act together to make the public believe it a genuine auction, and by puffing, etc., obtain higher prices than the articles are worth. A knock-out, which is not illegal, is an arrangement by a number of buyers who depute one to bid, and afterwards privately dispose of the property among themselves. Scottish auctions are called rousps, and the vendor is the exposer, and upset prices are usual. Auctions were practised by the Romans.

In 1928 an Act of Parliament dealing with rings at auction sales came into force. It states that a dealer offends against the law if he offers an inducement to any other person to abstain from bidding. The person who receives the inducement can also be punished. The punishment may be up to a fine of £100 or imprisonment for six months.

The Auctioneers' and Estate Agents' Institute of the United Kingdom, founded in 1886, has its headquarters at 29, Lincoln's Inn Fields, London, W.C., and branches throughout the kingdom. It holds examinations in March for associates and fellows.

In London the chief estate mart was long at 19, Tokenhouse Yard, London, but in 1921 it was moved to Queen Victoria Street.

AUCUBA JAPONICA. Evergreen shrub of the order Cornaceae, a native of Japan.



Aucuba Japonica, garden shrub

The large elliptical leaves are of a leathery texture, pale green in colour, variously spotted and blotched with yellow. The inconspicuous flowers have petals and sepals in fours, some bearing pistils only, others stamens only. These two forms of flower are borne on separate plants; only those with pistillate flowers bear the red berries.

AUDACIOUS. British battleship. Launched in 1912, she displaced 23,000 tons, was 555 ft. long, 89 ft. in beam, and had engines of 27,000 i.h.p., giving a speed of 21.5 knots per hour. Her armament was ten 13.5-in. and sixteen 4-in. guns, and three submerged torpedo tubes. On Oct. 27, 1914, the Audacious was sunk off the N. coast of Ireland by enemy mines. Her loss was not officially admitted until the end of 1918.

AUDE. Department of France. Formerly part of the old prov. of Languedoc, it has an area of 2,448 sq. m. Comprising mainly the valley of the Aude, the S. contains the slopes of the Pyrenees. From Carcassonne westwards a lowland gap, the gate of Toulouse, followed by the Canal du Midi, separates these hills from the S.W. corner of the Cévennes. The coast is flat and marked by lagoons, and the climate is somewhat unhealthy. Carcassonne is the capital. Pop. 291,951.

AUDENSHAW. Urban district of Lancashire. It is 5 m. E. of Manchester, has engineering works and cotton mills, and manufactures hats. The church of S. Stephen is Early English. Pop. 8,050. See Manchester.

AUDIOMETER (Lat. audire, to hear; Gr. metron, measure). Electrical device for obtaining a balance of induction of two coils acting upon a third placed between them so that it is free to move towards either. By

means of a telephone, inserted in circuit with the middle coil, it can be ascertained when a current or no current is induced in it. One of the applications of the audiometer is for testing the sense of hearing. It was invented in 1879 by the electrician David E. Hughes.

AUDIPHONE (Lat. audire, to hear. Gr. phōnē, sound). Apparatus for improving defective hearing. It is usually made of ebonite and is applied to the front teeth. The sound vibrations are carried to the brain through the teeth and the bones of the head. See Ear.

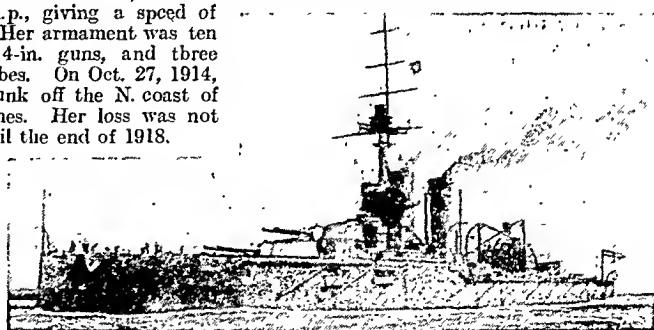
AUDITOR (Lat. hearer). In English law, a person whose duty is to examine the accounts of a company, firm, or person. An auditor is liable for negligence if he fails in his duty. Under the Companies Acts every limited liability company is bound to have an auditor, appointed by the shareholders. This auditor must examine the company's books and report thereon annually to the shareholders, and must, in such report, state whether in his opinion the balance sheet is a proper one and exhibits a full and fair account of the company's position.

An audit is the annual examination of the accounts of a company, society, or other undertaking by a person or persons appointed for the purpose. The periodical payment of rent and settlement of accounts between landlord and tenant is also known as an audit, in many cases celebrated by a dinner or festivity. In the United Kingdom the public accounts are audited by officials under the comptroller and auditor general, and his department is sometimes known as the audit office. It developed from the audit board established in 1785. See Accountant.

AUDLEY. Urban district of Staffordshire. It is 4 m. N.W. of Newcastle-under-Lyme, on the L.M.S. Rly., and has a mining industry. Pop. 14,738.

AUDLEY, SIR JAMES (d. 1386). English soldier, one of the knights of the Order of the Garter on its institution in 1344. Mentioned by Froissart, he won renown at Poitiers. In 1367 he was governor of Aquitaine and in 1369 great seneschal of Poitou.

AUDLEY END. Hamlet of Essex. It is situated 1½ m. S.W. of Saffron Walden, on the



Audacious. British battleship of the Dreadnought class. She was launched in 1912, and sunk by enemy mines off the north coast of Ireland on Oct. 27, 1914

L.N.E. Rly., and contains Audley End, the seat of Lord Braybrooke. This beautiful Jacobean house was built early in the 17th century and contains treasures of great value and interest.

AUDOUX, MARGUERITE. French novelist. In 1910 she published *Marie Claire*, the autobiography of a poor provincial girl, told with simplicity and considerable art; Eng. trans., 1911, by J. N. Raphael, who also translated her *Valserine* and *Other Stories*, 1912.

AUDRAN, EDMOND (1842-1901). French composer. Born at Lyons, his earliest dramatic composition was *L'Ours et le pacha*. Later he found his vocation in opera comique, starting in 1879 in Paris with *Les Noces d'Olivette*, which had a successful run at the

Strand Theatre, London, as Olivette, and was followed by The Grand Mogul, La Mascotte, La Cigale, and La Poupée.

AUDUBON, JOHN JAMES (c. 1780-1851). American ornithologist. Born at Mandeville, Louisiana, he became a planter in Pennsylvania. He explored the forests in search of birds, his art training enabling him to make valuable drawings. His *Birds of America*, 1827-38, made his reputation. His later years were devoted to a study of the mammals of America. He died in New York, Jan. 27, 1851.



J. J. Audubon,
Ornithologist

AUERSTÄDT. Village in Saxony, 25 m. from Weimar. It was the scene of the victory of the French with a single corps under Davout over the Prussians, Oct. 14, 1806. The French lost about 7,000, the Prussians perhaps double that number. Davout was made duke of Auersstädt. See Jena; Napoleon.

AUGEAN STABLES. In Greek legend, stables belonging to Augeas, a king in Elis. One of the twelve labours imposed on Hercules was the cleansing of these stables, which contained stalls for 3,000 oxen. He accomplished his task in one night by turning through them the rivers Alpheus and Peneus. As a reward Augeas had promised Hercules 300 oxen, and on his refusal to keep his word he was slain by Hercules. See Hercules.

AUGHRIM. Village about 4 m. from Ballinasloe, Galway, Irish Free State. Here, July 12, 1691, a battle between the English and the Irish was fought. The Irish, about 20,000 strong, under a French general, Saint Ruth, were in position at Aughrim; the English, under Ginkel, marched from Athlone to attack them. A strong Irish position was attacked in vain, and then, just before nightfall, the English horsemen found a path across the bog and turned the Irish flank. Saint Ruth was killed, and, encouraged by the success of the horsemen, the English infantry stormed the breastwork. The defeat soon became a rout. The Irish lost from 4,000 to 7,000 men. Out of 25,000 men the English lost under 2,000.

AUGITE (Gr. *augē*, lustre). A calcium, iron, magnesia, aluminium silicate which, as a rock-forming mineral, enters largely into the composition of basalts and other lavas, gabbros and dolerites. Generally black when in large crystals, it exhibits various shades of yellow or brown when in thin splinters or sections. See Pyroxene.

AUGMENTATION (Lat. *augmentum*, increase). Addition to armorial insignia granted specially by royal licence. Such additions may be placed in small shields, as in the cases of the dukes of Marlborough and Wellington, in cantons or chiefs, or may merely be extra charges—a crest or supporters. In blazoning arms these are always described last, “and for augmentation” being prefixed.

The court of augmentations was a court of law established by Henry VIII in 1536, after the dissolution of the monasteries. Its function was to hear cases arising out of the disposal of monastic lands. Its records were kept in the Augmentation Office, and it was dissolved in 1553.

AUGSBURG. City of Bavaria. Capital of the district of Swabia, it stands high, about 40 m. by rly. N.W. of Munich, and between the rivers Lech and Wertach. Formerly one of the wealthiest of the free cities of Germany, its buildings include the cathedral, partly dating from the 10th century, the churches of S. Ulrich and S. Anna, the episcopal palace, the 17th century town hall, with its magnificent Golden Hall, and the Fugger Haus. The

Fuggerei is a little enclosed town for needy Roman Catholics. Cotton, linen and silk goods, paper and machinery are among the chief manufactures. Pop. 165,522.

Augsburg owed its early importance and its later commercial prosperity, when part of Swabia, to its situation at the junction of several roads, much of the trade from Italy to the N. passing through it. It was a free city from 1276 to 1806, when it became part of Bavaria. During the 14th and 15th centuries it was the great money market of Europe.

The statement of the Lutheran doctrine drawn up in 1530 and presented to Charles V during the diet of Augsburg is known as the Confession of Augsburg, and the coalition of European princes formed at Augsburg in 1686 against Louis XIV was the League of Augsburg.

AUGUR (Lat. *avis*, bird; *garrare*, to chatter). Member of a college of priests in ancient Rome. In late Republican times consisting of sixteen members, its functions included the inauguration of temples, priests, etc., and the taking of auspices from observations of the manner of flight and of the cries of certain birds before important public business. A report of unfavourable manifestations to the president made it necessary to adjourn the meeting.

AUGUSTA. City and winter resort of Georgia, U.S.A., the co. seat of Richmond co. It stands on the Savannah river, at the head of navigation, 231 m. from its mouth, and is 132 m. N.W. of Savannah, on the Southern and other rlys. Water-power for factories is brought by canals from a dam by the river, and a hydro-electric plant of 30,000 h.p. has been laid down. Augusta is the chief cotton manufacturing centre of the southern states, and one of the largest cotton markets. Lumber, flour, silk, and cotton-seed oil are produced. Pop. 55,245. Another Augusta is the capital of Maine, U.S.A. Pop. 14,144.

AUGUSTA OR AGOSTA. Seaport of Sicily, in Syracuse prov. It stands on an island connected with the mainland by a bridge, and is 19 m. by rly. N. of Syracuse. It has a spacious harbour, a fishing industry, and exports salt, oil, wine, and sardines. Off here in 1676, in a fight between the French and a Spanish-Dutch fleet, De Ruyter was killed. Pop. about 16,000.

AUGUSTAN AGE. Name given to a period of literary excellence during the reign of the Roman emperor Augustus. The writers included Virgil, Horace, Ovid, Propertius, and Livy. The reigns of Anne in England and of Louis XIV in France have been also described thus. See Latin Literature.

AUGUSTINE (354-430). Father of the Church and bishop of Hippo. Aurelius Augustinus, formerly known in England as S. Austin and now more generally as S. Augustine, was born Nov. 13, 354, his parents being Patricius, a pagan, and Monica, a Christian, both Latin-speaking citizens of the Roman empire. Augustine's education began at his native town, Tagaste, and was continued at Madaura and Carthage. After his conversion to Christianity in 386 he returned from Italy to his native land and went into a retreat, where he studied Scripture and philosophy. In 391 he was called against his will to be a presbyter, and in 395 to be bishop of Hippo Regius. In that place and office he remained until his death, Aug. 28, 430.

Of Augustine's numerous works, the most interesting to moderns are two that take rank among the world's classics, the *Confessions* (Confessiones) in thirteen books, and the *City of God* (*De Civitate Dei*) in twenty-two books. In the *Confessions*, Augustine traces his progress from childhood to conversion. The last three books deal with the Book of Genesis. The *City of God* is an elaborate answer to the charge that the Christians were responsible for the fall of Rome in 410.

Augustine was the first to transform the authority of the Church into a factor in religion. He changed the current conception of piety into a deep and firm trust in God by faith. His doctrines are those of S. Paul reaffirmed and developed, and, after S. Paul, he has had the greatest influence on the theology of the West.

AUGUSTINE OR AUSTIN, SAINT (d. 604). First archbishop of Canterbury. He was prior of the Benedictine monastery of S. Andrew at Rome when chosen by Pope Gregory I to lead a band of missionaries for the conversion of England. He set out in 596 and reached the Isle of Thanet in the spring of 597. Accompanied by 40 monks, he had a courteous reception from Ethelbert, king of Kent. Augustine then went to Arles to receive consecration as bishop. In 601 Gregory gave him jurisdiction as archbishop over England. He was instructed also to divide the country into dioceses, though the new religion actually extended but little beyond the borders of the kingdom of Kent. Augustine died May 26, 604, and was buried at Canterbury. His bones were later translated to the N. porch of the abbey, a site now occupied by a hospital. His festival is May 26.

AUGUSTINIAN. Full name of the Austin canons, a religious order of R.C. clergy. The Augustinians follow the rule of Augustine, and while living in community are occupied with ordinary clerical work. They were reorganized in the 12th century, and in the 15th century were entitled canons regular. At the Reformation they had 34 houses in Scotland and 91 in England. The hospices on the Great St. Bernard and the Simplon are served by monks of this order. The canonesses regular of S. Augustine, communities of women living by rule, are of similar origin. The name is also given to the Austin Friars, a religious order of mendicants dating from the 5th century. Their habit was black, and the site of their house in the City of London is commemorated by the street Austin Friars.

AUGUSTÓW. Town of Poland, in the district of Suwalki, formerly in Russia, also called Augustowo. The town is in the lakes region W. of the Niemen, and has canal connexions with this river and by the canalised Biebrza (Bohra) with the Vistula. It is 18 m. S. of Suwalki, and has cattle and horse markets and a timber trade. It was founded in 1557 by Sigismund II. Pop. 12,000.

It gives its name to a battle fought between the Germans and the Russians. Sept. 14-Oct. 3, 1914. A Russian reserve army, having retreated from Lyck through Grajewo to the line of the Bobra, made a stand against the Germans at Augustów about Sept. 14-15, but was defeated. After further fighting the Russians crossed the Bobra and drove the Germans back on Augustovo. On Oct. 1 the Russians bombarded the town, and captured it on Oct. 3. The Germans then fell back to the frontier.

AUGUSTULUS, ROMULUS. Last Roman emperor of the West. He was the son of the powerful Pannonian Orestes, who deposed the emperor Julius Nepos and set his own son on the throne (475). The young emperor proved utterly incompetent, and the Romans expressed their contempt by changing his name from Augustus to the diminutive Augustulus. Orestes was killed in 476, and Augustulus abdicated and retired to Campania.

AUGUSTUS, GAIVS OCTAVIVS, commonly known as Augustus, the first of the long series of Roman emperors, was born Sept. 23, 63 B.C. He was the son of another Gaius Octavius by a niece of Julius Caesar, who by his will made the boy his adopted son and heir. During the years between the murder of Julius (March 15, 44) and his own assumption of the imperial dignity in 27, he is generally named Octavian.

The murder of Julius Caesar threw the Roman world into chaos. The young Octavian, who had been absent from Italy, returned at once to Rome, accompanied by his friend and counsellor Agrippa, to claim his inheritance. Caesar's partisans were already in arms under the leadership of Antony, who at first imagined that Octavian could be disregarded. The veterans soon gave their allegiance to Caesar's adopted son, with the result that an alliance was quickly made between him and Antony.

In 42 Antony and Octavian, who with Marcus Lepidus had been recently chosen triumvirs to restore order, carried their armies from Italy to the Balkan Peninsula to fight the two chiefs of the republican party, Brutus and Cassius. The victory of Philippi (42) made the Caesarians all-powerful. Octavian and Antony in effect divided the Roman world between them.

Meanwhile, Octavian was organizing his supremacy in the W. In 31 the arrogance of Cleopatra, the Egyptian queen, provided the excuse for an attack upon her, which was in effect an attack upon Antony. Agrippa won a decisive victory over Antony's fleet at Actium (Sept. 2, 31); and when Octavian advanced against Egypt in the following year Antony and Cleopatra committed suicide, and Octavian at 33 stood without a rival.

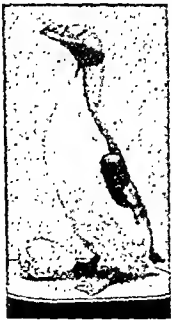
After the fall of Antony, Octavian returned to Rome, and the Senate conferred upon him titles of honour which in themselves did not imply power: Augustus, the name by which he is known to posterity; pater patriae, father of his country; princeps, first citizen.

Augustus reigned from 27 B.C. to A.D. 14, when he died, Aug. 19. He did not aim at any extension of the Empire, though there were frequent and sometimes serious wars with the German and other barbarian tribes upon its confines, in the course of which there occurred one grave disaster, the annihilation by Arminius of a great Roman army under Quintilius Varus (A.D. 9). Within the empire itself Augustus established the Pax Romana, the Roman Peace, and the provinces were for the most part admirably governed. See Rome.

AUGUSTUS (1670 - 1733). King of Poland and elector of Saxony, known as the Strong. Born at Dresden, May 12, 1670, he was the second son of John George III, elector of Saxony. In 1694 he succeeded his brother John George IV as elector, and in 1697 was elected king of Poland. In 1702 he was defeated at Clissow by Charles XII of Sweden, who forced him to give up the Polish crown, which he regained in 1709 after defeating Charles at Pultowa. Marshal Saxe was the most famous of his many illegitimate children. He died at Warsaw, Feb. 1, 1733.

His son Augustus (1696-1763) succeeded him in Saxony and was elected King of Poland, where he mainly lived.

AUK. Name of two birds of the family Alcidae. The great auk or gare-fowl (*Alca impennis*) is now extinct. It was the only bird of the northern hemisphere incapable of flight, its wings being little more developed than those of the penguin, which it somewhat resembled in general appearance. The auk ranged from the Bay of Biscay to Greenland, but was found in greatest numbers on rocky islands near Iceland and off Newfoundland. The last known example in Europe was killed in 1844. The eggs are highly valued by collectors.



Auk. Extinct Great Auk and egg

The little auk (*Mergulus alle*), a small bird of the same family, is only about 8 ins. in length and has flying wings. It is a winter



Augustus, first of the Roman emperors. He was the great-nephew and adopted son of Julius Caesar
Vatican, Rome

visitant to the northern shores of Scotland. The word auklet is used for still smaller birds.

AULDEARN. Village of Scotland, about 3 m. from Nairn. Here, May 9, 1645, was fought a battle between the royalists under Montrose and the Covenanters. Montrose, after his retreat from Dundee, found that his pursuers had divided their forces. Thereupon he turned against Hurry and lured on by him reached Auldearn on May 8. During the night the Covenanters sought to surprise their foes, but they failed, and early on the 9th the battle began. The cavalry of the Covenanters were routed; in the centre the infantry were killed almost to a man. See Montrose.

AULD LANG SYNE. Song by Robert Burns. Written in the summer of 1789, he sent it to a friend as an old Scottish song, having found his inspiration in the line: Should old acquaintance be forgot. The song was probably set to its present tune in 1799. See Burns, Robert.



Auk. the Little Auk

AULD LIGHTS (Old Lights). Minor branch of Scottish Presbyterianism. In 1799 there was a dispute among some of the Presbyterians about making the Solemn League and Covenant a term of communion. The objectors were dubbed Auld Licht Burghers and Auld Licht Anti-burghers. These Auld Lights held aloof from each other and from all other sects until they coalesced in 1842 as the Original Secession Church. Four presbyteries still continue: Aberdeen and Perth, Edinburgh, Ayr, Glasgow. The Auld Lichts have received

fame in the stories of Sir James Barrie. See Presbyterianism; consult also Barrieland. J. A. Hammerton, 1929.

AULD REEKIE. Name by which Edinburgh is often called. It is due to the smoke or "reek" from the crowded buildings of the old town. See Edinburgh.

AULIC COUNCIL (Gr. aulē, court). Court of justice of the Holy Roman Empire, known in Germany as the Reichshofrat. Established as a kind of privy council by the emperor Maximilian I in 1497, the duties of its members were to assist him in governing his dominions. See Empire.

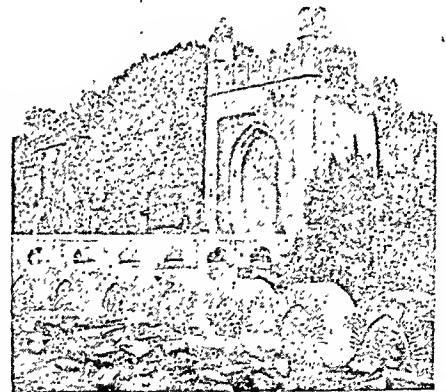
AULIS. Seaport of ancient Greece, in Boeotia. It stood on the Euripus, the channel separating Euboea from the mainland. It was here that the Greek fleet assembled before it set out for Troy, and Agamemnon prepared to sacrifice his daughter Iphigeneia.

AUMALE. Town of France. It stands on the river Bresle, 47 m. by rly N.E. of Rouen. The English titles of earl and duke of Albemarle were derived from it.

There were counts and dukes of Aumale in France until 1631, when Charles, the last duke, died in exile. In 1850 Louis Philippe revived the title for his son Henri (1822-97), who distinguished himself as a soldier in Algeria, of which he was governor, and held high offices in France before the royal family was exiled in 1883. He died in Sicily May 7, 1897, leaving his estate at Chantilly, with the wonderful treasures in the house there, to the nation. See Albemarle; Chantilly.

A town in Algeria is also named Aumale. It stands on the site of the ancient Ausia.

AUMONIER, STACY (1887-1928). British novelist. The son of a sculptor, William Aumonier, he was educated at Cranleigh and for a few years worked as an artist. He exhibited at the Royal Academy and elsewhere and at the same time appeared at the theatres as an entertainer, chiefly in his own dramatic sketches. In 1913 he began to write and soon made a reputation. He



Aurangabad, India. Ancient gateway and stone bridge of this city in the native state of Hyderabad

published novels, but is chiefly famous for his short stories. A volume of these, Ups and Downs, appeared in 1929. Aumonier died Dec. 21, 1928.

AURA. Term used for any subtle emanation. In medicine, it is applied to symptoms which may precede an epileptic attack or attack of hysterical fits, such as flashes of light, odours, sounds or voices, peculiar sensations in the pit of the stomach, twitching of the muscles, and psychic changes.

AURANGABAD. District and city in the N.W. of the native state of Hyderabad. The district is highly cultivated, chiefly for cotton and native food grains. The city stands on the Dudhna, 235 m. by rly. E. of Bombay. Pop. 40,000.

AURAY. Town and harbour of France, in the dept. of Morbihan. It is a road and rly. junction near the mouth of the Auray river, 12 m. by rly. W. of Vannes. There are valuable oyster beds, and fishing is carried on. The church of S. Anne d'Auray, in the neighbourhood, is a place of pilgrimage. Auray was the scene of an English victory over Charles of Blois in 1364. Pop. 6,949.

AURELIAN. Roman emperor, A.D. 270-275. Born about A.D. 213, the son of a Pannonian peasant, his full name was Lucius Domitius Aurelianus. He became one of the chief officers of his predecessor Claudius, upon whose death he was proclaimed emperor by the soldiers. Aurelian first attacked the barbarians in Italy and obtained a decisive victory (271) over them. After quelling a rebellion in Rome, he turned his attention to Zenobia, queen of Palmyra, and a brilliant campaign ended in the capture of Zenobia and the destruction of Palmyra. The defeat of Tetricus, the rival emperor of Gaul, near Châlons (273), brought the whole empire again under Aurelian's rule. The title of Restitutor Orbis (Restorer of the World) was conferred upon him, and his triumph in 274 was the most splendid ever celebrated in Rome.

Aurelian's Wall in Rome was begun by Aurelian A.D. 271, and was completed by

Prohus in 280. It was more than 12 m. in circumference, about 60 ft. high, and had some hundreds of towers. Much of the original circuit is still standing.

The Aurelian Wall was the name of a road in Italy. Beginning at the foot of the Palatine Hill at Rome, it left the city at the Aurelian Gate, and after traversing Latium, Etruria, and Liguria along the coast, ended at Arletê (Arles).

AUREOLE (Lat. aureolus, golden). Name given in Christian art to the radiance encircling the entire figure of divine and holy personages. It is distinguished from the nimbus, which surrounds the head only, though the two terms are often interchanged. See Nimbus; Saint.

AURICULA (*Primula auricula*). Perennial Alpine herb. A native of the Swiss Alps, it has a thick root-stock and a rosette of smooth, fleshy leaves, dusted on both surfaces with white powdered wax. The yellow flowers are borne in a small cluster at the top of a leafless stem. The garden varieties are derived from an original hybrid between *P. auricula* and *P. hirsuta*, the hairy primrose.

AURIGA. Driver of a chariot in the races in the Roman circus. The charioteers were divided into four parties or "factions"—the Blues, Whites, Greens, Reds—who in imperial times exercised a strong political influence.

The name is also applied to one of the northern constellations. Figured as a kneeling charioteer, it is described in Ptolemy's star list as a shepherd carrying a goat.

AURIGNACIAN. The early period of the Upper Palaeolithic Age in Europe. The flint implements—gravers, awls, and spokeshaves—are associated with bone shaft-straighteners and personal ornaments. The graphic arts were developed.

Named from a grotto at Aurignac in Haute Garonne, the stations extend from S. Wales to the Danube. See Anthropology.

AUROCHS (Gr. ouros, buffalo; Ger. ochs, ox). Extinct wild ox of Europe, progenitor of domesticated cattle; it is mistakenly identified with the European bison. The aurochs was a huge animal, as is proved by the bones found in many parts of Britain. By the 15th century it was found only in Lithuania, where the last survivors died early in the 17th century. It is represented in Great Britain by the half-wild cattle of Chillingham and Cadzow.

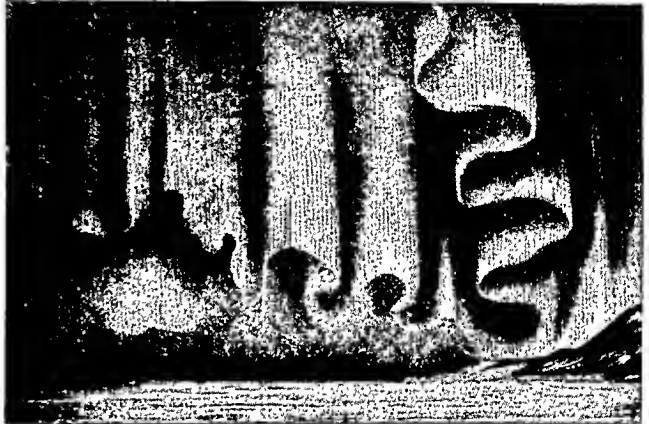
AURORA. Latin name for Eos, the Greek goddess of the dawn. She dwelt in the East, and every morning rose from the ocean or from the couch of her husband Tithonus and traversed the sky in a chariot drawn by two horses. She was also the goddess of youth and beauty.

AURORA. Luminous phenomenon seen in the sky chiefly at night. There are two of these phenomena which are almost identical. One is the aurora borealis or northern lights and the other the aurora australis. In general, the northern lights appear as either a whitish arc of light or quivering, rapidly moving beams. Sometimes a faint illumination without definite form is seen, and again it takes the form of clouds or patches of light. The colour may have a reddish, yellowish, or greenish tinge. It is sometimes carmine, and more rarely violet. The auroras are thought to be electro-magnetic phenomena, most strongly manifested at the poles. See Light; Spectroscopy.

AURUNGZEBE (1618-1707). Mogul emperor of India. His original name Mahomed was changed by his father to Aurungzhe, or throno ornament. He was made governor of the Deccan in 1655, and in 1658 he seized the throne. His reign is often regarded as a kind of golden age, but the distrust and suspicion fostered under his despotic rule caused the decay of the Mogul empire. He died at Ahmadnagar, Feb. 21, 1707. Consult Life, S. Lane-Poole, 1901.

AUSPICES (Lat. avis, bird; spicere, to see). Observations made by the augurs in ancient Rome from the flight and cries of birds. Auspices were also taken by observing the manner in which the pulli, or sacred chickens, ate their food. If they devoured it greedily, the omen was regarded as favourable; but if they were unwilling to leave their cage, it was unfavourable. See Augur.

AUSSIG. Town of Czecho-Slovakia. It is situated amid mountains at the union of the Biala and Elbe (Labe), 68 m. by rly. N. of Prague. It is a centre of the chemical industry, trades in coal, has a fruit drying and



Aurora. Wonderful effect of the auroral curtain (Aurora Australis), a manifestation of luminous phenomena observed in the sky during Captain Scott's first Antarctic expedition, almost identical with the Aurora Borealis.

By permission of the Royal Society.

preserving industry, is a railway centre, and carries on an active river trade. It is also known as Usti. Pop. 39,815.

AUSTEN, JANE (1775-1817). English authoress. The seventh child of the Rev. George Austen, she was born in his rectory at Steventon, Hampshire, Dec. 16, 1775. In early childhood she had some brief experience of school, but her education was chiefly obtained at home; her accomplishments, from the conventional standpoint of her time, being music, dancing, French, and a little Italian. She never left England. She paid occasional visits to London, but Bath and Southampton were the only towns in which she ever resided, and her life was mainly spent, whether in villages or in country houses, with people whose comfortable incomes were derived from rural rent rolls or from tithes.

Of Jane Austen's six authorised novels *Pride and Prejudice* was completed in 1797, and *Sense and Sensibility* in 1798. In 1798, too, much of Northanger Abbey, also a satire, in great part, on other women novelists, was written. *Mansfield Park* was completed in 1813, *Emma* in 1815, and *Persuasion* in 1816. The first to be published was *Sense and Sensibility*, which came out in 1811. In 1871, Jane Austen's nephew, Mr. J. E. Austen Leigh, gave to the world her epistolary novel *Lady Susan*, written before she came of age. An unfinished hook, *The Watsons*, was completed by Edith and Francis Brown and published in 1928.

In appearance Miss Austen was tall and slight, with small, regular features, hazel eyes, dark curling hair, and a fine complexion. The evidence goes to show that her life of forty-two years, which ended at Winchester, from rapid decline, on July 18, 1817, was one of intelligent happiness, usually spent in those



Aurungzebe, Mogul emperor British Museum



Auricula. Swiss Alpine perennial from which the familiar garden flowers are derived



Jane Austen, whose novels gently satirise provincial family life From an engraving

easy circumstances which, on her own showing, were essential to her contentment. She is buried in the N. aisle of Winchester Cathedral. Consult Life, F. Warre Cornish, 1913.

AUSTERLITZ. Small town in Moravia, about 14 m. from Brünn. Here on Dec. 2, 1805, Napoleon won one of his greatest victories, defeating the combined Russians and Austrians. The battlefield lies to the S.W. of this; the ground is mainly hilly, but to the S. it slopes to a region of lakes and marshes.

The two forces came into contact on Nov. 28, and during the next three days prepared for the coming battle. On the night of Dec. 1 the French were drawn up behind the little river Goldbach, and the allies were between that stream and Austerlitz. Early on Dec. 2 four allied columns advanced to the main attack on the French right. The latter, much inferior in numbers, were worsted, but were not routed, although the enemy got across the Goldbach.

As the last and most northerly of these four allied columns advanced, Napoleon delivered his main attack, striking at the Russian flank. The latter turned towards the foe, and on the plateau of Pratzen there was a desperate struggle, the Russians being at length beaten back. With this plateau in their possession, the French were able to move forward to the help of their right wing. Elsewhere the French left was engaging the Russian reserves. Here cavalry were used on a considerable scale, but eventually the French succeeded in driving their enemies back on to Austerlitz and in seizing the road that led to Olmütz.

The numbers engaged were about 83,000 Russians and Austrians and 65,000 French. The former lost about 35,000, of whom half were prisoners, and the victors about 7,000.

AUSTIN. Capital of Texas, U.S.A., and the co. seat of Travis co. It stands on the Colorado river, 145 m. W.N.W. of Houston on the Missouri, Kansas and Texas and other rlys. It is the seat of the co-educational state university. The city exports livestock, hides, cotton, wool, and grain, and has a large lumber industry. Two miles up the river is one of the largest dams in the world. Pop. 45,145.



Alfred Austin,
English poet
Elliott & Fry

AUSTIN, ALFRED (1835-1913). English poet. Born at Headingley, near Leeds, May 30, 1835, he was educated at Stonyhurst and at Oscott. Editor of *The National Review*, 1883-93, he was for many years on the staff of *The Standard*. He published many volumes of mediocre verse, lyrical and dramatic. He had a genuine love of nature, and expressed this happily in prose works such as *The Garden that I Love*. 1894. He succeeded Tennyson as laureate in 1896 and died June 2, 1913. Consult his *Autobiography*, 2 vols., 1911.

AUSTIN, SIR HERBERT (b. 1866), British manufacturer. Born at Little Missenden, Bucks, Nov. 8, 1866, he was educated at Rotherham and then trained as an engineer. After a few years in Australia he returned to England in 1890 and for sixteen years was connected with the Wolsley Company. In 1906 he began to make motor cars on his own account at Northfield, Birmingham, and in a few years the Austin car was known everywhere. In 1929 his works employed something like 4,000 men. During 1919-24 Austin was M.P. for the King's Norton Division of Birmingham.



Sir Herbert Austin,
British manufacturer

AUSTIN, JOHN (1790-1859). British jurist. He was born near Ipswich, May 3, 1790, the son of a prosperous miller. He became a barrister, and included Bentham and James and John Stuart Mill among his friends. He was professor of jurisprudence at University College, London, 1826-32, and died at Weybridge in Dec., 1859.

Austin's lectures, published in 1832 as *The Province of Jurisprudence Determined* and as *Lectures in Jurisprudence*, are authoritative. His definitions of legal and juristic terms were famous, one of the best known being that of sovereignty. He sought to find the essential distinction between law and morals, and according to his conception all law comes from the command of the sovereign. His theory is opposed by the historical school, which regards customary law as existing quite independent of sovereignty and anterior to it.

His brother Charles Austin (1799-1874) was a successful lawyer. See *Jurisprudence*.

AUSTRALASIA. Term comprising the Commonwealth of Australia, the Dominion of New Zealand, and their dependencies. (See *Australia*; *New Zealand*; *Fiji Islands*, etc.) The Bank of Australasia was incorporated by royal charter in 1835, has branches throughout the six states of Australia and in New Zealand, and has a paid-up capital of £4,450,000. Its head office in England is 4, Threadneedle Street, London, E.C.2.

AUSTRALIA. The greatest isolated mass of land S. of the equator. Its total area, including the island of Tasmania, is 2,974,581 sq. m., with a coastline of about 8,800 m. Its extreme measurements are from Cape York in the N. to Wilson's Promontory in the S., about 2,000 m., and from Steep Point in the W. to Cape Byron in the E., 2,450 m.

It is divided politically into six states, including Tasmania, and two territories, which together constitute the Commonwealth. The seat of government is now Canberra (q.v.). The area and population, excluding about 60,000 aborigines, of the separate divisions are as follows:

Division	Area. sq. m.	Population Latest Estimate
New South Wales	369,432	2,413,898
Victoria	87,884	1,748,610
Queensland	670,500	903,119
South Australia	380,070	576,576
Western Australia	975,920	395,851
Tasmania	26,215	212,043
Northern Territory	523,620	4,238
Federal Capital Territory ..	940	8,385
Totals	2,974,581	6,262,720

In 1927 Northern Territory was divided into North Australia and Central Australia. North, with its capital at Darwin, covers 287,220 sq. m. and Central, with its capital at Alice Springs, covers 236,400. Papua belongs to the Commonwealth, which governs part of New Guinea, New Britain, New Ireland, some of the Samoan Islands, the Solomon Islands, the Admiralty Islands, and Nauru Island under mandate from the League of Nations.

There are indications that Australia was at one time united with Asia through Malaysia, and perhaps also with S. America. But this conjunction was so remote that the unbroken isolation of Australia from a period long before historic times is the key of its whole development, and forms of vegetable and animal life survive in Australia which have become extinct elsewhere. With few exceptions, the indigenous animals are monotremes and mar-

supials. Of the monotremes, the most primitive form of existing mammals, the ornithorhynchus, or duck-billed platypus, and the echidna, or spiny ant-eater, are the chief; of the marsupials, the characteristic Australian animals, the wombat, opossum, and kangaroo are the most important. Of the rich and varied bird life, the lyre-bird, laughing jackass, and emu are typical. The typical vegetation of the forest is the eucalyptus, the gum, and the jarrah wood.

The climate is generally good. The coastal regions in the tropics are warm and humid; the inland plains are very hot in summer, but not unhealthy. The chief mountain ranges are the Australian Alps, the Blue Mts., the Liverpool and New Zealand ranges, and the Great Dividing Range. The principal rivers are the Darling, Murrumbidgee, and Murray, smaller streams being the Fitzroy, Burdekin, Diamantina, and Barcoo or Cooper's Creek.

CONSTITUTION. Australia is a self-governing Dominion and its constitution is "an indissoluble Federal Commonwealth under the Crown of the United Kingdom." It is governed by a governor-general appointed by and responsible to the Crown, assisted by an Executive Council of twelve—in practice, the Commonwealth Cabinet of the day.

The Australian Parliament consists of two Houses, the Senate and the House of Representatives. The Senate consists of 36 senators (6 for each of the States voting as one electorate), chosen for 6 years. The House of Representatives consists, as nearly as possible, of twice as many members as there are senators. The Northern Territory elects a member who may not vote, but who may join in debates.

DEFENCE. As regards the army, the principle adopted is universal compulsory training of a citizen army by a small permanent force. In 1928 the strength of the citizen force was 45,273, and of the permanent force 243 officers and 1,339 other ranks. Since 1913 the Commonwealth has built and maintained its own fleet. Sydney is a first-class naval station. The naval forces, including reserves, total over 11,000. The Air Force is administered by the Air Board. In 1928 the permanent establishment was 125 officers and 777 airmen.

TRADE AND FINANCE. The main industry of Australia is the production of wool. Cattle breeding forms a great though less important industry, which has led to the manufacture and export of Australian butter. General agriculture has long been the second industry, and wheat is grown for export. In recent years wines have become an important subsidiary industry and a considerable amount is exported to England. Australia is one of the great metal producing countries, enormous quantities of gold having been found in Western Australia and of silver at Broken Hill in New South Wales.

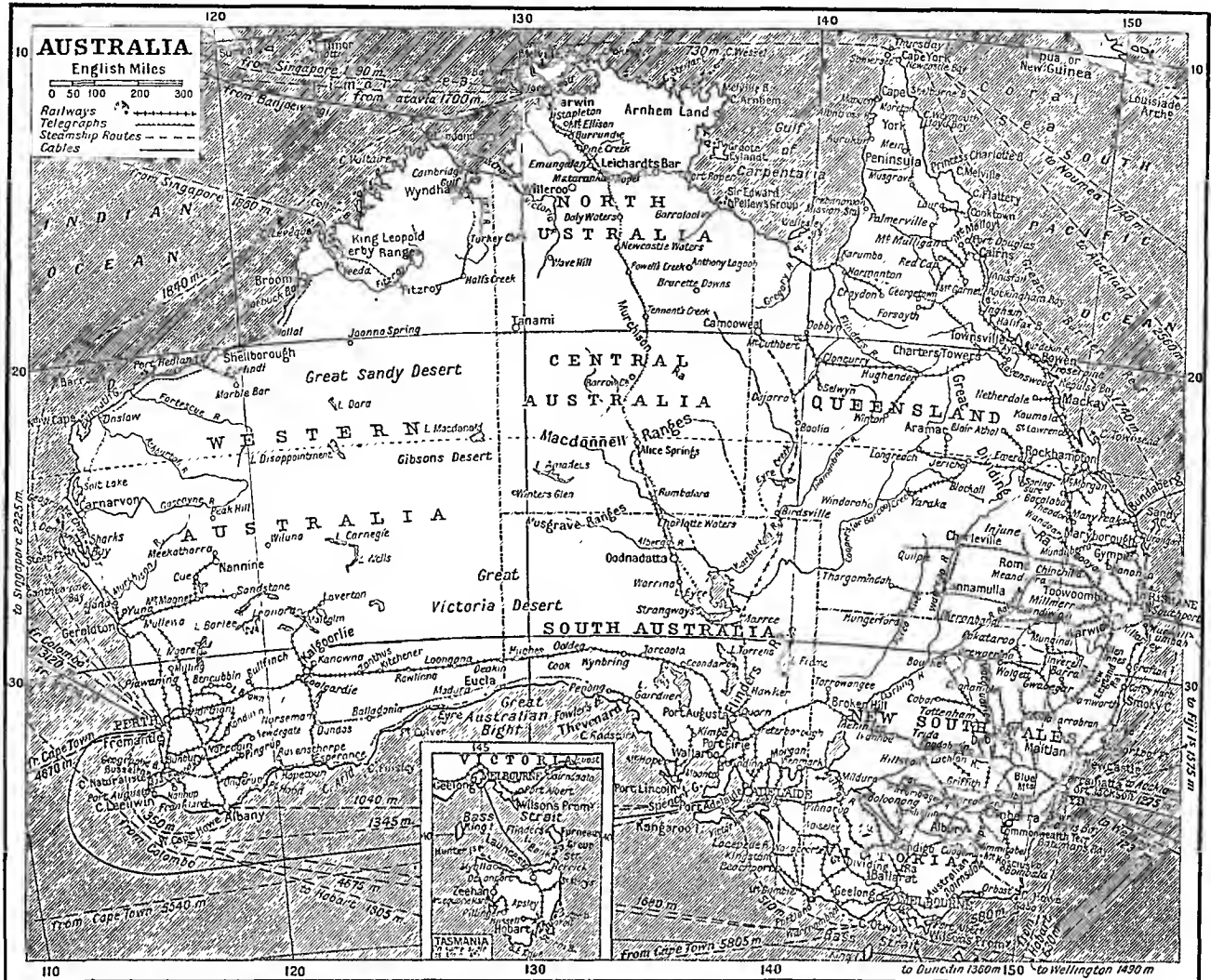
The rlys. are nearly all State or Government property, and upwards of 25,000 m. of Government rlys. are open to traffic, Queensland having 6,302 m., New South Wales 5,750 m., and Victoria 4,634. The transcontinental line from Kalgoorlie to Port Augusta, 1,050 m., was completed in 1917. Privately owned undertakings have a length of 3,143 m., but only 967 m. are available for general purposes. All the State capitals have wireless telegraphy stations. Two beam stations have been erected for direct communication with London and with Montreal, and direct beam wireless service has been established with London.

In 1928 the public debt of the Commonwealth was £494,000,000. The Commonwealth Bank, a state institution, was opened at Sydney in 1913.

HISTORY. The first English seaman to reach Australia was William Dampier, who visited Roebuck Bay in 1688; but his report was unfavourable, and Australia was practically deserted until Captain Cook arrived in 1770.



Arms of Australian
Commonwealth



Australia. Map of the Commonwealth showing the boundaries of the different states, larger scale maps of which appear under their respective headings

In 1788 the first settlement was made at Sydney Cove, now Port Jackson, New South Wales. The passage of the Blue Mts. in 1813 ushered in the era of pastoral development. The gold mining era began in 1851, followed by the development of copper, coal, silver and tin mines. The mining era gradually emerged into a period when pastoral, agricultural and mining industries were almost equal in importance. The creation of the Commonwealth in 1900 was the beginning of the present era. On the outbreak of the Great War Australia's response to the call was instant. She



Australia. The Rising Sun badge

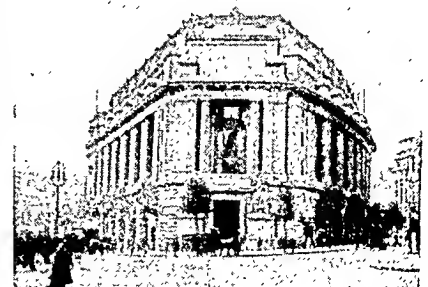
contributed men, ships, and material; 416,000 men and women volunteered, and of these 330,000 journeyed overseas. Australian troops distinguished themselves in Gallipoli, Egypt, Palestine, and on the Western front. The casualties were: deaths 58,132; wounded 135,684; gassed 16,487; prisoners of war 4,057; missing 212. Of the death-roll the total for the western front was 50,000. The total war bill was about £464,000,000.

In 1922 Mr. Bruce formed a nationalist ministry. Its chief difficulties were due to unrest on the part of the seamen and waterside workers. In 1927 the railway workers of Queensland struck, and very serious constitutional questions were at stake. The general elections of 1925 and 1928 were favourable to Mr. Bruce, but in Oct., 1929, he was defeated and Mr. J. H. Scullin, leader of the labour party, became prime minister. See Canberra.

AUSTRALIA. Battle cruiser, flagship of the Royal Australian navy. She was built to the order of the Australian Government, who paid the cost of her manning and upkeep. Throughout the Great War she served with the Grand Fleet. A new cruiser of this name was completed in 1928, having eight 8-in. and four 4-in. guns. Her sister ship is the Canberra, and they are of the Kent (q.v.) class.

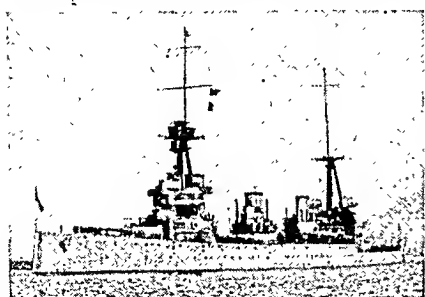
AUSTRALIA DAY. Sometimes called wattle day, Jan. 26 is a national holiday in Australia. It commemorates the founding of Sydney in 1788.

AUSTRALIA HOUSE. Building in the Strand, London, headquarters in Britain of the Australian Government. It stands at the east junction of Aldwych and the Strand, and was opened in 1918. It contains an exhibition hall, a library, and offices for the High Commissioner. It has also a cinema theatre used to give information about Australia.



Australia House, Strand, London. Headquarters of the Australian Government in Great Britain

AUSTRALIAN BIGHT, GREAT. Opening of the ocean S. of Australia. From Cape Arid in W. Australia to Eyre Peninsula in S. Australia the bight is 1,600 m. long. E. of Fowler's Bay are headlands, bays, islands, and inlets



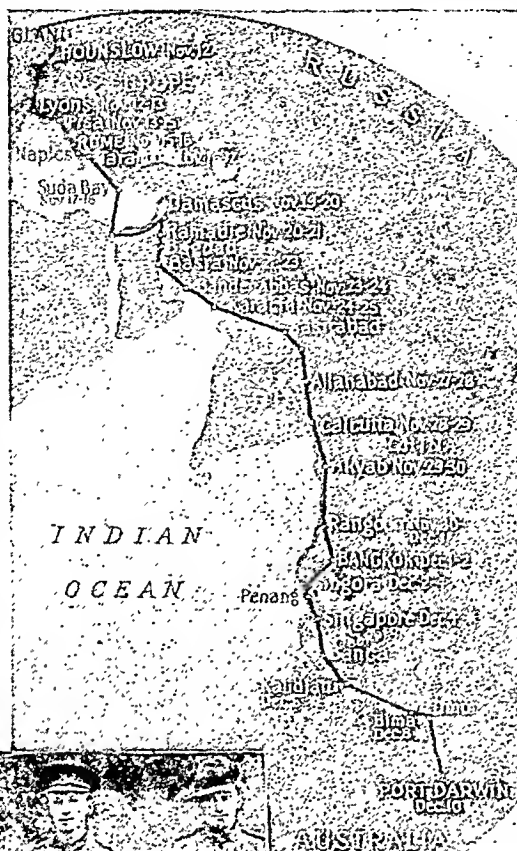
Australia. Battle Cruiser of the Australian Navy, which served with the Grand Fleet in the Great War

with submerged reefs. Here is Streaky Bay, the only safe anchorage. In the night the continental shelf extends roughly 200 m. from the coast; beyond it the ocean floor drops in the next 200 m. from 100 to over 3,000 fathoms in Jeffrey's Deep.

AUSTRALIAN FLIGHT. Aeroplane flight from London to Australia. In 1919 the Australian Government offered a £10,000 prize to the first Australian airman to fly from London to Australia in 720 consecutive hours (30 days) in a British Empire machine. The successful competitor was Capt. Ross Smith. Leaving Hounslow at 9.10 a.m. on Nov. 12, 1919, he arrived at Port Darwin at 5.30 a.m. Greenwich mean time, or 3.30 p.m. Australian time, on Dec. 10, having done the flight of 11,294 miles in 668 hours 20 min. The aeroplane was a Vickers-Vimy Rolls Royce. He was awarded the K.B.E.

A second flight to Australia was achieved by Lieuts. McIntosh and Parcs in 1920. In June-Oct., 1926, Sir Alan Cobham flew 28,000 miles from England to Australia and back, and in Feb., 1928, Capt. Bert Hinkler flew from England to Australia in 15½ days, establishing a record for the quickest flight.

AUSTRIA. Republic of central Europe. German-Austria, as it is sometimes called on account of its dominant German population, is one of the states formed out of the fragments of the Austro-Hungarian



Australian Flight. Officers and men who flew from England to Australia in 1919. Left to right: Capt. Sir Ross Smith, M.C., D.F.C.; Lieut. Sir Keith M. Smith, R.A.F.; and other crew members.

Australian Flight. Ross Smith's route. Two dates denote those of arrival and departure. An asterisk against a date indicates the day of arrival only

empire. It is bounded on the N. by Germany and Czecho-Slovakia, on the E. by Hungary, on the S. by Yugo-Slavia and Italy, and on the W. by Switzerland. Its area is 32,369 sq. m. and its pop. 6,534,500. It is entirely cut off from the sea. Its frontiers were provisionally defined in the treaty of St. Germain, Sept. 10, 1919.

The republic consists of 9 provs., the city of Vienna, the Burgenland, Lower Austria, Upper Austria, Salzburg, Styria, Carinthia, Tirol, and Vorarlberg. It is watered by tributaries of the Danube, Inn, Enns, Mur, and Drave.

The chief towns are Vienna, Graz, Linz, Innsbruck, Salzburg, and Wiener Neustadt. Agriculture is the main occupation, but the foodstuffs produced are not sufficient for the population. The forests are extensive and produce large quantities of timber. The chief minerals are coal, iron, lead, and zinc. The railways are mainly owned by the state, which subsidises an aviation service. By the treaty of 1919 compulsory military service was abolished. The army is limited to 30,000 men, and for them a maximum quantity of arms has been fixed.

Austria owes its existence and its name to the fact that it

made into a duchy and Vienna became its capital. In 1282 the duchy was given to a member of the Hapsburg family, and from then until 1918 it was the core of their possessions. At the close of the Middle Ages Austria covered 50,000 sq. m

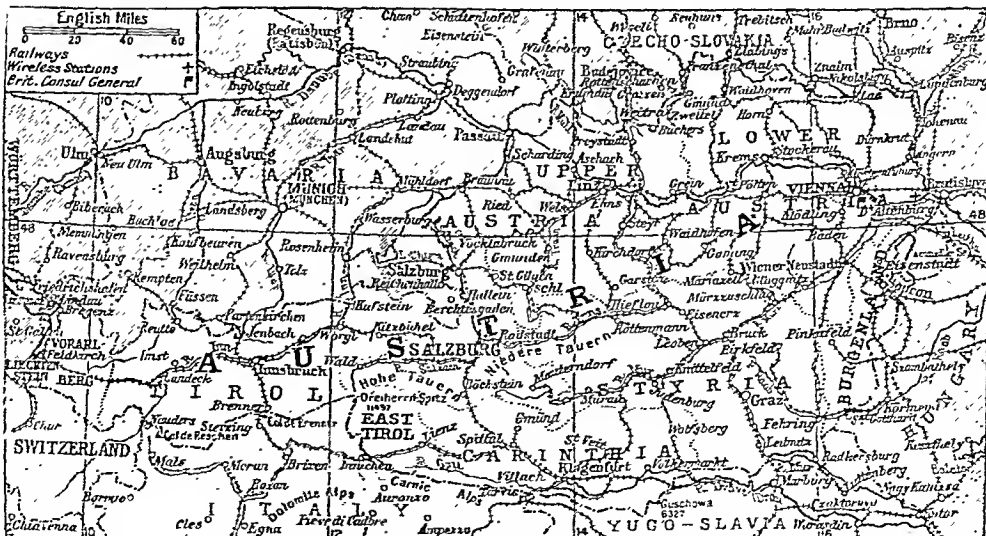
From the time of the emperor Charles V (1519) to that of Napoleon, Austria and the Holy Roman Empire were practically identical. The duke of the one was also emperor of the other, and he was also for nearly all that time king of Hungary and king of Bohemia. For 300 years Austria's chief concern was her rivalry with France, which led to a succession of wars, the last against Napoleon.

The empire of Austria lasted until 1867, when it became the empire of Austria-Hungary. It survived numerous upheavals, the most serious being in 1848, when Francis Joseph began his long reign. Its position, however, as the leading German state was challenged by Prussia and definitely lost after the war of 1866 between them.

The republic was proclaimed in Nov., 1918. Its constitution, which came into force in Nov., 1920, provided for a president elected for four years and a ministry responsible to a parliament of two houses: one elected by the votes of all adult citizens and the other by the diets of the nine provinces. Michael Hainisch was the first president. He was succeeded in 1928 by Wilhelm Miklas.

The early years of the republic were marked by economic and financial difficulties and boundary disputes with Hungary and Yugo-Slavia. The latter were settled, more or less satisfactorily, and in 1922 the League of Nations put in hand a great scheme for the reconstruction of Austria. The expenses of the country were cut down, a national bank was established, and a new currency, with a new unit, the schilling, was introduced. In return for these and other reforms the European Powers guaranteed a loan, and in 1926 the position of Austria was sufficiently satisfactory for the control of the League over its finances to cease. During these years the government was carried on by a coalition, in which the Christian Socialists were the dominant party. One of their members, Ignaz Seipel, was premier from 1922-24, and again in 1926-28.

In 1928 and 1929 there were serious disturbances owing to disagreements between the Heimwehr, a Fascist organization, and the Socialist Schutzbund, the former demanding a drastic revision of the constitution. In Sept., 1929, Dr. Johann Seober became chancellor and in order to avert civil war, secured the assent of the assembly to constitutional changes. By these the president of the republic obtained larger powers and a longer term of office. See illus. p. 164



Austria. Map showing the boundaries of the Republic as defined by the Peace Treaty of 1919, including the south portion, which, after a plebiscite of the inhabitants, remained Austrian territory

AUSTRIA-HUNGARY. The empire of Austria-Hungary, which existed from 1867 to 1918, consisted of the empire of Austria, then including Bohemia and other dependencies, and the kingdom of Hungary, with its dependent province of Croatia-Slavonia. It was therefore called the Dual Monarchy. In addition to this it included between 1909 and 1918 the provinces of Bosnia and Herzegovina. In 1878 these Turkish districts were placed by the Berlin Conference under the rule of Austria-Hungary, and in 1908 Austria-Hungary annexed them. In 1910 the empire covered 261,260 sq. m. and had 51,350,000 inhabitants.

GOVERNMENT. The matters administered by a joint or common organization were foreign affairs, military affairs, and certain financial questions necessarily associated with them. At the head of each of these three departments was a minister appointed by the emperor, but responsible to two joint bodies known as delegations, one for Austria, and the other for Hungary. Each delegation consisted of 60 members, 20 chosen from the upper house of each legislature and 40 from the lower house. They were elected for one year, and met alternately in Vienna and Budapest.



Austria-Hungary arms

HISTORY. The arrangement of 1867 which founded the Dual Monarchy was the outcome of much unrest in Hungary, but was only accepted after the Hungarians had been guaranteed the use of their own laws and customs. In 1897, the date for another revision of their arrangements, the differences between Austria and Hungary were the most serious that had yet arisen. While the ordinary methods were in suspense the business of state was carried on by imperial decrees. Between this arrangement and the one of 1907, the last of all, there was trouble over the proposals for increasing the strength of the army.

In 1907 the monarchy entered upon the last stage of its foreign policy—greater interference in the Balkans coupled with a closer union with Germany. The crowning act came in 1908, two years after Austria-Hungary had been the only power to support Germany at the conference of Algeiras—viz., the annexation of Bosnia and Herzegovina. In 1912 the first Balkan War began and Austrian interests,

real and imagined, were again threatened.

Internally the position was equally unsatisfactory. Serious disorder in Croatia early in 1912 led to a policy of repression there, while elsewhere local diets were suppressed and constitutional methods of government were replaced by an autocracy. Hungary was again discontented with her place in the Dual Monarchy, the state of which was perhaps never more unhappy



Austria. Above, native of the mountainous district of Styria; below, girl from a Tirol valley. See page 163

than when in July, 1914, the action of the ruler and his advisers precipitated the outbreak of war.

Within the Dual Monarchy the Great War told with terrible severity. Food was getting short, and the paralysis of industrial activity was perhaps more complete than anywhere in Europe outside Russia. The troops fought well when in the field, but some of the peoples in the empire had never liked the war, nor the German alliance, and four years of privation had not mitigated that feeling.

On Oct. 27, 1918, the government at Vienna accepted the American conditions, not only without reserve, but without awaiting the result of other negotiations. Three days later application for an armistice on the Italian front was made, and on Nov 3 this was arranged. Its terms were drastic. Austria's army and navy were in the power of her foes, who could use her territories for their operations of war. The emperor abdicated on Nov. 12, 1918, and his empire broke into pieces. The independence of its separate parts was formally recognized by the treaty of peace, and by their boundaries were defined. See Czecho-Slovakia; Hungary.

AUTEUIL. Suburb of Paris, S.W. of the city, between the Seine and the Bois de Boulogne, it is connected with Paris by rly. and tramway, and can be reached by river. It is famous for its race-course and railway viaduct. Boileau and Molière lived here

AUTO (Spanish, act). A form of morality play which flourished in Spain and Portugal, being especially represented at the festival of Corpus Christi. The religious nature of the pieces was emphasised by the full name, Autos Sacramentales (Sacramental Acts) See Morality Play.

AUTOBIOGRAPHY (Gr. autos, self; bios, life; graphein, to write). Account of any man's life written by himself. Letters and diaries, though providing much autobiographical material, can be classified as autobiographies only with a qualification that applies to many of the memoirs or reminiscences in which the individuality of the writer is subordinated to the events or people of whom he writes. Some autobiographies are concerned more with the writer's spiritual than with his material life, as the *Apologia Pro Vita Sua* of Cardinal Newman. Specially notable autobiographies are those of Benvenuto Cellini, Edward Gibbon, Casanova, Chateaubriand, Wm. Cobbett, Thomas De Quincey, Leigh Hunt, and J. S. Mill.

AUTOCHTHONES (Gr. autos, self; eithōn, earth). Term used by some Greek peoples, especially those of Athens, Argolis, and Arcadia, to suggest that their first ancestors were sons of the soil, and not immigrants from another land. In modern ethnology the term in its absolute sense is used mainly in connexion with the discarded theory of polygenism. See Aborigines.

AUTO-DA-FÉ (Port. act of faith). Name of a public ceremony associated with the Spanish Inquisition (q.v.). It followed passing of sentence on heretics and others, and took the form of a procession and a service. The chief figures were the condemned persons, and those who had recanted. The term auto-da-fé is also applied to the carrying out of the sentence of the Inquisition, and more especially so when that sentence was the public burning of the heretic or heretics.

Autogiro. A windmill aeroplane. See Helicopter.

AUTOGRAPH (Gr. autos, self; graphein, to write). General term for a document or signature in the author's own handwriting. The Greeks and Romans, and also the Chinese, were eager collectors of autographs. In Germany in the 14th century autographs began to be collected in little books known as *alba amicorum*, albums of friends—the forerunners of the modern visitors' book—



Austria-Hungary. Map showing the extent of the Dual Empire at the outbreak of the Great War. 261,259 sq. m., over 51,300,000 inhabitants were included in its administration. With an area of

and such collections became popular in Europe generally in the 16th century. In Great Britain the finest public collection is in the British Museum.

AUTOLYCUS. In Greek mythology, a famous thief, son of the god Hermes. Detection of his robberies was difficult, as he had the faculty of transforming the articles he stole. He was overreached at last by Sisyphus (q.v.). In Shakespeare's *The Winter's Tale*, Autolycus is a pedlar, a snapper-up of unconsidered trifles.

The *Wares of Autolycus* was the title of a series of discursive essays which appeared in *The Pall Mall Gazette* of 1894, etc.

AUTOMATIC MACHINE (Gr. *auto-matos*, self-acting). Contrivance in which mechanical is substituted for human control. The Jacquard loom, governed by the spacing of holes punched in a card, will reproduce a design, however complicated, again and again. Hardly less remarkable is the monotype, a machine which casts separate type, sets them as words, and spaces the line correctly.

The manufacture of small metal articles has been revolutionised by the use of automatic lathes, etc., which bring a number of tools to bear in succession on a piece of metal, and so shape it to a required form. Calculating machines operated by depressing keys add columns of figures, divide, multiply, and tabulate with superhuman accuracy. Here, too, may be mentioned the machine used at mints to sort out coins that vary from correct weight, and the automatic machines for issuing tickets, sweets, fruit, and other commodities, which deliver an article only when a coin of the proper weight and size is put into a slot.

Automatic Writing. In psychical research, term used for writing executed without the volition of the writer. See *Spiritualism*.

AUTOMATON. Literally, any automatic mechanism. The word, however, is applied specifically to an automatic machine constructed to resemble a human being or an animal and capable of self-movement.

In 1733 Jacques de Vaucanson showed in Paris an automatic flute-player, a tambourine-player, and a mechanical duck. In 1875-7 J. N. Maskelyne, the London entertainer, produced several remarkable automata which played cards, chess, and draughts, worked arithmetical problems, and drew portraits.

Automatism is the name given to the theory of Descartes that men and animals are mere automata and their actions involuntary.

AUTOMOBILE (Gr. *autos*, self; Lat. *mobilis*, moving). Word invented to describe a vehicle propelled from within, or a horseless carriage. The shorter word *motor* has taken its place in popular language.



Automobile Association badge

The Automobile Association, founded 1905, is a British society formed "to protect and advance the legitimate interests of motorists and in particular to assist in enforcement of the laws affecting the highways and the users thereof." There are more than 100,000 members.

The head offices are at Farnham House, New Coventry Street, London, W.1.

The Automobile Club is the recognized authority and governing body of motoring in the United Kingdom. The headquarters are 89-91, Pall Mall, London. See *Motor Car*.

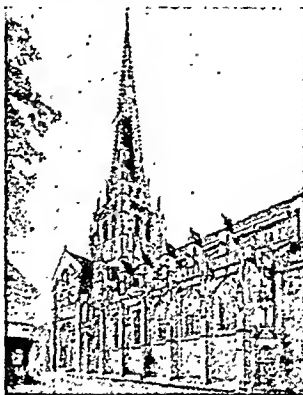
AUTOPLASTY (Gr. *autos*, self; *plastsein*, to mould). Surgical operation for mending or replacing a diseased, injured, or lost part from a sound part of a patient's body. Autoplasty is usually employed to remedy facial disfigurement, the operation for

the nose called *rhinoplasty* (q.v.) being the best known. During the Great War great advances were made in autoplasty, and hospitals for facial wounds were opened, bone as well as skin and flesh being grafted.

AUTOPLATE. Machine for producing curved stereo plates rapidly for newspaper printing. Before the invention of the autoplate by H. A. W. Wood, of New York, in 1900, each plate had to be made by one of two processes—one known as the wet flog and the other as the dry flog. By the wet process, the flog, or prepared paper used for a matrix, is placed over the type-page, on to which it is beaten by brushes until the type-impression is perfect. It is then curved, dried, and placed in a casting box, which is afterwards filled with molten metal. When the metal plate has cooled, the edges have to be trimmed and finished. The dry flog process takes less time. In the case of the autoplate, when the flog has been placed in this machine and it has been started, the above-named processes are performed automatically. See *Stereotyping*.

AUTUN. City of France. It stands on the river Arroux. 62 m. by rly. S.W. of Dijon.

The ancient Augustodunum, it has a cathedral begun in 1060, but mainly of the 12th and partly of the 15th century, two magnificent gateways, *Porte d'Arroux* and *Porte St. André*, dating from Roman times, and remains of walls and of a theatre. A fair is held in Sept. on the feast of St. Lazare, the city's patron saint. In Roman times the rhetorical schools of Autun were celebrated. Pop. 13,856.

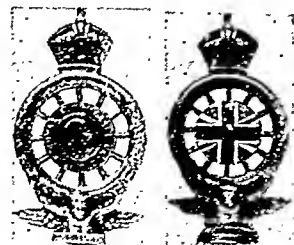


Autun, France. The cathedral, notable for its fine 15th century spire

AUVERGNE. Former prov. of France. It is now represented by the departments of Cantal, Puy-de-Dôme, and part of Haute-Loire. By the 13th century Auvergne was divided into four parts. One of these was ruled by a dauphin and called the Dauphiné of Auvergne; the second, called the *Terre d'Auvergne*, was added to the crown lands by Philip Augustus; the third was the county of Auvergne, and the fourth the county of Clermont. Until the Revolution Auvergne was a government in two parts, Upper and Lower, each with a capital.

The district contains the Auvergne Mts., which rise from the general level of the great plateau of central France, and are of volcanic origin. Lava covers many sq. m. of country.

AUXANOMETER (Gr. *auxanein*, to increase; *metron*, measure). Scientific instrument



Automobile Club of Great Britain and Ireland. Front and reverse of badge

for recording the rate of growth of plants. A weighted thread attached to the growing point of a stem passes over a wheel, which actuates a pointer on a cylinder

covered with smoked paper, which makes partial revolving movements at intervals. The pointer scrapes away the carbon, leaving a white record of the stem's growth.

AUX CAYES. Seaport and city of Haiti. On the S. coast, 93 m. S.W. of Port-au-Prince, it exports coffee and logwood. The anchorage is good, but exposed to squalls. Pop. 12,000.

AUXERRE. Town of France, the capital of the department of Yonne. The ancient Autissiodorum, it stands on the river Yonne, 105 m. by rly. S.E. of Paris. Until 1790 Auxerre was the seat of a bishop, and its Gothic cathedral, the church of St. Etienne, dates from the 13th-15th centuries. It has finely sculptured portals, magnificent rose windows, an exquisite Gothic choir, and many fine pictures. The church of St. Eusebius dates in part from the 12th century. The choir has some beautiful painted glass. Some remains exist of the abbey of St. Germain, built in the 13th century. Pop. 21,203.

Ava. Variant name for kava, a plant native to Polynesia, and for an intoxicating drink made from its root. See *Kava*.

AVA. Ruined city of Burma. It stands on the Irawadi river, here about 4,000 ft. wide, opposite Sagaing, and 10 m. S.W. of Mandalay. Founded in 1364, it was the capital of the Burman empire until Amarapura superseded it in 1782. In 1823 it again became the capital, but lost the honour in 1837. It is surrounded by walls, and has several Buddhist temples, crowned by gilded domes. Lord Dufferin took his title from here.

AVALANCHE (Lat. *ad*, to; *vallis*, valley). Fall of masses of snow or ice or large quantities of earth from mountain slopes to the valleys. Snow which remains on steep mountain slopes after a snowfall is so unstable that when a further snowfall occurs the additional weight may set the whole mass in motion and send the snow, accompanied by loose earth and rocks, crashing into the valley.

An avalanche also occurs when quantities of ice break away from a glacier and rush down the valley. Rock avalanches take place when large masses of rock fragments slide down mountain slopes. See *Glacier*.

AVALON. In Celtic mythology, place of rest and reward for departed heroes, similar to the Valhalla of the Norsemen. Thither, according to the Arthurian legend, King Arthur was taken to be cured of his wounds. Legend described it as a green isle in the west; one conjecture identifies it with Glastonbury. Tennyson terms it the island valley of Avilion. See *Arthur*.

AVARIS. Ancient city of Lower Egypt. Sometimes identified with Tanis, it stood E. of the Nile delta. Long a stronghold of the Hyksos or shepherd kings, it was captured by Aahmes (Amasis) I, the founder of the XVIII dynasty. See *Egypt*.

AVARS. People belonging to Asiatic races commonly called Tartar, Mongolian, or Turanian, who poured in succession into Europe during the early Middle Ages. The Avar group became powerful during the 6th century, and disappeared in the 9th. As with the Huns before them and the Magyars after them, the seat of their dominion was the middle Danube and in Hungary.

AVATAR (Skt. *avatāra*, descent). In Hindu mythology, an earthly manifestation or incarnation of a deity. The word also expresses the embodiment of an idea.

AVEBURY or *Avocky*. Parish and village of Wilts., 7 m. W. of Marlborough. It contains the ruins of a supposed Druidical temple, a large outer circle of stones and two lesser inner circles, forming one of the most remarkable examples of stone monuments in the United Kingdom. The stones vary from

5 ft. to 20 ft. in height and from 3 ft. to 12 ft. in thickness, and the diameter of the outer circle is about 1,400 ft. Sir John Lubbock took his title from here. Pop. 525.

AVEBURY, JOHN LUBBOCK, 1ST BARON (1834-1912). British banker and scientist. The eldest son of Sir John William Lubbock, Bart., he entered the banking house of Robarts, Lubbock & Co. in 1848 and succeeded his father as head of the firm in 1865. He was Liberal M.P. for Maidstone, 1870-80, and for London University 1880-1900, sitting as a Liberal Unionist from 1886. In 1900 he was raised to the peerage. His chief work in Parliament was to secure the passing of the Bank Holidays Act of 1871. His writings on natural history include *Ants*, *Bees*, and *Wasps*; but his most popular works were *The Use of Life* and *The Pleasures of Life*. He died May 28, 1912. Consult *Life*, H. G. Hutchinson, 1914.



Lord Avebury, British scientist

AVELLANEDA. Town of Argentina, in the prov. of Buenos Aires. On the river Riachuelo, it is connected by rly. and tramway with Buenos Aires. An important manufacturing town, it has a handsome town hall, a market hall for agricultural produce, and cold storage and meat-canning industries. Pop. 46,277.

The town was named after the Argentine statesman, Nicolas Avellaneda (1836-85), who was president of the republic from 1874 to 1880, when he became involved in a civil war, in which his party crushed the opposition in Buenos Aires.

AVE MARIA or **AVE MARY** (Hail, Mary 'I). Latin form of the opening words of the angel Gabriel's salutation of the Virgin Mary (Luke 1), and the familiar name of the prayer or form of devotion, known also as the Angelical Salutation, introduced as it now stands into the Roman Catholic breviary in 1568.

AVENGER OF BLOOD. Ancient Hebrew institution based on the words in Gen. 9: Whoso sheddeth man's blood, by man shall his blood be shed. The execution of the sentence was held to devolve on the nearest male relative of the person slain. To provide protection for those guilty of accidental homicide, cities of refuge were provided (Num. 35). The custom of retaliation for bloodshedding still prevails among the Arabs, being sanctioned by the Koran.

AVENS. Name of two species of Geum—common avens or herb bennet (*G. urbanum*) and water avens (*G. rivale*). The first named is found in copses and hedgerows and has bright yellow, buttercup-like flowers, which are succeeded by a head of nutlets, each ending in a long hooked awn. Water avens has larger, drooping flowers with dull purple calyx and orange petals.

Aventine Hill (Lat. Mons Aventinus). One of the seven hills of ancient Rome, inhabited chiefly by plebeians. See Rome.

AVENTURINE (Italian *avventura*, chance). Variety of naturally occurring silica used as an ornamental stone. It consists of chalcedonic silica, or crystalline quartz, traversed by innumerable minute fissures that reflect light and produce a spangled appearance, and is usually reddish-brown or greyish-brown in colour. It is called aventurine from having been accidentally discovered.

AVERAGE. Business word used in two distinct senses. Ordinarily, an average is the mean proportion, or the arithmetical mean, of a number of figures, e.g. the average number of hours of sunshine, or the average earnings of a workman over a certain period. The insurance business is based on averages.

In international maritime law the term originally meant the contribution made by all to the loss sustained by one. The case arose when, to lighten a ship in a storm, certain goods had to be cast overboard to save the ship and the rest of the cargo. The owners of ship, freight, and cargo saved had to contribute pro rata to make good the loss of the cargo jettisoned.

AVERESCU, ALEXANDER (b. 1859). Rumanian soldier. In the Russo-Turkish War of 1877-78 he served as a volunteer and then went to Italy to be trained as an officer. In 1907, as minister of war, he put down a rising in Rumania, and in 1913, as chief of the staff, he was responsible for the expedition against Bulgaria that ended the second Balkan War. When Rumania joined the Allies he had a large share in checking the Austro-German attacks in 1916-17.



A. Averescu, Rumanian soldier

In 1918, as foreign minister, he conducted the peace negotiations, and in 1920 he was prime minister. He resigned in Dec., 1921, but remained president of the People's Party, in which capacity he shared in the political crisis of 1928. See Rumania.

AVERNO or **AVERNUS.** Lake of Italy, in Campania. The ancient Laeus Avernus, it is 10 m. W. of Naples, and stands at the N.W. foot of Monte Nuovo. It is an old volcanic crater. Agrippa, in 37 B.C., made it a naval harbour, connecting it with the sea by a canal to Lake Lucrino. The upheaval of Monte Nuovo in 1538 destroyed the canal and harbour. The lake was regarded by the ancients as the entrance to the infernal regions, and is referred to by Virgil.

AVERROES (1126-98). Name given to the Arabian philosopher and physician Abul ibn Roshd. Born at Cordova, he was cadi of his native city and a favourite of the emperor of Morocco. Suspected of heresy, he was exiled, but again summoned to Morocco, where he died, Dec. 12, 1198. Known as a commentator on Aristotle, he combined religious belief with a philosophy compounded of Aristotelianism and neo-Platonism.

AVEYRON. Department of southern France. The rivers Lot, Tarn, and Aveyron flow through it to the Garonne. The limestone plateau is typical Causse country, with sink holes, subterranean streams, and caves rich in stalactites. The chief industries are mining, the making of cheese and wine, and the rearing of sheep, mules, and cattle. Coal is worked. Rodez is the capital, and the area is 3,385 sq. m. Pop. 328,836.

AVIARY (Lat. *aviarium*). Cage or enclosure for keeping birds in captivity. Aviaries range in size from the small wire cage to large netted enclosures containing trees and shrubs, where a large number of birds can live under fairly natural and healthy conditions. Among British birds, the most suitable for an aviary of modest dimensions are the thrush, blackbird, starling, goldfinch, bullfinch, canary, and linnet.

AVIATION. The use of aeroplanes for the transport of passengers and goods is usually known as commercial aviation, the term aeronautics being used to describe the history and science of flying. Before the Great War commercial aviation had hardly become a practical proposition. During that struggle aeroplanes were much used for fighting and observing, but scarcely at all for transport. However, much was learned about them, and after the war their possibilities as means of transport were again considered and greatly developed.

On Aug. 25, 1919, the first passenger flying service from London to Paris was begun, the machine being a converted De Havilland bomber. Two passengers were carried in a small cabin, and the scheduled time for the journey was 2½ hours. Other services to Paris and to Brussels were started soon afterwards, the first air mail commencing in November, 1919. Early in 1920 a regular service from London to Amsterdam was instituted. In 1921 a French company which enjoyed a subsidy from its government reduced the fare on the London-Paris route by nearly half, and the British lines ceased running for a time. As a consequence the British government subsidised two British operating companies under a temporary scheme, and regular flights began again. Later in the same year another company was included in the scheme.

During 1922 and 1923 the British routes were linked up with extended continental routes, to Cologne, Berlin, Basel, and Zurich. In March of the following year the three subsidised companies, together with another, were joined into a concern henceforth known as Imperial Airways, Ltd., with a state grant for a period of years. Parallel developments in commercial aviation took place during the post-war years on the Continent, Germany linking up with Scandinavia and with Poland.

Typical aeroplanes employed by the British companies have three engines and carry 18 passengers. The journey from London to Paris takes 2½ hours; to Zurich just over 7 hours; to Cologne 4½ hours; to Berlin 8½ hours; and to Moscow 33½ hours. In addition to the continental routes a weekly service is run between London and Karachi. The section Basel-Genoa is covered by train, since the passage of the Alps by aeroplane presents some difficulty. Over the Mediterranean a flying-boat is used. During 1928 27,650 passengers were carried in British commercial aircraft, and the total mileage was 1,011,000.

AVICENNA or **IBN SINA** (980-1037). Arabian philosopher and physician. He was minister to the prince of Hamadan, but was imprisoned as the result of political intrigue. Having escaped to Ispahan, he became court physician and lectured on medicine and philosophy. Avicenna wrote commentaries on Aristotle, whose works he was one of the first to introduce to the Eastern world. He also wrote medical treatises.

AVIGNON. City of France, capital of the dept. of Vaucluse. It stands on the left bank of the Rhône, 53 m. N.W. of Marseilles, and on the rly from that city to Paris. It is sur-



Avignon. The fortress palace of the Popes and the 12th century Romanesque cathedral

rounded by massive walls built in the 14th century. In the 12th century Romanesque cathedral of Notre Dame des Doms is the tomb of Pope John II. St. Pierre is a fine Gothic church. The ancient Avénio, its bishopric was founded in the 3rd century, and it became the seat of an archbishop in 1475. In 1309, when driven from Rome, Pope Clement V chose it

as his residence, and here the popes lived for seventy years. Their palace still survives. Pope Clement VI bought Avignon in 1348, and it remained papal property until its annexation to France in 1791. It was the meeting place of Petrarch and Laura. John Stuart Mill died here. Pop. 51,685.



Avila, Spain. View of the town, showing part of the old Moorish granite walls which surround it

AVILA. City of Spain. It stands on the Adaja, 54 m. by rly. N.W. of Madrid, on the route to Paris. Almost surrounded by mts. and encircled by granite walls, with 9 gates and 86 towers, its buildings include a Gothic cathedral and Moorish castle. The ancient Abula, it flourished under the Moors, and has a convent named after S. Teresa, who was probably born here. Pop. 12,000.

AVITUS, MARCUS MAECILIUS (d. A.D. 456). Roman emperor. While holding a military command he was sent by the Roman general Aëtius to Theodoric the Visigoth, whom he persuaded to join the Romans against the Huns. He fought by the side of Aëtius at the Catalaunian Plains in 451, and in 455 was proclaimed emperor. In 456 he was defeated by Ricimer at Placentia and was deposed.

AVLONA OR VALONA. Seaport and city of Albania. The ancient Aulon, it lies on the Bay of Avlona in the Adriatic, about 60 m. S. of Durazzo. It has an excellent harbour, and exports oil, wool, and tortoise-shell. From the acorn cups of its oak woods valonia, used in preparing leather, is obtained. It belonged to Turkey from 1464 to 1913, when it was included in the new principality of Albania. In 1915, during the Great War, it was occupied by the Italians as a naval and military base against the Austrians. Pop. 6,300.

AVOCA OR OVACA. River of co. Wicklow, Irish Free State. Formed by the union of the Avonmore and Avonbeg, it flows 9 m. S.E. to the Irish Sea at Arklow, through the "sweet vale" of Moore's poem. A rly. and lead and copper mines detract from its beauty.

AVOCET (*Recurvirostra avocetta*). Bird related to the snipe, characterised by its long upward-curved beak. The beak is used for fishing in the mud for worms. Formerly common in the fen districts of England, it is now rare.

AVOGADRO'S LAW. Chemical law named after its discoverer, the Italian chemist and physicist, Count Amadeo Avogadro (1776-1856). Avogadro's Law is: that under like conditions of pressure and temperature equal volumes of all gases contain an equal number of molecules.

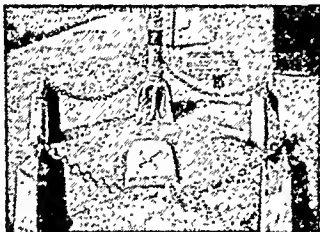
AVOIRDUPOIS. British and American system of weighing all substances except precious metals and stones and medicines. The basis is the grain, originally a wheat corn taken "from the midst of the ear"; 7,000 grains making 1 lb.; 27½ grains one dram; 16 drams one ounce; 16 oz. 1 lb.; 112 lb. one hundredweight; 20 cwt. one ton.

AVON (Wel. afon, river). Name of several rivers in England and Scotland. The Lower or Bristol Avon, 75 m. long, rises in the Cotswolds, in Gloucestershire, and flows through Wiltshire and Somerset, past Malmesbury, Chippenham, Melksham, Bath and Bristol, to the Severn estuary at Avonmouth.

The Upper or Warwickshire Avon, 96 m. long, rises near Naseby, in Northamptonshire, and flows through Leicestershire, Warwickshire, Worcestershire, and Gloucestershire, to the Severn at Tewkesbury. Stratford, Shakespeare's birthplace, is on its banks. The East or Wiltshire Avon, about 50 m. long, rises near Devizes, and flows past Salisbury to the English Channel at Christchurch. Of the Scottish Avons, there is one in Banffshire and another in Lanarkshire.

AVONMOUTH. Seaport of Gloucestershire, England. It stands at the mouth of the Lower Avon, 6 m. N.W. of Bristol by the G.W. and L.M.S. Rlys. It is the outport of Bristol and dates from 1877. The Royal Edward and Avonmouth Docks, forming part of the Bristol Corporation system, have extensive accommodation for the storage and handling of grain and oil, and large cold stores. A new arm of the Royal Edward Dock was opened by the Prince of Wales in 1928. A number of important industries formerly carried on in Germany have been established, notably spelter manufacture. See Bristol.

AVORY, SIR HORACE EDMUND (b. 1851). British judge. Born Aug. 31, 1851, he was educated at King's College, London, and Cambridge, was called to the bar in 1875, and in 1889 became junior counsel to the Treasury at the Central Criminal Court and K.C. in 1901. He made a great reputation as a prosecuting counsel, and was made a judge of the King's Bench Division in 1910.



Avranches, France. Place where Henry II of England promised expiation for the murder of Thomas Becket

AVRANCHES. Town of France, in the department of Manche. On the river Sée, on a hill overlooking Mont St. Michel, 87 m. by rly. S. of Cherbourg, it is on the coast road from St. Malo to Granville. Formerly an important place in Normandy, it had a magnificent cathedral wherein Henry II was absolved of all complicity in the murder of Thomas Becket. An inscribed stone in the open square marks the spot where he knelt. The cathedral was destroyed in the Revolution and the bishopric abolished. Pop. 6,597.

AWAJI OR AVADSI. Island of Japan. At the E. end of the Inland Sea, between Hondo and Shikoku, it is 33 m. long, 16 m. broad, and 218 sq. m. in area. Very fertile and low, it has a dense population and many ferry and steamer services with the main island. It is a tourist resort, and manufactures pottery.

AWARD (Old Fr. *esgarder*, to adjudge). In English law, the finding or decision of an arbitrator or arbitrators, corresponding to the judgement of a court of law. The award, which must be made within three months except in special circumstances, states the decision of the arbitrator or arbitrators by whom it is signed. See Arbitration.

AWE. Lake or loch of Argyllshire, Scotland. The longest freshwater lake in the country, it extends N.N.E. for 22½ m. from Ford to the foot of Ben Cruachan, is from ½ m. to 3 m. broad, and covers an area of 15½ sq. m. Its many islands include Fraoch-Eilean, with remains of castle (1267), and Inishail, with ruined convent and church. The ruins of Kilchurn Castle stand on an island at its N.E. end. The river Awe, noted for salmon, drains Loch Awe into Loch Etive.

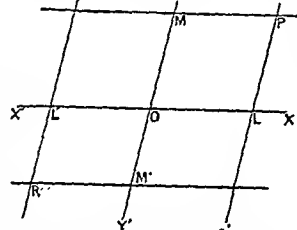
AWLWORT. Small perennial aquatic plant (*Subularia aquatica*) of the order Cruciferae. It lives submerged on the gravelly bottom of lakes and is found in the north of Gt. Britain and in Ireland. The flowers are small and the leaves shaped like an awl.

AXE. Name of two rivers of England. One, 25 m. long, rises in the Mendip Hills, Somerset, and flows past Cheddar and Axbridge to the Bristol Channel, near Weston-super-Mare. The other, 21 m. long, rises in Dorset and flows S. past Axminster to the English Channel near Seaton.

AXENSTRASSE. Road in Switzerland, the part of the St. Gottard carriage road which is carved out of, or tunnelled through, the rocky cliffs on the Bay of Uri, Lake of Lucerne.

AXHOLME, ISLE OF. Level tract of land in Lincolnshire. Between the Trent, Idle, and Don rivers, it was formerly afforested and later became a marshy swamp, which was drained (1625-34) at the command of Charles I by Cornelius Vermuyden, a Dutchman. It covers about 48,000 acres and is of great fertility, corn and potatoes being grown.

AXIM. Town of the Gold Coast Colony, British W. Africa. It lies E. of the mouth of the Ankobra river, 70 m. W. of Cape Coast, has a good harbour, and exports timber. Gold is mined near. Built by the Portuguese, it was taken by the Dutch in 1642 and ceded to Britain in 1872. Pop. about 3,500.



Axes of reference XOX' and YOY', by which the positions of P and R are determined. See below

AXINITE (Gr. *axinē*, axe). A calcium aluminium borosilicate. Axinite is generally found in acuto-edged, somewhat tabular transparent crystals of pale plum to pale brown colour. It is usually associated with minerals such as garnet and pyroxene. Its chief localities are Cornwall, France, the Pyrenees, and New Jersey.

AXIS (Lat. *axle*). In geometry, any line in a figure which divides the figure into two symmetrical parts. In analytical geometry, an axis of reference is either of two intersecting



Awe. View of the north-eastern end of the Argyllshire loch, with the ruined castle of Kilchurn

straight lines by reference to which the position of any point in a curve is determined. In conic sections, the axes of the curves have a specific meaning. See Geometry.

AXIS DEER. Species of Indian deer, somewhat resembling fallow deer, but with short sharp antlers. Its fawn-coloured coat is abundantly spotted with white. It is easily domesticated.



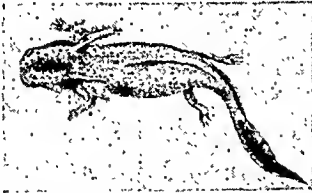
Axis Deer. Indian species which resembles the common fallow deer

AXLE. Beam or shaft of wood or metal connecting a pair of wheels of a road or railway vehicle. By means of it the weight is usually transferred to the wheels and the latter are maintained at their correct distance apart. In motor-cars

the front axle consists of a bar of steel, with the ends formed as jaws so as to grip the steering pivots of the wheels. The back or live axle consists of two separate shafts fitted end to end in a casing and rigidly connected at one end to the road wheels; at their inner ends they are fitted with cog-wheels which engage a live cog-wheel driven by the engine, and with it form the differential gearing. These back axles do not support the weight of the vehicle, which is carried by the axle casing. See Motor Car.

AXMINSTER. Parish and market town of Devonshire. On the Axe, 27 m. E. of Exeter, on the Southern Rly., it was famed for its carpets until 1835, and now makes tooth and nail brushes and has flour, corn, and saw mills. The church of S. Mary the Virgin, with several styles of architecture, was restored in 1871. Axminster's midsummer fair dates from 1246. Market day, alternate Thurs. Pop. 2,049.

AXOLOTL. Larval form of the Amblystoma, a species of salamander common in Mexico and among the Rocky Mts. It usually resembles a large black newt with external branching gills. It was long supposed to be a mature animal of the newt tribe, since it reproduces in the larval stage, and may remain a larva. Both larval and adult forms exist together. If deprived of water the axolotl loses its gills and changes into the typical salamander. Larvae have been caused to develop into the adult form by feeding them on glandular extracts.



Axolotl. *Gyrinus edulis*, the larval form of a Mexican salamander

AXUM or **AKSUM.** Ruined town of Abyssinia, in the prov. of Tigré. It was once the capital of an Ethiopian kingdom and contains monoliths, apparently associated with Semitic sun-worship, and ruins of a Christian church. Pop. 5,000.

AYAH. Word of Portuguese origin meaning a nurse or governess, feminine of aio, a tutor. By the Portuguese it was introduced into India, where it is used for a native nurse or lady's maid.

AYE-AYE. Native name of *Cheiromys madagascariensis*, an animal allied to the lemurs, found only in Madagascar. It is about the size of a cat, with rodent-like teeth, a bushy tail, and prominent, almost hairless, ears. Its hands are like those of monkeys, but the

third finger is long and slender, and is used for extracting insects from crevices. Nocturnal in its habits, the aye-aye lives mainly on grubs, but it also feeds on fruits and vegetables.

AYESHA. The favourite wife of Mahomet, the prophet of Islam. She married him when nine years old and obtained great influence over him. On his death in 632 she opposed her son-in-law Ali's claim to the succession in favour of her father, who became the first caliph. She died at Medina about 678. See Mahomet.

AYLESBURY. Borough, market town, and county town of Buckinghamshire. Occupying an elevated site in the Vale of Aylesbury, it is 38 m. W.N.W. from London on the G.W. L.M.S., L.N.E. and Metropolitan Rlys., has thriving dairying and duck-rearing industries, and printing and motor works. During the Great War an aerodrome was established near Aylesbury.



Aylesbury. Market place of this noted agricultural centre

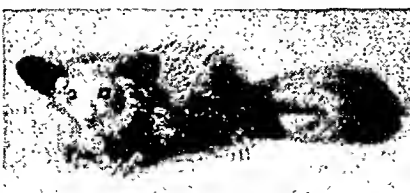
A charter was granted in 1554, but the privileges were not enjoyed for long, and only in 1917 was the charter restored. It returned two members to Parliament down to 1885, and now gives its name to a county division with one member. In the vicinity is Hartwell House, where Louis XVIII resided during his exile (1810-14). Market days, Wed. and Sat. Pop. 13,077.

The Aylesbury duck is a large white duck, deriving its name from the district in which it is mainly bred. Its distinguishing features are its weight, varying from 6 lb. to 10 lb., its pure white plumage, flesh-coloured beak, and bright orange shanks and feet. See Duck.

AYLESFORD. Village of Kent, on the Medway, 38 m. from London by the Southern Rly. Here are Kit's Coty House, a cromlech of three perpendicular stones and a covering stone, and a larger group close by, the Countess Stones. There are remains of a 13th century Carmelite friary, and at Horsted is the supposed tomb of Horsa, slain in battle in 455. Pop. 3,013.

The earl of Aylesford is a British title borne since 1714 by the family of Finch. In 1885 Charles Wightwick Finch (1851-1924) succeeded as 8th earl; he was the first who did not bear the Christian name of Henrice. The eldest son is known as Lord Guernsey.

AYLESHAM. Village of Kent. About 4 m. from Dover, it was planned in 1921 as a garden city for workers in the collieries that have been opened near. The name is taken from a wood. Pop. 3,000.



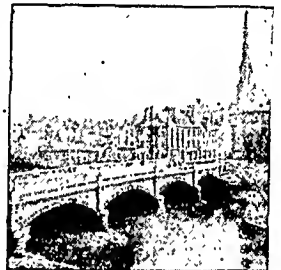
Aye-aye. Animal of nocturnal habits allied to the lemur group which is found only in Madagascar W. S. Berridge

AYLMER. Town and inland watering place of Quebec, Canada. Situated on Lake Deschenes, an expansion of the Ottawa river, it is 8 m. from Ottawa, with which, and also with Hull, it is connected by electric tramway. It has a station on the C.P. Rly. Saw milling and nickel refining are the chief industries. Pop. 2,970.

Baron Aylmer is an Irish title borne by the family of Aylmer since 1718. Its first holder, Matthew Aylmer, was an admiral. Matthew, the 5th baron, became a general in the army. He was governor-general of Canada in 1830. On the death of his brother in 1858 the title passed to a distant kinsman who made his home in Canada.

AYLMER, SIR FENTON JOHN (b. 1862). British soldier. Born April 5, 1862, he joined the Royal Engineers in 1880 and served in Burma, 1886-7, and in expeditions on the Indian frontier. In 1897 he won the V.C. for gallantry at the storming of the Nilt Fort in Kashmir. From 1912 to 1915 he was adjutant-general, and in 1915 went to Mesopotamia in charge of a division. In Jan. 1916, his attempt to relieve Kut failed, and in March he was relieved of his command. He was knighted in 1916.

AYR. Burgh, seaport, and county town of Ayrshire, Scotland. It stands at the mouth of the river Ayr, 41 m. S.S.W. of Glasgow, on the L.M.S. Rly. Of the five bridges, the Auld Brig (15th-century) and the New Brig (1788, rebuilt 1879)



Ayr. The New Brig over the Ayr made famous by the poet Burns

are the two brigs of Robert Burns. The Wallace Tower was erected in 1834 on the site of a former building. Bruce's parliament in 1315 met in the church of S. John. There are commodious docks and harbour, carpet, lace, and woollen manufactures, chemical and engineering works, iron foundries and shipyards. Coal is exported and metals and ores are imported. One member is returned to Parliament. During the Great War an aerodrome was established near. Market days, Tues. and Fri. Pop. 37,500.

AYRSHIRE. South-west maritime county of Scotland. It is popularly divided into Cunningham, Kyle, and Carrick, has a greatest length of 78 m., extreme breadth of 29 m., 70 m. of coast, an area of 1,132 sq. m., and a pop. of 311,600. Off the coast is Ailsa Craig.

The surface, mainly undulating, is mountainous S. and S.E., the highest summit being Black-Craig, 2,298 ft. Loch Doon is the largest lake, and the Garnock, Ayr, Irvine, Doon, Girvan, and Stinchar are the chief rivers. Ayrshire is noted for its breed of cows and dairy-farming. Coal, iron, limestone, and sandstone are worked, and there are numerous blast furnaces and manufactures of woollens.

Ayr is the county town, and other towns are Kilmarnock, Irvine, Saltcoats, Troon, Ardrossan, and Girvan. Ayrshire unites with Bute to return three members to Parliament. The antiquities include ruins of Crossraguel and Kilwinning abbeys and of castles at Turnberry, Dunure, and Loch Doon.

The county is rich in literary associations; the pre-eminent position belongs to Robert Burns, who was born at Alloway. John Galt, author of *The Annals of the Parish*, was born at Irvine. Oehiltree was the birthplace of George Douglas, and scene of his story *The House With the Green Shutters*. (See map, p. 169).

AYTOUN or **AYTON**, **SIR ROBERT** (1570-1638). Scottish poet. Born at Kinaldie, Fife, he was educated at St. Andrews and in Paris. Having won the favour of James I. he became ambassador to the German princes, and was knighted in 1612. He was one of the first Scots to write pure and graceful English. He succeeds best in love poems, such as *Inconstancy Upbraided*. He died at Whitehall Palace in Feb., 1638, and was buried in Westminster Abbey.



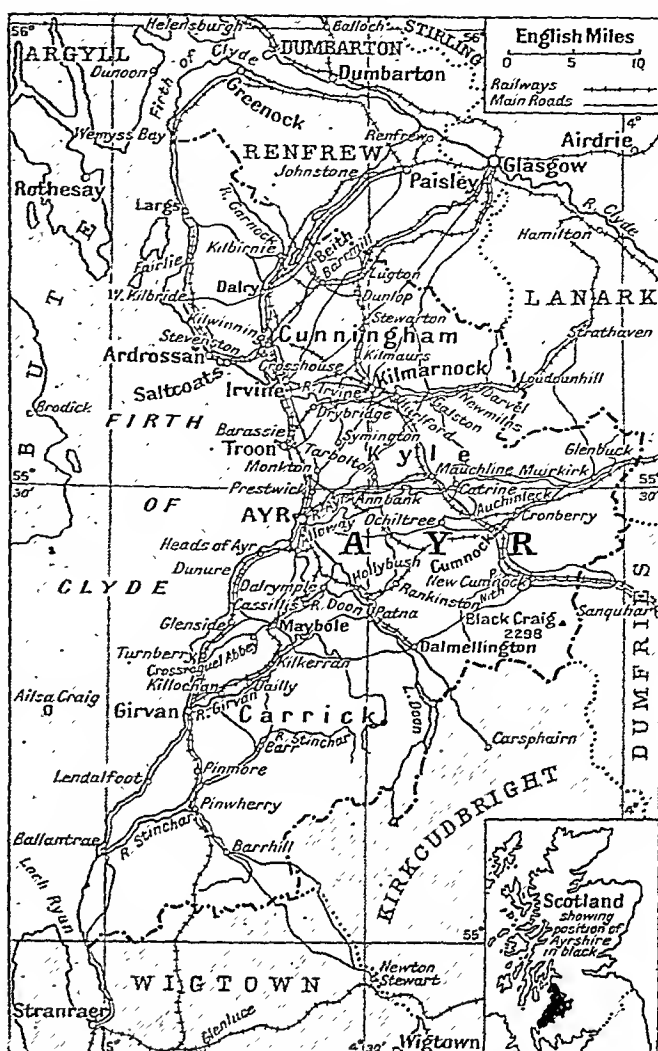
Sir R. Aytoun,
Scottish poet
Westminster Abbey

AZALEA (Gr. azaleos, dry). Genus of shrubs of the order Ericaceae. Natives of America and Asia, they have oval or elliptical leaves, and large showy funnel- or bell-shaped flowers in umbels. Most cultivated azaleas are hybrids, ranged in two classes: American or Ghent azaleas, and Indian or Chinese azaleas. See illus. below.

AZAN or **ADHAN** (Arab., call to prayer). Term for the Mahomedan summons to prayer at the five appointed hours. The call is chanted by a crier (mu'azzin or mu'adhdhin) from the minaret or side of a mosque.

AZARIAH. Name given to a number of persons in the O.T. The more important are: Uziah, son of Amaziah, king of Judah (2 Kings 15); Ahaziah, son of Jehoram, king of Judah (2 Chron. 22); the son of Oded who urged King Asa to the reform of religion (2 Chron. 15); the high priest who forbade Uziah to offer incense at the altar (2 Chron. 26); and Abednego, one of the three Hebrew youths thrown into the furnace (Dan. 1, 2).

AZAZEL. Hebrew word occurring in Lev. xvi, 8, 10, 26 rendered scapegoat in as the name of an evil spirit in the R.V. When Aaron was commanded to take two goats as an offering, he was told to cast lots upon them, one for the Lord and one for Azazel, one to be made a sin offering, the other to have all the iniquities of the children of Israel confessed over it and to be sent out into the wilderness. Milton in *Paradise Lost* makes Azazel one of the fallen angels and standard bearer to Satan. According to the Mahomedans Azazel was chief of the genii who were imprisoned by the angels and refused to render homage to Adam.



Ayrshire. Map of this S.W. county of Scotland. It stretches along the Firth of Clyde, and is an important industrial and agricultural area. See p. 168.

AYTOUN, **WILLIAM EDMONDSTONE** (1813-65) Scottish poet. He published his first volume of verse in 1830. After studying in London and Germany, he became a lawyer, but devoted much time to literature. He did many translations from the German, but the *Bon Gaultier Ballads*, in which he cooperated with Sir Theodore Martin, are better known. Nearly as popular were his own *Lays of the Scottish Cavaliers*. He also wrote much and was a regular contributor to *Blackwood's Magazine*. In 1845 he was made professor of rhetoric at Edinburgh, and in 1852 sheriff of Orkney. He died Aug. 4, 1865.

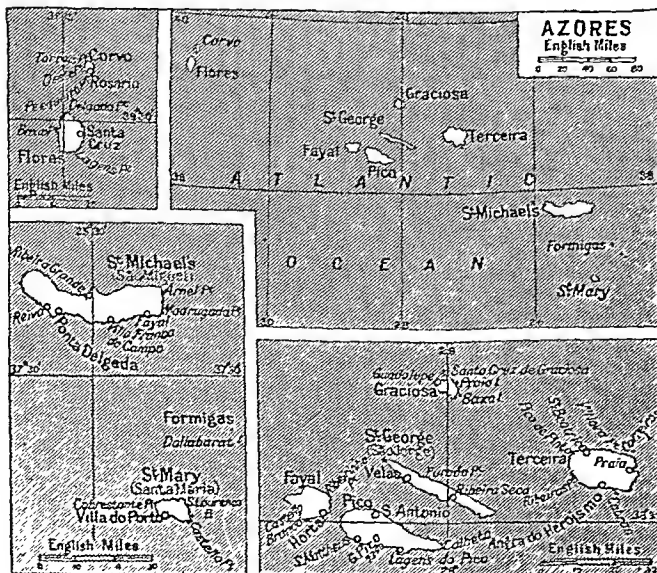


W. E. Aytoun,
Scottish poet
J. Archer

AYUTHIA. City of Siam. On an island in the river Menam, 42 m. by rly. N. of Bangkok, it is largely built on piles, and has ruins of Hindu temples. Founded in 1351, it was the capital until 1767, when it was sacked by the Burmese. Pop. 50,000.



Azalea. Bloom and leaves of this fragrant flowering shrub. See above



Azores. Maps of the islands forming this group in the Atlantic. See p. 170

the A.V. but explained that the Lord and one for Azazel, one to be made a sin offering, the other to have all the iniquities of the children of Israel confessed over it and to be sent out into the wilderness. Milton in *Paradise Lost* makes Azazel one of the fallen angels and standard bearer to Satan. According to the Mahomedans Azazel was chief of the genii who were imprisoned by the angels and refused to render homage to Adam.

AZERBEIJAN. Since 1922 a Soviet republic and a member of the union of Soviet republics. Azerbaijan covers 32,686 sq. m. and

has a pop. of 2,313,200. It is chiefly an agricultural district, but contains the valuable oilfields around Baku, which is the capital. It is one of the units into which Russia was divided after the revolution, and is peopled partly by Tartars and partly by Armenians and Georgians. See *Caucasus*.

A province of Persia bears the same name. Tabriz is the capital and it covers 40,000 sq. m.

AZIDES. Salts of azoimide (hydrazoic acid), also known as trinitrides. Azoimide (N₃H) is a weak acid with similar properties to hydrochloric acid. It forms many compounds, the majority of which are violently explosive. See *Explosives*.

AZILIAN. Main period of the Mesolithic Age. The climate, moist and warm, encouraged vast pine and birch forests. Many harpoons made from bones of the stag have been found at the Pyrenean type-station of Mas d'Azil. A pygmy-flint industry, best developed at Tardenois (Aisne), provided toothed edges for harpoons. Magdalenian art was replaced by painted pebbles.

Azimuth (Arab. as-sumut, the paths). The distance of a star in angular degrees from the N. or S. point of the meridian.

AZO-COMPOUND (Gr. a, not: zoë, life). Organic substance derived from aromatic hydrocarbons and containing nitrogen in the molecule. Azo is a shortened form of azote, Lavoisier's name for nitrogen. Azobenzene derivatives are important colouring matters.

AZORES (Port. Açores, Hawk islands) Group of islands in the Atlantic. They belong to and form an integral part of Portugal, from which they are about 830 m. distant to the W. Extending some 400 m. and having an area of 922 sq. m., the three clusters comprise St. Michael's and St. Mary, with Formigas, in the S.E.; Flores and Corvo in the N.W.; Terceira, Pico, Fayal, St. George, and Graciosa in the centre. They form a chain of volcanoes and contain hot mineral springs. The climate is mild. Fruit is cultivated; straw baskets and mats, cotton and woollen goods, hats and bricks are manufactured, and fishing is engaged in. The few secure harbours include Angra do Heroísmo, the capital of the Azores, on Terceira, Ponta Delgada, the capital of St. Michael's, and Horta, the capital of Fayal. Pop. 232,012. See map, p. 169.

The Azores were colonised by emigrants from Portugal. In 1591, off Flores, the English ship *Revenge*, under Grenville, met the Spanish fleet, the subject of Tennyson's poem.

AZOV, SEA OF. Shallow gulf of the Black Sea. It is almost enclosed by the Crimea and is entered by the strait of Kerch or Yenikale. It has a greatest length of 220 m., an extreme breadth of 110 m., and an area of 14,520 sq. m. Its greatest depth is about 50 ft. The N.E. extremity is called the Gulf of Taganrog, and in the W. a sandy strip separates it from the Putrid Sea. It receives several rivers, including the Don. Ports on its shores are Berdyansk, Mariupol, and Taganrog. Its comparatively fresh waters abound in fish, the drying of which is a local industry.

The town of Azov, on the Don, 10 m. from its entrance into the Sea of Azov, has a fishing industry and trades in grain, but has declined with the silting up of the harbour. Pop. 31,110.

AZRAEL. Angel of death and, according to Mahomedan belief, one of the four angels most in God's favour. The legend goes that he was sent to obtain the earth from which Adam was to be made. Unlike other angels, he performed his task without remorse, and so came to be appointed by God to separate souls from bodies at death.

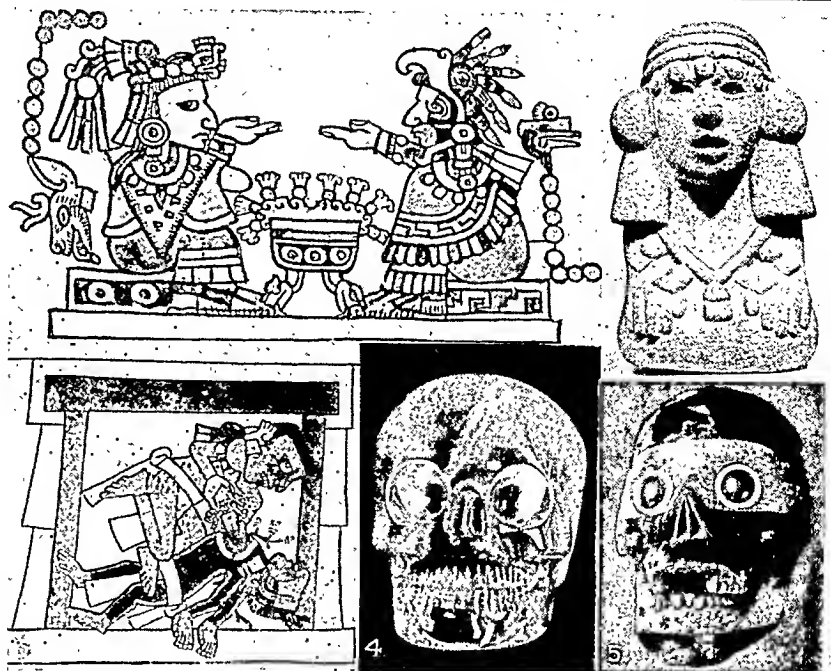
AZTEC (crane people). American Indian tribe inhabiting the Mexican tableland at the time of the Spanish conquest.

They spoke a Nabua dialect and the name included all the ancient tribes of Nahuatl stock. The early home of these people was in British Columbia, whence they moved to the Mexican tableland. There they found a people called Toltecs, whose empire was broken up by the advance of the more virile Nahuatlans. The invaders were in several tribes, but in a comparatively short time the Aztecs had become predominant.

The warlike skill of the Aztecs soon gained for them, about 1325, the opportunity of fortifying the Tenochtitlan island, where Mexico city now stands. Electing a king in 1376, they secured the hegemony of the valley and, formed into various confederacies, waged war with organized armies upon the outlying peoples, exacting tribute of cotton, gold, and other products. These confederacies had extended to both oceans when their ruler Montezuma II was overthrown by Cortes in 1519.

The Aztec civilization, taken over from subjugated peoples, embraced several elements, material, intellectual, and social, clearly due to cultural drift from the Old World. The elective chiefs were held in check by a priestly aristocracy, which exploited the servile peasantry. At present they number about 500,000. See Mexico; Montezuma.

AZYMITE (Greek *a*, not: *zymē*, leaven) Controversial term of reproach in the Eastern Churches for those who use unleavened bread in the Eucharist (q.v.). In the 11th century this use was made a ground of separation from the Latin communion by the Greek Church.



Aztec. 1. Illustration from the Zouche Codex, a Mexican manuscript in the British Museum, showing the costume worn, and that men used face paint. 2. Stone carving of the Goddess of Running Waters. 3. Sacrifice demanded by Aztec gods; the heart is being torn from the victim's breast. This and the one above are examples of picture writing. 4. Skull of the Sky God, carved in rock crystal. 5. Elaborate mosaic death mask

British Museum; 4, photo, Beck and Macgregor

B. Second letter of the English, Latin, and most European alphabets, corresponding to the Greek *bēta*. The latter, however, had a sound approximating more to the English *V*, which exactly represents it in the pronunciation of modern Greek. *B* is a soft labial or lip-sound, the corresponding hard sound being *P*. In English it always has the same value as in *baby*, but is sometimes not heard when preceded by *m* or followed by *t*, as in *dumb*, *debt*, *subtle*. See Alphabet.

BAAL, BEL, or BEEL. Semitic title meaning possessor, lord, given to various primitive inferior deities. The feminine form is *Baalat* or *Beltis*. Only in Babylon did the term ever become the actual name of an individual god, *Bel*—the Lord, i.e. *En-lil*, the chief Babylonian deity. *Bel* absorbed the identities of many lesser *beālim*, and his prominence led the Greeks to conclude that these local *baals* were variants of the chief deity, instead of being entirely independent and of much older origin. These latter have been classified under ten headings, including *baals* of springs, trees, animals, mountains, stones, and sanctuaries. The word is incorporated in many names of persons and places, e.g. *Jezebel*, *Baalbek*. See Babylon; Semite.



Baalbek. Ruins of the ancient Syrian city, with some of the columns of the great Roman temples

BAALBEK OR THE CITY OF BAAL. Ancient Syrian city. Situated 35 m. N.N.W. of Damas-

cus, it commanded an important Phoenician trade route, and became an early centre of Baal worship. The assimilation of Baal with the Greek sun god *Helios* gave rise to the name *Heliopolis*, sun city. In the 2nd century A.D. Antoninus Pius began the erection of two great temples which impress the beholder, even in decay, by their massive construction and their decoration. In a quarry a mile away an unfinished monolith, 68½ ft. long, and weighing 1,100 tons, is of the exact length of Cleopatra's Needle in London, but six times its bulk. *Baalbek* was captured by Jenghiz Khan, Saladin, and Timur, became Turkish in 1840, and was occupied by the British in Oct., 1918.

BABA (Turkish, father). Mahomedan title of respect. It is a form of address for religious dignitaries, and is sometimes added to names, e.g. *Ali Baba*.

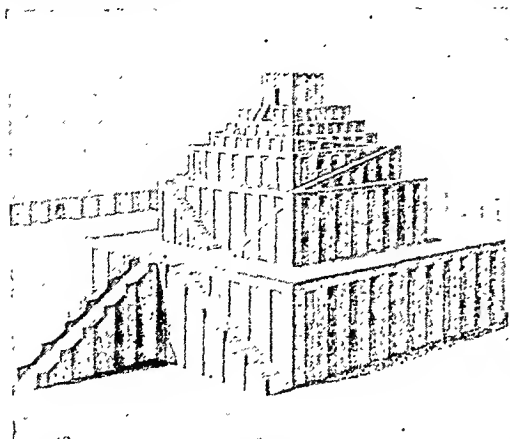
BABA. Old woman or witch in Slavonic folk-lore; in full, *Baba Yaga*. Generally represented as a terrible ogress and cannibal, she is a distorted survival of the *Berchta* of S. German myth. See *Berchta*.

BABAR OR BABER (c. 1483-1530). Mahomedan conqueror. His real name was *Zahir ed-din Mohammed*, and he was called *Babar*, the tiger, from his fighting qualities. When a boy he succeeded his father, a descendant of Timur, as khan of Ferghanah. He captured Kabul and twice conquered and lost Samarkand before invading India. In 1526 he defeated and killed Ibrahim, ruler of Delhi, and in 1527 another victory made him ruler of much of N. India, the empire he established being usually known as the Mogul. He was succeeded by his son Humayun. His tomb is at Kabul. Consult *An Empire Builder* of the 16th century, L. F. R. Williams, 1918.

BABBACOMBE. Pleasure resort near Torquay. Here was committed a crime rendered memorable because of abortive attempts to hang the murderer. John Lee, aged 20, was convicted at Exeter Assizes, Feb., 1885, of the murder of his employer, Miss Keyse, an elderly lady living in a bungalow here. After three attempts to execute him, Feb. 23, 1885, Lee was reprieved and his sentence commuted to imprisonment. He was released in 1907.

BABBITT'S METAL. Alloy, usually of copper, tin, and antimony, belonging to what are known as white or anti-friction metals. It is named after the American inventor, Isaac Babbitt (1799-1862), and is used for the bearings of shafts.

suppressed by the sword in the reign of the shah Nasr-ed-din. The sect, however, was by no means completely suppressed, and has now many adherents in Asia and N Africa. Consult A Traveller's Narrative to illustrate the Episode of the Bah. E. G. Browne, 1891



Babel. Left, reconstruction of the famous temple-tower of Babel. Right, fragment of the temple of Nabu, marking the site of ancient Borsippa, near Babylon, and known locally as the Tower of Babel. Reconstruction modified from Koldewey; photo, Royal Air Force Official, Crown Copyright Reserved

BABEL, TOWER OF. Tower erected after the Deluge by the descendants of Noah (Gen. 11), when in their wanderings they reached the plain of Shinar or Babylonia. The plan was to build a tower reaching to heaven; but Jehovah frustrated it by confusing the language of the builders—hence the diversity of human speech; and by scattering them all over the earth—hence the diversity of race.

It is now known that stage-towers or zikkurats were a characteristic feature of the sacred architecture of Babylonia and Assyria, and the ruins of two such towers, associated by native tradition with the Tower of Babel, have been discovered at Birs Nimrud (Borsippa, near Babylon) and at Akerkuf, farther south. See Babylonia; consult also Civilization of Babylonia and Assyria, Morris Jastrow, 1915.

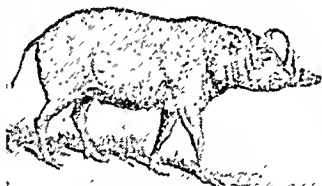
BAB-EL-MANDEB, STRAITS OF. Channel separating Arabia from Africa. Called by the Arabs the Gate of Tears because of its difficult navigation, it leads from the Red Sea to the Indian Ocean through the Gulf of Aden. About 15 m. wide, it is divided by the island of Perim into Large strait and Small strait.

BABEUF, FRANÇOIS NOEL (1760-97). French revolutionist. He was at first identified with the extremist section represented by Marat. From 1793, when he started a paper, *Le Tribune du Peuple*, advocating the displacement of private property by communism, he opposed Robespierre. In 1794 he settled in Paris, and was imprisoned for anarchist propaganda. In 1796, with the outbreak of the distress caused by the cessation of the distribution of free food in Paris and the fall in the value of the assignats, Babeuf demanded a new Reign of Terror and the establishment of communism. Before the rising he had planned could mature he was arrested, and after a long trial was executed, May 27, 1797.

BABI. Name given to a Persian religious sect, from the title Bab-ed-Din, Gate of the Faith, borne by its founder. Its creed, which dates only from 1843, is based upon Mahomedanism, but rejects many of the tenets and practices of the orthodox Moslem. The new doctrines were so repugnant to the Persian authorities that the Bab was imprisoned and executed in 1850, and his followers were

BAEINGTON, ANTHONY (1561-86). English conspirator. He was born at Dethick, Derbyshire, of an old and wealthy family, and was in youth a page to Mary Queen of Scots during her imprisonment at Sheffield. An ardent Roman Catholic, in 1586 he took a leading part in a conspiracy to kill Queen Elizabeth and release Mary. The plot was made known to Walsingham by spies, the conspirators were arrested, Aug., 1586, and Babington was hanged, Sept. 20, 1586.

BABIRUSA (Malay, deer-hog). Wild pig found in the E. Indies. The male is characterized by the extraordinary development of its canine teeth, which grow through the skin of the snout and curve backwards over the forehead. The sow has not these teeth. Its scientific name is *porcus babirusa*.



Babirusa. Wild pig of the E. Indies, having remarkable canine teeth

BABOON. Monkey of the genus *Cynocephalus*, which includes the drill, hamadryad, mandrill, and sphinx. The head is dog-shaped, with strong jaws and formidable tusks. Since fore and hind limbs are nearly equal in length the animal runs easily on all fours. On the buttocks are brightly coloured callosities, and the tail is usually short. Baboons are ugly and ferocious; their predatory habits render them a serious pest, and their bite is unusually severe. All true baboons are natives of Africa and Arabia. See Monkey.

BABU. Anglo-Indian name for a native with a smattering of education, generally for a clerk who writes English. It was originally a term of respect, like Mr., but is now seldom so used.

Babul. Indian name for the *Acacia arabica*, one of the trees which produce gum arabic.

BABUNA. Pass in the Balkan Mts., between Veles and Monastir. Here a battle was fought between the Bulgarians and the Serbians. Nov. 4-16, 1915. The defile was held by a small Serbian force against a strong Bulgarian attack. From Nov. 4-6 a hand-to-hand fight raged in the gorges of the defile, the Bulgarians being driven through Izvor into Veles. Heavily reinforced, the Bulgarians soon returned to the assault. The Serbian leader Vassiteh had no reserves, but held out until Nov. 16, when, to escape envelopment on his flank, he retired on Prilep, and then on Monastir, which Bulgarian pressure caused him to evacuate, Dec. 2. With the remnants of his men he retreated to Elhasan, and reached Durazzo, where he rejoined the main armies.

BABY FARMING. Term for the reception, lodging, and boarding of infants for money considerations. In most countries baby farming is strictly regulated by law.

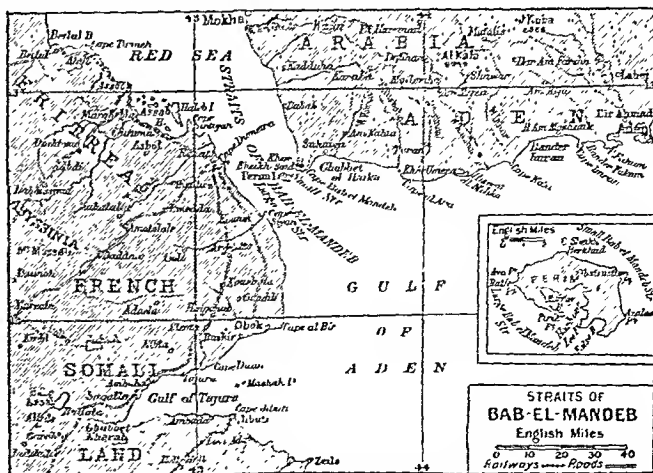
In Great Britain persons who take children under seven years old into their homes in return for payment must give all particulars about the children to the borough council or other local authority. They must not have any insurable interest in the lives of the children. Inspectors can visit the homes to see that the children are in suitable surroundings.

BABYLON. Ancient city of Asia. It was situated on the Euphrates, in an extensive and fruitful plain about 60 m. S. of the modern



Baboon. Ferocious, dog-headed monkey, native of Africa and Arabia

Bagdad. The capital of the Babylonian and then of the Assyrian empire, its period of greatest glory extended from about 1800-539 B.C.: with a short break about 689, when the city was partly destroyed by Sennacherib. Babylon was built on both banks of the Euphrates, and consisted of palaces, temples, and fine streets. Its ruins, among which the modern town of Hilla or Hillah stands, extend over an area of 50 sq. m. Excavations have, among other architectural wonders, brought to light the Ishtar Gate which was built by Nebuchadnezzar



Bab-el-Mandeb. The straits which divide Africa and Arabia, with inset map of the island of Perim, a British possession



Babylon. Air view of the partly excavated city. Across the top is the Euphrates, with a modern hamlet of Iraq on its farther bank. It is stated that three distinct Babylons have been built upon this site

at the N.E. corner of the southern citadel for an approach to the processional road leading to the temple of Marduk, Nebuchadnezzar's fortress palace with its hanging gardens, and the temple of Esagila.

In the rich plains of lower Mesopotamia there dwelt many tribes, and somewhere about 2300 B.C. Babylon became their acknowledged capital. That city endured for more than sixteen centuries, and after the passing of Sennacherib it was rebuilt and again became one of the mightiest cities in the world under Nabopolassar and Nebuchadnezzar. Belshazzar succeeded Nebuchadnezzar; then came Cyrus in 538, and Babylon passed to the Persians, who gave way in their turn to Alexander, who died here. From that time the city dwindled, until nothing was left but ruins buried under gigantic mounds of sand. Consult

The Excavations at Babylon, R. Koldewey, 1914, Eng. trans. A. S. Johns: The Long Road to Baghdad, E. Candler, 1918; Das Ischtartor in Babylon, R. Koldewey, 1925.

BABYLONIA. Ancient empire of Mesopotamia. It was a low-lying country between the Tigris and the Euphrates, made up of alluvial deposits. It was bounded on the N. by Assyria, S. by the sea land and Kaldai (Chaldaea), E. by the mountains of Elam, and W. by the Syrian and Arabian deserts. The oldest inhabitants of the country that came to be called Babylonia were the Sumerians, who dwelt in the S., spoke a Turanian language, and exhibit types of face and costume wholly un-Semitic; in the N. were the Akkadians, a Semitic race whose original home was probably Arabia. The earliest culture of Babylonia was Sumerian, but the Semites of N. Babylonia

took over the cuneiform script, much of their intellectual culture, and their religious ideas.

In early Babylonia there was a large number of independent city states, each seeking to enlarge its borders at the expense of its neighbour or neighbours. Among the most eminent rulers of these states may be mentioned Gudea (c. 2450 B.C.) of Lagash. Another, Sargon I. king of Akkad, styled himself "king of the four quarters of the world." He exercised rule over most of N. Babylonia and over much of Sumer. After the death of Sargon and his son Naramsin (c. 2600 B.C.) the supremacy in Babylonia passed from city to city.

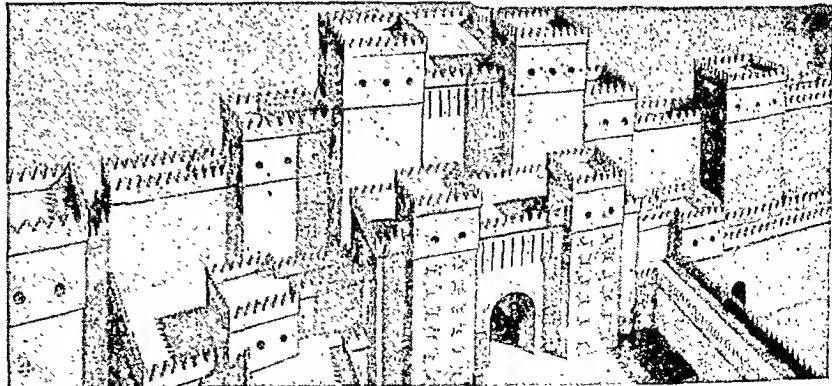
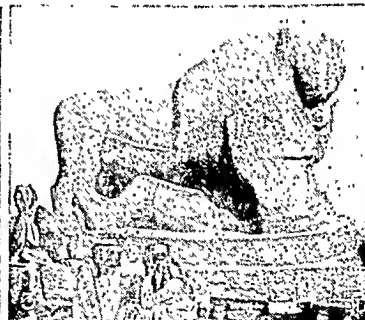
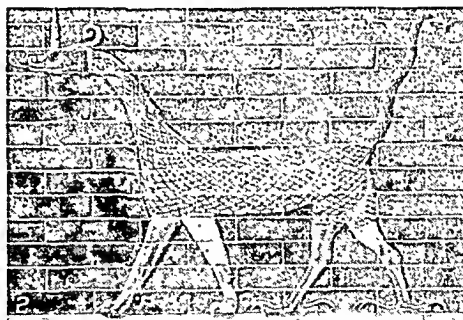
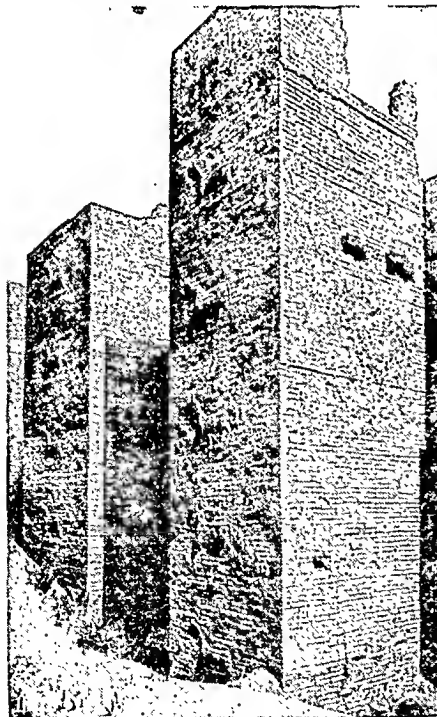
The first Babylonian dynasty, commonly so called, sprang into existence about 2300 B.C. There is from now a continuous history of Babylonia down to 539 B.C., when the supremacy in the East passed to Persia.

The sixth in order, Hammurabi or Khammurapi (c. 2100 B.C.), is the only king of importance belonging to this dynasty. He brought all Babylonia, N. and S., under his sway, becoming suzerain of Assyria, and adding territory in Elam to the E. and other lands in the W. He was the compiler of a famous legal code, which was engraved on stone and set up at important centres e.g. Babylon and Nippur. One of these stones is in the Louvre, and a replica is in the British Museum.

The so-called Kassite or Kassite dynasty, of foreign, perhaps Elamite, origin, occupied the Babylonian throne from about 1750 to about 1169 B.C. Under it the empire declined. Nebuchadnezzar, who lived about 1140 B.C., revived the declining fortunes of Babylonia and handed on to his successor a larger Babylonia than he had received.

Under the Assyrian king Tiglath-pileser I (c. 1100 B.C.) Babylonia became a dependency of Assyria. When, however, in 625 B.C. Nabopolassar, a Chaldaean, became king of Babylonia by the help of the Medes, with whom he had fought against Assyria, an era of brilliance for what has been called Neo-Babylonia, or Chaldaean Babylonia, set in.

His son and successor, Nebuchadnezzar II (604-562 B.C.), raised the empire to its highest



Babylon. 1. Towers of the Ishtar Gate, ornamented with bulls and dragons in enameled relief. 2. One of the dragons, also known as Sirrushes. 3. Stone monument of a lion standing over a prostrate man. 4. Reconstruction of the Ishtar Gate. It was erected by Nebuchadnezzar at the north-east corner of the citadel
1, 2 and 4 from Koldewey, 'Das Ischtartor,' J. C. Hinrichs'sche Buchhandlung, Leipzig

pitch of power and prestige. It was this king who, in 606 B.C., besieged and conquered Jerusalem, and in 586 B.C. set fire to the city, including the temple, carrying away the best part of the population to his own country.

Under the rule of his successors the empire gradually collapsed. The last king of all, Nabonidus (555-539 B.C.) was absorbed in intellectual pursuits and religious exercises. His country was invaded by the Persian king Cyrus. The Babylonian army made a show of defence, but was soon vanquished by the Persians, who entered Babylon unopposed. Babylon fell in 539 B.C., never to rise again, just as in 606 B.C. its rival, Assyria, vanished for ever from the page of history. The culture and religion of Babylonia were adopted almost entirely by Assyria (q.v.). See Nebuchadnezzar; consult also History of Babylonia and Assyria from Prehistoric Times to the Persian Conquest, L. W. King, 1910, etc.; Ancient Babylonia, C. H. W. Johns, 1913; Handbook to the History and Antiquities of Mesopotamia, R. Campbell Thompson, 1918; The Ancient History of the Near East, H. R. H. Hall, 4th ed., 1919; By Nile and Tigris, Sir E. A. W. Budge, 1920.

BACCARAT. Gambling card game much played in France, but illegal in the United Kingdom. The most usual method of playing is between a banker and other players termed punters. The banker uses several packs of cards, shuffled together, and deals two cards to each player and two cards to the table (himself). The value of the cards is reckoned as one for the ace, two for the 2, three for the 3 and so on up to the 9; the 10 and court cards count 0. The maximum number of points is nine. The banker receives money from all the punters who hold below the value of his own two cards, and also from those players holding over nine, and pays those who are nearer nine than himself.

BACCARAT. Town of France, in the department of Meurthe-et-Moselle. On the river Meurthe, 15 m. S.E. of Lunéville, it is noted for its glass works, established in 1765. Pop. 5,739.

BACCHUS. In Greek and Roman mythology, name of the god of wine and fertility, better known among the Greeks as Dionysus. According to the legend, he was the son of Zeus by Semele, daughter of Cadmus, king of Thebes. On reaching manhood he travelled in the East as far as India, teaching the cultivation of the vine and other fruits of the earth. He returned to Europe by way of Thrace,



Bacchus. God of wine and fertility in Greek and Roman mythology
British Museum

whence his worship spread to various parts of Greece. On the island of Naxos he found Ariadne, deserted by Theseus, and made her his wife. After his divinity had become fully established he went into Hades to seek his mother, and took her up to Olympus.

Bacchus is frequently represented as attended by frenzied women called Bacchae, Bachelantes, Maenades, and Thyiades, all meaning frantic; Pan, Silenus, and satyrs were also among his followers. The various Bacchic legends are supposed to be forms of the great nature myth, Dionysus himself being a spirit of vegetation. The cycle of his festivals includes the Greater and Lesser Dionysia (q.v.).

BACCHYLIDES (c. 467 B.C.). A Greek lyric poet. Included in the Alexandrian canon of the nine great lyricists, he was the nephew of Simonides. Only about 100 lines of his poems were known until 1896, when a papyrus containing 20 more or less complete odes was discovered in Egypt and sent to the British Museum. In 1897 Sir F. G. Kenyon published the first edition of these odes.

BACH, JOHANN SEBASTIAN (1685-1750). German music composer. Born at Eisenach, March 21, 1685, the youngest son of Johann Ambrsius Bach, a violinist, he is the outstanding member of a family of Thuringian musicians who during six generations produced a continuous line of composers. He was appointed organist at Arnstadt in 1703 and at Mühlhausen in Thuringia in 1707; but these were only preliminary to his three chief posts at Weimar, 1708-17, Köthen, 1717-23, and Leipzig, 1723-50. At Weimar his main duties were connected with the organ, and the bulk of his music for that instrument dates from this period. At Köthen he held no office connected with the church, and wrote mainly secular instrumental music; as cantor of the Thomasschule at Leipzig and director of the music in the two chief churches, his activities were mainly choral. He died at Leipzig, July 28, 1750.



J. Sebastian Bach, German composer

Bach's original compositions, apart from his numerous arrangements, include a High Mass in B Minor, 4 smaller Masses, a Magnificat and other works to Latin words; 3 Passions, of which the Matthew and John are the chief; 202 church cantatas, some also styled oratorios; 21 secular cantatas; 29 concertos and other orchestral pieces; and a vast quantity of music for organ, for clavier, and for stringed instruments.

His third son, Karl Philipp Emanuel Bach (1714-88), became a musician in the household of Frederick the Great before 1740. From 1768 till his death he was director of church music at Hamburg. Another son, Johann Christian Bach (1735-82) was organist at Milan Cathedral, 1760-62, and spent the rest of his life in England, where he was music master to Queen Charlotte.

A Bach Choir, which gives choral and orchestral concerts, was founded in 1876 in London. Dr. Adrian C. Boult is the director.

BACILLUS (Latin, a small rod). Name of a micro-organism in form like a rod. Bacilli consist of cylindrical cells that multiply by division and by the formation of endogenous spores. See Bacteriology.

BACK, SIR GEORGE (1796-1878). British explorer. He entered the navy in 1808, and in 1818 went out with Sir John Franklin to the Arctic. In 1833 Back went out to find Captain Ross, and was away for two years, discovering the Great Fish or Back river. Between his journeys he served in the navy, and in 1835 attained the rank of captain. His fourth and last expedition to the Arctic was made in 1836. He was knighted in 1839, became an admiral in 1857, and died June 23, 1878. He wrote accounts of his several expeditions

BACKGAMMON or TRIC-TRAC. A game, referred to by Chaucer as tables, played on a special board by two persons. Each player has 15 men, one taking black, the other white. A dice box and two dice for each player are necessary. A backgammon board is square, divided into halves, and each player has an outer and an inner or home table, each containing six points marked alternately in black and white; board and men are arranged as seen in the diagram below. The men are moved from point to point, according to the throws of the dice made by the players alternately. The player who first succeeds in clearing all his men from the board wins the game.

BACKSCRATCHER. Toilet implement. Its main use is suggested by its name, but it was also used as a kind of comb for the immense coiffures of the time of George III. It was some 18 ins. in length, made of cane, horn, whalebone, or wood, topped with a band of carved ivory or other material.

BACON. Flesh of the pig when cured, salted, or otherwise treated. Special brands of bacon, such as Wiltshire and Ayrshire, take their names from the particular process of curing adopted in the districts named. The food value of bacon is high, yielding 2,685 calories per lb.

For curing bacon, factories have been established. The routine of the bacon factory consists of killing, thorough bleeding, scalding for removal of bristles, scraping, singeing, cooling, removal of offal, washing, and chilling. The carcasses are then ready for curing, which essentially consists in

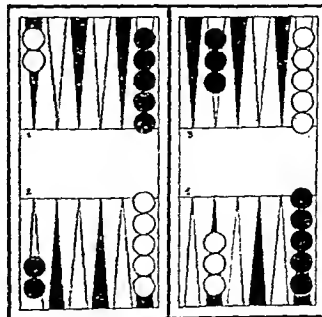
Backscratcher. From a specimen made of horn, 14½ ins. long

saturation of the meat with an antiseptic pickle. Britain obtains bacon from Denmark, the United States, Canada, and Ireland. A good deal is produced at home, and the introduction, in 1928, of a system of grading and marking helped the domestic producer. In Denmark and the U.S.A. all bacon, before it is sold, must be inspected and approved by state officials. A beetle which makes its home in bacon is called the bacon beetle. See Beetle.

BACON, FRANCIS (1561-1626). English jurist and philosopher. Born at York House, London, Jan. 22, 1561, he was the younger son of Sir Nicholas Bacon, and nephew of Sir William Cecil, afterwards Lord Burghley. He entered Trinity College, Cambridge, in 1573, leaving in 1575. In 1576 he went to Paris with Sir Amyas Paulet, but returned to London in 1579 and studied at Gray's Inn, being admitted a barrister in 1582. About 1591 he made the acquaintance of the earl of Essex, but in spite of this he remained in the background during Elizabeth's reign.

Knighted by James I, he eagerly engaged in political intrigues, resulting in his being made solicitor-general in 1607, attorney-general in 1613, a privy councillor in 1616, lord keeper of the great seal in 1617, and lord chancellor in 1618. In that year he was created Baron Verulam and in 1620 Viscount St. Albans. In 1621 charges of corruption and bribery were preferred against Bacon. A heavy fine was inflicted, and for a while he was lodged in the Tower. The king remitting his fine, he retired from public life. He died April 9, 1626, and was buried at St. Albans.

Bacon is regarded by men of science of our day as the originator of the modern school of experimental research. In his Novum



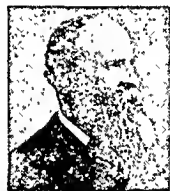
Backgammon. 1. Ace-point of black's home or inner table. 2. Ace-point of white's home or inner table. 3. Bar-point of black's outer table. 4. Bar-point of white's outer table. See above

Organum, 1620, a treatise upon the conduct of the understanding in systems of inquiry, he advocates a true and patient understanding and interrogation of Nature through phenomena and facts.

In his New Atlantis, composed before the Novum Organum, he indicates in allegory a model college under the title of Solomon's House or the College of the Six Dayes Works. Groups of individuals were to be employed in bringing in knowledge to the effecting of things. Some were to sail into foreign countries; some to try new experiments; while others were to formulate things of use and practice for man's life and knowledge.

BACON-SHAKESPEARE CONTROVERSY. The idea that Bacon wrote the plays ascribed to Shakespeare dates from 1856, and since then has been the subject of numerous writings. The arguments in favour of Bacon's authorship are the parallelisms between the writings of the two men, the assumed illiteracy of Shakespeare, and the fact that no authoritative Shakespearean text exists.

BACON, JOHN MACKENZIE (1846-1904). British aeronaut. Born June 19, 1846, son of a Berkshire clergyman, he was educated at Trinity College, Cambridge, and became a clergyman. In Aug., 1888, he first went up in a balloon, and in 1902 he was the second person to cross the Irish Channel in that manner, his journeys being used for experiments in wireless telegraphy and for photographing the bottom of the sea. He died at Coldash, Dec. 26, 1904.



J. M. Bacon,
British aeronaut

BACON, SIR NICHOLAS (1509-79). English lawyer, the father of Francis Bacon. A Suffolk man by birth, he was educated at Cambridge and held lucrative legal offices under Henry VIII. He obtained land when the monasteries were dissolved and in 1558 was made lord keeper and a knight. Bacon lived in style at Gorhambury, near St. Albans, where he was visited by Queen Elizabeth. He died Feb. 20, 1579, and is buried in St. Paul's Cathedral. A son, Nicholas, was made a baronet in 1611, and his descendant ranks as the premier baronet.



Sir Nicholas Bacon,
English statesman
Zuccherro

BACON, SIR REGINALD HUGH SPENCER (b. 1863). British sailor. In the Benin expedition of 1897 he was chief of the intelligence department, and later conducted the first submarine trials. From 1907 he was director of naval ordnance and torpedoes, becoming director of the Coventry ordnance works in 1909. In 1915-18 Bacon was in command of the Dover Patrol. He was controller of the munitions department at the outbreak of the war.



Babylon. 1. Towers of the
ment of a lion standing over a
19 he published
Life of Lord

BACON, ROGER (c. 1214-94). English scientist and philosopher, called Doctor Admirabilis. He was born at Ilchester, Somersetshire, studied theology at Oxford and Paris, entered the Franciscan order, settled at Oxford, and began experimental researches into the facts of nature, devoting special attention to alchemy and optics. He invented the magnifying glass and an explosive compound of charcoal, sulphur, and saltpetre which anticipated modern gunpowder. He also declared the possibility of steam vessels, telescopes, microscopes and other later inventions. His advanced ideas made him suspect by the ecclesiastical authorities, and he was imprisoned for many years. Released at length by pope Nicholas IV, Bacon returned to Oxford, where he wrote



Francis Bacon, English philosopher,
statesman, and essayist
After Van Somer

in 1292 his Compendium Studii Theologiae. His Opus Majus, an encyclopedia of the then known sciences, has been edited by J. H. Bridges, 1897-1900, and the Compendium by A. G. Little, 1911.

BACTERIOLOGY. Science and study of bacteria or microbes. Two factors have specially contributed to the extraordinary advance in recent years of this section of biology: (1) improvement in the making of microscopic lenses, resulting in the compound microscope; (2) discovery of aniline dyes, by means of which bacteria can be variously stained to facilitate examination.

Bacteria are grouped into three main classes according to their shape: cocci, or spheres, occurring singly or in chains; bacilli, or straight rods; and spirilla, or twisted forms. They require complex organic substances for their food, and these may be found in the human body. The presence of water also is essential, since most pathogenic organisms succumb to complete drying, although their individual resistance differs. They are sensitive to heat, but even intense cold fails to destroy them. Some bacteria, termed aerobes, thrive only in the presence of free oxygen; others, anaerobes, require its strict exclusion for their growth; others are indifferent to it.

Bacteria are of universal distribution. No exposed portion of nature which contains traces of moisture can be assumed to be free from them. While the great bulk of them are harmless to man, some are definitely disease-producing, and most of the infectious diseases are of proved microbial origin. Were it not for the natural immunity possessed by all living beings, health and life would be impossible. That immunity can also be acquired is due to the discovery that bacteria may be grown in the laboratory by means of cultures for purposes of study and experiment. Out of such experiments have been evolved the methods of treatment known as preventive inoculation or vaccine therapy. The real founder of modern bacteriology was Pasteur, who proved beyond doubt that processes of fermentation were due to living organisms, and was the first to produce bacterial vaccines.

Many bacteria, so far from being harmful, perform services of immense value in the scheme of nature and in industry. Examples of these are soil bacteria and those involved in cheese and butter-making, in alcoholic fermentation and in the treatment of sewage. See Antiseptic; Antitoxin; Immunity; Infection; Pasteur, Louis; Vaccination; consult also Manual of Bacteriology, R. Muir and J. Ritchie, 7th ed. 1919.

BACTON. Village of Norfolk. It is 4 m. N.E. of North Walsham, and attracts visitors in the summer. Each year organized games for children, on the lines of the Olympic Games, are held here. Pop. 473.



Roger Bacon,
English scientist

BACTRIA OR BACTRIANA. In ancient geography, a tract of country comprising the N. slope of the Hindn Kush as far as the Oxus river (Amu Daria). It corresponds nearly to the district of Balkh, which has preserved the name, in the modern Afghanistan. Alexander the Great overran it in 328 B.C., and established Greek garrisons. After a brief Seleucid domination, Diodotus, the Greek satrap of the capital city Bactra (Balk), rebelled and founded the Greco-Bactrian kingdom about 250 B.C. which lasted for a century.

BACTRIS. Genus of slender S. American palms. Growing on swampy land, river banks, and the sea coast, they are mostly small, more like reeds than trees, the stems being furnished with sharp spines. They grow in clumps, owing to their habit of throwing up numerous suckers from the roots. One species (B. minor) has a stem little more than 12 ft. in length and about an inch thick, from which are made the walking-sticks known as Tobago canes. B. maraja, which grows on the Amazon, attains a height of 50 ft. It produces bluish-black succulent fruits which, though acid, have an agreeable flavour and form the basis of a kind of wine.



Bactris. Slender S.
American palm

BACUP. Borough and market town of Lancashire. It stands on the river Irwell, 22 m. N.E. of Manchester by the L.M.S. Rly. Of modern growth, Bacup was incorporated in 1882, and is a flourishing industrial town, with spinning and weaving mills, iron foundries, paper mills, and dye works. Coal mines and stone quarries are in the neighbourhood. Occupying an elevated position near by is Broadclough Dykes, an ancient camp. Market day, Wed. Pop. 21,263.

BADAGRI. Harbour and district of the southern provinces of Nigeria. The district is inhabited by the Egbados, whose chief town is Ilaro. The harbour is on the lagoon running from Porto Novo (Dahomé) to Lagos, about 38 m. W. of the latter, and has a trade in palm kernels. Founded by Benin colonists, it has been superseded as a port by Lagos (q.v.).

BADAJOZ (anc. Pax Augusta). City of Spain. On the Guadiana, here crossed by a fine granite bridge, 315 m. by rly. S.W. of Madrid, it is close to the Portuguese frontier. It has a cathedral, a Moorish castle, an arsenal, and various manufactures. A frontier fortress, it has been several times besieged, notably by the Portuguese in 1660; by the Allies in the War of the Spanish Succession, 1705; by the French, 1808-9 and 1811; and three times by the British. Pop. 38,612.

BRITISH SIEGES. In Feb., 1811, this important frontier fortress was surrendered by the Spaniards to the French, and in May and June two attempts at recovery by the British failed. After elaborate preparations a third attack was begun in March, 1812. At the first attempt the British were beaten back. The second attempt, however, was successful: a dash against the lower part of the wall gave them entrance and the castle was won. This

and other successes decided the fate of Badajoz and on the next day it was formally surrendered. The British lost nearly 5,000 men, and took a terrible revenge in the pillage of the town. Napier's description of this siege (Peninsular War, vol. iv) is one of his finest pieces of descriptive writing. Consult also History of the Peninsular War, Sir Charles W. C. Oman, 6 vols., 1902-22.

BADARI. Settlement near Assiut in Egypt, a home of early civilized man. It was inhabited between 15,000 and 10,000 B.C., and excavations begun in 1925 have brought to light articles which show that the Badarians were a skilled and cultured folk. They made pottery of the finest quality and flint instruments of the most delicate kind, and carved ivory. They could spin and weave, and knew how to grow and store corn. Some of the finds were shown in the British Museum in 1929.

BADBURY RINGS. Prehistoric stronghold 4½ m. from Wimborne, Dorset (Badda's burgh). The hill is 327 ft. high, surmounted by two earthen ramparts separated by a broad berm or pathway from an earthwork, perhaps later, lower down.

Baddow. Two villages of Essex. Great Baddow is 2 m. S.E. of Chelmsford and Little Baddow is 4 m. away.

BADEN. Republic of Germany. Formerly a grand duchy within the German empire, Baden was constituted a republic in Nov., 1918. The Rhine separates it from Alsace, while on the S. it borders Switzerland and on the E. Württemberg and Bavaria. The area is 5,820 sq. m. and the population 2,312,462. Karlsruhe is the capital and Mannheim the most populous town.

The greater part of Baden is mountainous and includes the Black Forest. It is drained by the Rhine and its tributaries, the Main, Neckar, and others, and has many lakes, including Lake Constance. Wheat, rye, barley, oats, fruit, hemp, vines, and tobacco are grown, and salt and building stone occur.

Until 1771 Baden was ruled by margraves. In that year its several portions were united, and in 1806 its ruler was made a grand duke. Its area was enlarged about this time, and in 1818 a constitution was given to it. In 1866 Baden joined Austria against Prussia, but changed sides as soon as the war was over and became Prussia's friend and ally. In 1871 the state joined the new German Empire.

In 1918 the grand duke Frederick II abdicated and a republic was set up. A new constitution was adopted in 1919. This consists of a president and a small ministry responsible to a parliament of one house. All men and women have the vote.

BADEN. Town and watering place of Austria. On the Schwechat, 17 m. by rly. S.S.W. of Vienna, its sulphur springs and baths attract many visitors. At Meierling, about 4 m. away, the crown prince Rudolf committed suicide in 1889. The most picturesque spot is perhaps the Helenenthal valley. The district has an area of 350 sq. m. The inhabitants of town and district are nearly all Roman Catholics. Pop. 22,217.

BADEN. Town and spa of Switzerland. It stands on the river Limmat, at an alt. of 1,260 ft., 14 m. by rly. N.W. of Zürich. Its sulphur baths, known to the Romans, are visited by sufferers from rheumatism, gout, and lung complaints. Baden was the seat of the Swiss diet during 1426-1712. Pop. 9,215.

The treaty of Baden, signed Sept. 7, 1714, was one of the treaties which ended the War of the Spanish Succession. By it the frontier between France and Germany was restored to its position on the outbreak of war in 1702, France retaining Alsace, but giving up certain fortresses. See Utrecht, Treaty of.

BADEN BADEN. Town and pleasure resort of Germany, in Baden. On the little river Oos, 23 m. by rly. S.S.W. of Karlsruhe, it owes its popularity to its climate, its situation near the Black Forest, and its saline waters. There are a pump room (Trinkhalle), assembly rooms (Konversationshaus), and baths for both sexes. The chief of the older buildings are the parish church, with monuments to the rulers of Baden, and the 15th century castle. Baden was a Roman town, and remains show that the Romans used its waters. Pop. 25,692.

BADENOCH. District of S.E. Inverness-shire, Scotland. Roughly 40 m. by 16 m. in extent and wildly mountainous, it is traversed by the Spey, contains Loch Erioch, and has fine deer forests. It was owned by Robert II's son, the Wolf of Badenoch. The marquess of Huntly now bears the title of Lord of Badenoch.

BADEN-POWELL, ROBERT STEPHENSON SMYTH BADEN-POWELL, 1ST BARON (b. 1857). British soldier. Educated at Charterhouse School, he joined the army in 1876, and as a cavalry officer distinguished himself during the Matabele War of 1896-97. When the S. African War broke out in 1899, he was besieged in Mafeking, and held it for seven months until relieved. He was then made chief of the constabulary in S. Africa, and in 1903 inspector-general of cavalry in the United Kingdom. In 1908 he founded, in Great Britain, the Boy Scouts, of which he became the Chief Scout. In August, 1929, he was made a peer. His writings include The Downfall of Prempeh, 1896; The Matabele Campaign, 1896; Scouting for Boys, 1908; and My Adventures as a Spy, 1915. See Boy Scouts; Scouting.



Lord Baden-Powell
British soldier
Russell

BADENWEILER. Town and pleasure resort of Baden, Germany. On the outskirts of the Black Forest, 27 m. by rly. from Basel, it has a fine climate. Pop. 1,033.

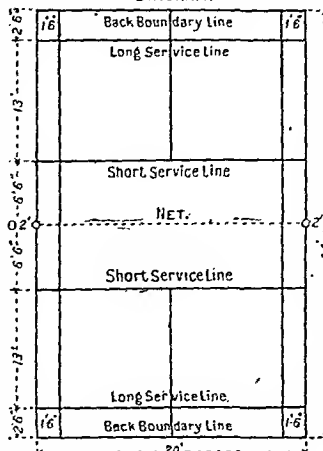
BADGE. Word meaning originally the distinctive mark worn by a knight in battle, e.g. the ostrich feathers of the Black Prince. It is now used for a distinctive mark of any kind, especially one showing rank, proficiency, etc., in the army, navy, and air forces; also membership of certain bodies. Most English sovereigns and princes down to the time of William of Orange had a personal badge.

In addition to the royal badges, such as a rose gules, slipped vert, barbed and seeded, for England, and a thistle proper for Scotland, and the badge of the Prince of Wales, there are also badges of honour for the various orders, such as those of the Bath, Star of India, S. Michael and S. George. In the British army every regiment has a badge, worn as a collar ornament by the officers



Badge issued for
ex-service men

DIAGRAM.



Badminton. Diagram of a Badminton Court. See below

living mainly on insects and roots. The common badger is nearly 3 ft. in length, grey, with a white head striped with black.



BADGER. (Meles taxus). Mammal of the order Carnivora, but a general feeder, living mainly on insects and roots. The common badger is nearly 3 ft. in length, grey, with a white head striped with black. It hurrows in the ground and is harmless and inoffensive, though a fierce fighter when attacked. It lives in woods and among the hills, and spends the winter in a state of partial hibernation. The sport of badger baiting has been prohibited in Great Britain since 1850. Badger hair is used in the manufacture of brushes.

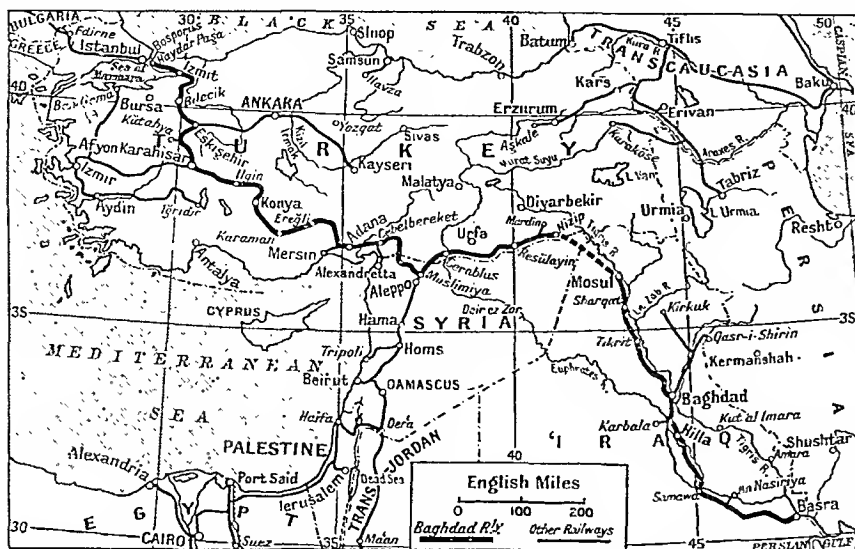
BADMINTON. Game introduced into the United Kingdom in 1873. It somewhat resembles lawn tennis, being played over a net, with a shuttlecock and long-handled racquet strung with catgut. Sometimes a light ball is used instead of a shuttlecock. The game derives its name from the Gloucestershire seat of the duke of Beaufort.

Badminton is played on a space 44 ft. by 20 ft., divided by a net about 5 ft. in height. Two service lines are drawn, one on each side of the net and parallel to it at a distance of 6½ ft.; a central line, connecting the service and base lines, divides those areas into four courts. The shuttlecock is 5 ins long and weighs ½ oz.; the racquet should not weigh more than 5 oz. The shuttlecock is sent backwards and forwards across the net with great rapidity; hence the preference, especially in Great Britain, for a court in a covered building, as a strong current of air interferes with the play. The game is played by one or two persons on a side. Unlike lawn tennis, no faults are allowed in serving. The controlling body in the U.K. is the Badminton Association, founded in 1895. See diag. above; consult Badminton, S. M. Massey, 1911.

BADMINTON. Residence of the duke of Beaufort in Gloucestershire, England. It is in the parish of Great Badminton, on the border of Wiltshire, which has a station on the G.W.R. The house, built on three sides of a square, stands in a park 9 m. in circumference. The Badminton, a London club founded in 1876 (100, Piccadilly), and the Badminton Library, a series of books on sporting subjects, are named after it. See Beaufort, Duke of.



Badge of the Prince
of Wales



Bagdad Railway. The line from the Bosphorus via Aleppo to Bagdad, formerly dominated by Germany, showing the extensions to Basra and to Mosul constructed by Britain after the capture of Bagdad

BADRINATH. Peak of the Himalayas, in the Garhwal district of the United Provinces, India. It is 23,190 ft. high. On its slopes, at an alt. of 10,294 ft., stands the celebrated temple of Vishnu, a conical building crowned by a cupola with a gilt ball and spire surmounting it. It is a place of pilgrimage.

BAEDEKER, KARL (1801-59). German publisher. The son of Gottschalk Baedeker (1778-1841), a bookseller in Essen, where he was born Nov. 3, 1801, he first started in business in Coblenz in 1827. In 1839, by an arrangement with the London publishing house of John Murray, he brought out a small guide book on Holland, Belgium, and the Rhine. This was the precursor of the long list of similar works. The business was removed to Leipzig in 1872. Baedeker died Oct. 4, 1859.

BAFFIN, WILLIAM (d. 1622). An English navigator and explorer. Born in London about 1584, he took part in an expedition in 1612 to Greenland for the discovery of the north-west passage, and in 1613-14 was in command of the English whaling fleet off Spitsbergen. In 1615, under Bylot, he acted as pilot of the *Discovery* in another search for the north-west passage, during which voyage he explored the bay that bears his name. In 1620 he sailed to the E. Indies, and on Jan. 23, 1622, was killed at Ormuz.

BAFFIN BAY. Inland sea of N. America. Within the Arctic Circle, between Greenland and Canada, it opens S. through Davis Strait, N. through Smith Sound and Kennedy and Robeson Channels, and N.W. through Lancaster and Jones Sounds. Whales, seals, and bears abound. About 825 m. long, it has an average breadth of 280 m. and a maximum depth of 6,890 ft.

Baffin Island lies W. of Baffin Bay and Davis Strait, and largely within the Arctic Circle. It is mountainous, extremely indented, and barren. After Australia and Greenland, it is the largest in the world, its area being about 237,000 sq. m. It is uninhabited except for a few Eskimos.

BAFFLE. A plate of a non-resonant material, such as wood, used in a cone-type or moving-coil loud speaker in place of a horn. By means of the baffle the lower sound vibrations are made more audible.

BAGAMOYO. Town and harbour of Tanganyika Territory, E. Africa. It is opposite the island of Zanzibar, between Dar-es-Salaam and Tanga. Before the construction of railways it was the principal starting point

for caravans to the interior. It is now the capital of a district of the same name, which produces oranges, lemons, citrons, and other fruits. On Aug. 15, 1916, it was occupied by British naval forces. Pop. 12,000.

BAGATELLE. Indoor game. Notwithstanding the spelling, it is probably not of French origin, but more likely an improvement upon shovell board.

The oldest and most popular form of bagatelle is played upon a table 10 ft. in length and 3 ft. in width. The bed of the table is of slate, covered with green cloth like a billiard table. The top of the table forms a semicircle, and that and the sides are fitted with rubber cushions. At the top of the table, let into the slate bed, are nine holes or cups, numbered 1 to 9. Some tables are fitted with pockets also, while others have neither cups nor pockets.

In the cannon game three balls are used as they are at billiards, and the method of scoring is the same, a cannon counting two points, while the game is usually from 21 to 50 points up. In another form of the game nine balls are used. Each striker in turn has charge of the whole nine. His object is to hole or cup as many as he can at a break. See Billiards.

BAGDAD OR BAGHDAD. City of Iraq (Mesopotamia). It stands on the Tigris, about 300 m. from the Persian Gulf, and is the capital of a province covering 54,500 sq. m.

Girt with date palms, its mass, from which rise many minarets and towers, is imposing from the outside, but its streets are narrow and its houses mean, the better part being on the E. side of the river. Among its old buildings are the Gate of the Talisman and

the tomb of Zobaida, the wife of Haroun-al-Raschid; its colleges, once renowned, are crumbling into ruins. New buildings include the British Residency and King Feisal's palace.

Recent developments in communication have made Bagdad the great distributing centre for Iraq. It exports wool, gums, galls, opium, dates, skins, hides, and carpets. Its imports include Manchester and Indian cotton goods, coffee, sugar, indigo, pepper, and tobacco. The city is an important link in the air route from Europe to India and has an aerodrome. Pop. about 180,000.

Bagdad was built in 763 on the ruins of the ancient Ctesiphon and Seleucia by the Abbasid caliph Al Mansur, and within a few years it reached a height of splendour under Haroun-al-Raschid. The Turks occupied it in 1638.

Bagdad came into prominence in connexion with the British campaign in Mesopotamia in the Great War. Following his capture of Kut in 1916, General Townshend advanced up the Tigris with Bagdad as his objective, but was forced to retreat. On Feb. 24, 1917, General Maude recaptured Kut, pursued the retreating Turks and, after several engagements, finally compelled them to evacuate their last positions in front of Bagdad, which he entered on March 11. Since then the British have improved the city, which now has a School of Archaeology. Consult Bagdad during the Abbasid Caliphate, G. le Strange, 1900; The Long Road to Bagdad, E. Candler, 1919.

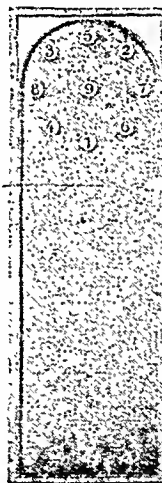
BAGDAD RAILWAY, THE. Railway line in western Asia. The name is generally applied to the whole line running from Haydar Pasa, on the Bosphorus, across Asia Minor and N. Mesopotamia towards Bagdad, although the western part of it from Haydar Pasa to Konya belongs to the system of the Anatolian Rly., the Bagdad Rly. being planned to extend the former.

The length of the line with branches as originally projected was upwards of 1,500 m., the main route going S.E. to Adana, thence almost due E. to Aintab and Biredjik, and S.E. to Mosul, and then nearly due S. along the Tigris to Bagdad and Basra. Germany took the lead in financing and carrying out the scheme, but the Great War interrupted it, and made changes in its ownership necessary.

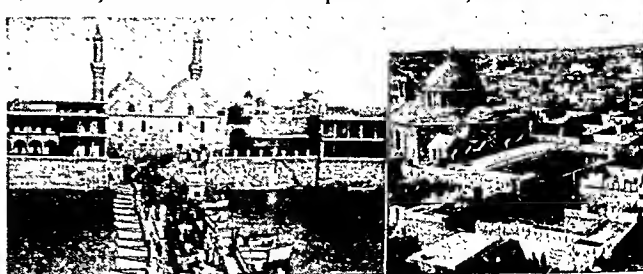
In Mesopotamia construction was proceeded with by the British after the capture of Bagdad in 1917, lines being built from Bagdad east and west. Parts also were built S. of Bagdad towards Basra, and some progress was made N. of Samarra, towards Mosul. By Oct., 1919, the Bagdad Rly. system had more than 1,200 m. in operation.

After the war extensions were made S. from Bagdad to Basra, and from the former N. to Sharqat and thence to Mosul. The line from Haydar Pasa to Basra has a gauge of 4 ft. 8½ ins., but portions built by the British in Mesopotamia are light rlys.

BAGEHOT, WALTER (1826-77). British economist. Born at Langport, Somersetshire, Feb. 3, 1826, son of a banker and shipowner, he was called to the bar, and then became a partner in his father's business. He wrote for *The Prospective Review*, and was co-editor



Bagatelle board



Bagdad. Left, boat bridge across the Tigris constructed after the British occupation in 1917 and called after General Maude. Right, characteristic flat-roofed houses

with R. H. Hutton, 1855-64, of The National Review. In 1858 Bagshot married the eldest daughter of James Wilson, founder of The Economist, which he edited from 1860 until his death. His English Constitution appeared serially in The Fortnightly Review before its issue in book form in 1867. Physics and Politics, an attempt to apply the principles of natural selection and inheritance to political society, appeared in 1872, and Lombard Street, a Description of the Money Market, in 1873. He died at Langport, March 24, 1877.

BAGGARA (cowherds). African Arabs mainly in S. Kordofan. Claiming unmixed descent from Beduin Moslems, their dark brown skin and fuzzy-wuzzy mop-like hair betoken Hamite-negro infusion.



Baggara. A typical warrior of the Eastern Sudan

BAGIRMI. Country of Africa. Lying S.E. of Lake Chad, it forms the Bagirmi circumscription of French Equatorial Africa. The Bagirmi country extends some 250 m. N to S, and about 170 m. W. to E. The pop. is estimated at about 150,000, but is much larger if former vassal states are included. The surface is generally flat, and is watered by the Shari and Logone rivers and their tributaries.

The country is ruled, under the French, by a sultan residing at Massenia, formerly called Chckna, the former capital. The sultan pays tribute to the French. There is also a sultan at Melfi.

BAGNÈRES-DE-BIGORRE. Town and inland watering-place of France, in the department of Hautes-Pyrénées. Situated on the Adour 13 m. by rly. S.S.E. of Tarbes, it owes its popularity to its hot mineral springs and magnificent scenery. Pop. 8,261.

BAGNÈRES-DE-LUCHON. Town and inland watering-place of France, in the department of Haute-Garonne. In a valley of the Pyrenees, a few miles from the Spanish frontier, and a tourist centre for the Central Pyrenees, it has hot sulphur springs, a bathing establishment, and a casino. Pop. 3,415.

BAGNIGGE WELLS. Former London pleasure garden. It was in King's Cross Road, once Bagnigge Wells Road. The place became fashionable after the discovery here, in 1757, of a chalybeate well. Later the tea gardens, with dancing, etc., became popular attractions.

BAGPIPE. Musical wind instrument. It has a wind reservoir, filled by the breath, and the sound is produced by reed-tongues in pipes, several providing the drone, while one, called the chanter, governed by finger-holes, gives the melody.

A pipe with the bag attached was one of the earliest musical instruments in Europe, and was known in Asia. In Italy it is shown on a famous coin of the days of Nero (A.D. 54-68). The Lincolnshire bagpipe is mentioned by Shakespeare. The Northumbrian pipe was identical with the Lowland Scottish instrument. It was blown by means of bellows, and, like the Highland pipe, had first one and then two drones. The third or great drone and the great size of the whole instrument in its latest stage apparently originated in the Highlands. The Irish pipe is scientifically the most complete form. It is blown with a bellows by a performer who is seated, while the Highland pipe always stands or walks up and down.

The pipes were as popular in the Lowlands as in the Highlands. One or more pipers were employed by every burgh. Perth had its town piper as late as 1837. The office, like that of the clan pipers, was hereditary.



bahamas. Group of coral islands in the W. Atlantic, the first land sighted by Columbus on his voyage of discovery in 1492

BAGSTER, SAMUEL (1772-1851) English publisher. Born and educated at Northampton, he started business in London in 1794, and was the first to supply cheap and portable polyglot Bibles, with notes, to which the patent of the universities and the king's printer did not apply. The first of his many polyglot editions was the English Version of the Polyglot Bible, 1816, containing more than 60,000 parallel references. He died March 28, 1851.

BAHADUR SHAH. Title of two Mogul emperors of Hindustan. The first, named Muazim, was the son of Aurangzebe. On his father's death he defeated his brother Azam, and, adopting the title of Bahadur Shah, was emperor from 1707 to 1712. Bahadur Shah II was nominally emperor of Hindustan at the time of the Mutiny. He was living in Delhi when the mutineers hailed him as their ruler. He was taken prisoner and tried, his sentence of death being commuted into one of transportation. He died at Rangoon, Nov. 7, 1862.

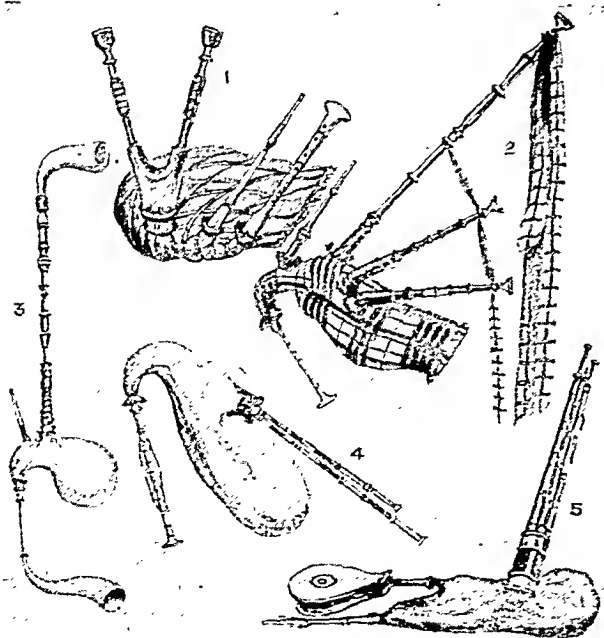
The word bahadur means hero or champion. To-day it is used in India for European officers or high officials as a mark of respect.

BAHAMAS OR LUCAYOS (Span. Los Cayos). Group of islands in the British West Indies. They extend some 650 m. between Florida and Haiti, cover 4,400 sq. m., and have a pop. of about 60,000. The chief islands are New Providence, Great Abaco, Grand Bahama, Eleuthera, Andros, San Salvador or Cat, Acklin, Long Island, Great Inagua, Crooked, and Mayaguana. Geographically the Caicos and Turks Islands belong to the Bahamas, but politically they form a dependency of Jamaica.

The islands are of coral formation. The soil, though poor, produces oranges, lemons, pineapples, and other fruits. Sponge and turtle fisheries are carried on. Sisal and sponges are the mainstay of the islands. Nassau, on New Providence, is the seat of government, and has a wireless station.

The Bahamas were the first land discovered by Columbus in 1492. Settled by the British in 1629, their possession was frequently disputed by the Spanish until their cession to Great Britain in 1783.

The Old and New Bahama Channel, two straits communicating between the Gulf of Mexico and the Atlantic, separate Cuba and Florida respectively from the Bahamas.



Bagpipe. 1. Specimen dated 1409. 2. Modern Scots bagpipe. 3. Old German, c. 1693. 4. Northumbrian pipe. 5. Irish pipes, with bellows attachment

BAHAWALPUR. Native state of India in the Punjab. Bounded N.W. by the Sutlej and Indus rivers and S. by the Rajputana Desert, and with an area of 15,000 sq. m., it produces cotton, sugar, and indigo. The capital, Bahawalpur, is near the left bank of the Sutlej, 69 m. by rly. S. of Multan. The ruler is the nawab and is entitled to a salute of 17 guns. Pop. state, 731,191, mostly Mahomedans: town, 13,494.

BAHIA OR SÃO SALVADOR. Seaport and city of Brazil. On the Bahia de Todos Santos (All Saints' Bay), it has an excellent harbour and is the centre of rly. and telegraph systems.

The seat of an archbishop and formerly the metropolis of the Brazilian Church, it has a handsome marble cathedral, an archiepiscopal palace, numerous churches, a university, museum, and library. Settled in 1510, it was the capital of Brazil from 1549 to 1763. Pop. about 320,000.



Bahia. Cathedral and School of Medicine in the Praça 15 de Novembro

BAHIA BLANCA (Span. white bay). City and seaport of Argentina. On the Naposta, 31 m. from its mouth in the bay, and 425 m. by rly. S.W. of Buenos Aires, it is served by the B.A. Gt. Southern, the B.A. and Pacific, the Rosario and Puerto Belgrano, and other rlys. There are four subsidiary ports. Puerto Belgrano, which has been taken over by the Argentine Government; Puerto Militar, the naval station of the Argentine; Puerto Galvan (B.A. and P. Rly.); and Puerto Ingeniero White (B.A.G.S. Rly.). The harbour is growing in importance and serves the rich farming area of the neighbouring provinces by exporting wheat and wool. The town has a wireless station. Pop. 44,145.

BAHR. Arabic name for a body of water. The Red Sea is the Bahr-el-Yemen, and the Dead Sea the Bahr-Lut.

The Bahr-el-Abiad, or White Nile, is the river from the junction of the Bahr-el-Jebel and the Bahr-el-Ghazal to its confluence with the Bahr-el-Azrek, or Blue Nile, at Khartoum. The Atbara is the Bahr-el-Aswan, or the Black Nile. The Bahr-el-Ghazal gives its name to a province of the Anglo-Egyptian Sudan, which has an area of 114,000 sq. m. See Nile.

BAHREIN ISLANDS. Group of islands in the Persian Gulf, 20 m. off El Hasa, Arabia. Bahrein, the largest, is 20 m. long and 10 m. wide. Manama, on Bahrein, the capital and chief port, has a pop. of 25,000, and Muharrak, on the island of the same name, has 25,000 inhabitants. The pop. of the group is about 100,000, chiefly Persians and Arabs.

The islands are ruled by a native sheikh, under British protection. In 1927 Persia claimed them, but the claim was disallowed. They produce dates and a fine breed of white donkeys. The pearl fisheries are less valuable than formerly. The islands contain many thousands of conical tombs.

BAIAE (mod. Baia). Ancient Italian town, in Campania. Situated on a bay 10 m. W. of Naples, its natural beauty and hot sulphur springs make it a favourite resort of the Roman emperors and the wealthy. Here Julius Caesar, Marius, Nero, and Alexander Severus built villas, and Tiberius and Hadrian died. It was notorious for its luxury.

BAIKAL (Mongolian Dalai Nor). Largest fresh-water lake in Asia and sixth largest in the world. In S. Siberia, enclosed by the

Baikal Mts., it is 390 m. long, from 18 m. to 60 m. broad, and covers an area of about 14,000 sq. m.; its altitude is about 1,560 ft. above sea level, and soundings have shown a maximum depth of over 5,000 ft. The Selenga is the largest river flowing into it, the Lower Angara carries its outflow to the Yenisei, and Olkhon is its largest island. Salmon, sturgeon, seals, and herrings are caught. The construction in 1904 of a line skirting the S. end of Lake Baikal completed the Trans-Siberian Rly.

BAIL (Lat. baiulare, to carry, take charge of). When a person has been in custody and is released for a time, but is bound to come up to answer the charge at a future date, very often one or more persons undertake, under a pecuniary penalty, that he shall be forthcoming at the proper time. This is called admitting to bail. The surety or sureties have to sign a recognizance binding themselves to pay to the king the sum named if the accused absconds, i.e. the bail is estreated.

BAILDON. Urban dist. in Yorkshire (W.R.). It is 41 m. N. of Bradford, on the L.M.S. Rly., and is a centre of chemical manufactures. Near is Baildon Hill, with old encroachments. Pop. 8,000.

BAILEY (late Lat. ballium, wall). In architecture, the court of a feudal castle between the outer wall and the keep. The term was originally applied to the wall enclosing such court. In the Norman stronghold there were an outer and an inner bailey; the outer comprised the stables and outhouses of the stronghold, and was separated from the inner by a fortified wall with a gate house; the inner bailey was the area within which stood the keep. See Castle.

BAILEY, SIR ABE (b. 1864). South African mineowner. Born in Cape Colony. Nov. 6, 1864, he became a leading figure in the mining industry, which was developing enormously when he was young. In 1895, for agitating against the Boer rule in the Transvaal, he was sentenced to prison for two years; in 1899-1902 he served in the Boer War and in 1915 in South-West Africa. From 1910-24 he was a member of the Transvaal Legislative Assembly. Sir Abe, who was made a baronet in 1919, did much to found the Institute of International Affairs.

Lady Bailey, a daughter of Lord Rossmore, has made some notable aerial journeys, piloting her own machine.

BAILEY, HENRY CHRISTOPHER (b. 1878). British novelist. Born April 1, 1878, and educated at the City of London School and at Corpus Christi College, Oxford, he joined the staff of The Daily Telegraph in 1901. As an undergraduate he made a reputation by an historical novel, My Lady of Orange. Later novels include: The Gentleman Adventurer, The Highwayman, The Gamesters, The Pillar of Fire, Barry Leroy, and Mr. Fortune Speaking.

BAILEY, PHILIP JAMES (1816-1902). British poet. Born April 22, 1816, his father was the proprietor of The Nottingham Mercury.

He went to Glasgow university, but, instead of becoming a minister, he returned home and worked on a poetic version of the Faust legend. In 1839 this, called Festus, was published anonymously and for many years it had a great vogue. Much new matter was added to it, and in 1889 the 11th edition appeared. Bailey died Sept. 6, 1902.

BAILIE. Scottish form of the word bailiff, corresponding somewhat to alderman in England. A bailie of a corporation is, by virtue of his office, a justice of the peace.

BAILIFF (Lat. baiulus, carrier, person in charge). Word now applied to an official employed by a sheriff to serve writs, carry out distrains, make arrests, collect fines, summon juries, and perform other work of that kind. Every county court has a high bailiff, and under him are bailiffs who do the work of the court. These bailiffs give sureties that they will execute their duties, and are consequently called bound bailiffs, or more popularly bum bailiffs.

In England a bailiff is one who looks after an estate or farm for another. In the Channel Islands the bailiff is a high official. In each of the larger islands he presides over the royal court and at meetings of the states.

A bailiwick is the wick (Lat. vicus) or village of a bailiff, and also the district over which his powers extend.

BAILLEUL. Town of France, in the department of Nord. It lies near the Belgian frontier, 46 m. by rly. S.E. of Calais, and before the Great War, during which it suffered much damage, it had woollen, cloth, and leather manufactures. The town gave its name to the Bailleul family. Captured by the Germans, April 15, 1918, it was regained by the British on Aug. 30, 1918. Its war memorial represents a shattered church, with figure of an angel. After the War it was adopted by Bradford.

BAILLIE, JOANNA (1762-1851). Scottish dramatist. Born at Botwell, Lanarkshire,



Joanna Baillie, Scottish dramatist after Sir W. Newton

the daughter of a professor of divinity, she passed most of her life in London. Her writings include nine Plays on the Passions in three volumes. Her tragedy, De Montfort, was produced in London in 1800, Mrs. Siddons and John Kemble appearing in it, and The Family Legend in Edinburgh in 1810. She died Feb. 23, 1851.

BAILLIESTON OR CROSSHILL. Town of Lanarkshire, Scotland. It is 8 m. E. of Glasgow, on the L.M.S. Rly., and is a mining centre. Pop. 13,390.

BAILMENT. In law, the delivery of a chattel by one person, the bailor, to another, the bailee, to be handed over to a third person, or to be returned to the bailor in a certain event. Thus, a carrier is bailee of goods carried, and a pawnbroker of goods pawned. A borrower, except of money or consumable goods, is the bailee of goods borrowed.

BAILY, FRANCIS (1774-1844). A British astronomer. He was born at Newbury, Berkshire, April 28, 1774. After being on the London Stock Exchange, in 1825 he retired with a fortune, and fitting up an observatory at his house in London, devoted himself to astronomical study. His estimate of the weight of the earth is accepted as a close approximation to the truth. He died Aug. 30, 1844.

BAILY'S BEADS. During the solar eclipse of May 15, 1836, Baily discovered the phenomenon known as Baily's Beads. The phenomenon arises from the fact that the surface of the moon is diversified by mountains; its edge as seen from the earth is thus not a perfect circle but a jagged one. In a total eclipse of the sun the moon gradually obscures more and more of the sun's surface until only a thin crescent remains; at the last moment before disappearance this crescent breaks up into a number of bright points or beads. They are parts of the sun's edge left visible by the lunar inequalities and magnified by irradiation.

BAINES, EDWARD (1774-1848). British journalist and politician. Born at Walton-le-Dale, in Lancashire, Feb. 5, 1774, and apprenticed to a Prestou printer, he became



Philip J. Bailey, British poet Elliott & Fry

proprietor of The Leeds Mercury in 1801. He was Liberal M.P. for Leeds 1834-41, and died Aug. 3, 1848, being given a public funeral. His second son, Edward (1800-90), was M.P. for Leeds 1859-74, and was knighted in 1880. He wrote a Life of his father.

BAINSIZZA PLATEAU. Here in Aug., 1917, a battle was fought between the Austrians and the Italians. After a bombardment on Aug. 18 of the whole Austrian positions the Italian infantry were launched N.E. from Plava and got across the Rohot, a small tributary of the Isonzo, at the foot of the Bainsizza plateau. From Canale, N.E. of Plava, Italian forces captured the commanding height known as Kuk 711.

On Aug. 21 the turning movement from Kuk 711 was completed, and next day the Italians were marching W. into the Bainsizza plateau. On Aug. 24 they captured Monte Santo. Part of the second army was then marching across the Bainsizza plateau. Owing to increasing Austrian resistance the battle died down.

BAIRAM OR **BEIRAM.** Turkish and Persian word for the Moslem three-day festival which succeeds the fast of Ramadan. The name is also given to the four-day festival celebrated seventy days later, in the last month of the Arabic year, in memory of Abraham's sacrifice of Isaac. As the Mahomedan year is lunar, in thirty-three years each month runs through all the seasons.

BAIRD, SIR DAVID (1757-1829). British soldier. Born at Newbyth, Scotland, Dec. 6, 1757, he entered the army in 1772 and proceeded to India as a captain in the 73rd regiment in 1779, remaining there until 1799, when, as a major-general, he led the detachment which stormed Seringapatam. The expedition sent from India to Egypt to trap the French army left by Napoleon was under his command, and in 1801 he made his brilliant march from Kossier across the desert to the Nile. He was made a baronet in 1810, and in 1820 became commander of the forces in Ireland. He died Aug. 18, 1829.

BAIRD, JOHN L. (b. 1889). British engineer. The son of a minister of the Church of Scotland, he was educated at the technical college and university, Glasgow. He invented the television, the first practical apparatus for the instantaneous transmission of scenes over a distance by wire or wireless telegraphy. See Television.

BAIREUTH OR **BAYREUTH.** Town of Bavaria. Standing on the Red Main, about 60 m. by rly. N.E. of Nuremberg, it manufactures cotton and woollen goods, beer, spirits, bricks, and



Bayreuth. Interior and exterior of the theatre built for Richard Wagner. It was opened in 1876

earthenware, and trades in grain. Until 1791 it was the chief town of a little principality ruled by margraves of the Hohenzollern

family. Richard Wagner lived and was buried here, as were Franz Liszt and Jean Paul Richter. The chief Wagner memorial is the theatre about a mile away, built, with the co-operation of Ludwig II of Bavaria, on lines suggested by Wagner. The Bayreuth Festival, a musical festival in honour of Wagner is held periodically. There was a prisoner-of-war camp here during the Great War. Pop. 35,306.

BAIRNSFATHER, BRUCE (b. 1887). British artist and soldier. Born at Murree, India, in July, 1887, he became a civil engineer. He served in France, and won a reputation by his humorous sketches in black-and-white of life at the front, which first appeared in The Bystander and were afterwards published in volumes entitled Fragments from France. His creations, Old Bill and his two companions, figured in a play, The Better 'Ole.

BAJAN OR **BEJAN.** Name given in medieval universities to new undergraduates or freshmen. Surviving in St. Andrews and Aherdeen, it is supposed to come from the French bec jaune, yellow beak or young bird.

BAKEHOUSE. Place where bread is baked. In Great Britain there are special regulations about bakehouses. Like other factories they must be kept clean and their water supply must not be subject to contamination. In addition no bakehouse may be underground unless by special permission. No place on a level with a bakehouse and forming part of the same building may be used as a sleeping place unless separated from the bakehouse by a complete partition and thoroughly ventilated.

BAKELITE. Artificial resin-like substance invented by a Belgian chemist, L. H. Baekeland, resident in the U.S.A. It is formed by the combination of phenols and formaldehyde, and under the influence of heat becomes a hard, insoluble, infusible substance resisting in a high degree chemical and mechanical agents. Bakelite is used for making ornaments, beads, buttons, pen-holders, umbrella handles, etc. Paper impregnated with a liquid form is used for many electrical insulating purposes.

BAKER. Lake of North-West Territories, Canada. It is the lowest of an extensive system of lakes and rivers, forming the N.W. corner of the drainage area of Hudson Bay (approx. 100,000 sq. m.), into which the lake outflows by Chesterfield Inlet. Its area is 1,029 sq. m.

There is a volcanic, snow-capped and forested mt. in Washington, U.S.A., W. of the Cascade range, called Mount Baker.

BAKER, SIR BENJAMIN (1840-1907). British engineer. Born at Keyford, Somerset, March 31, 1840, Baker in 1861 joined the staff of the engineering firm, under Sir John Fowler, of which he became partner in 1875. He was actively concerned with Fowler in the construction of the London underground rlys., 1861-9, and the Forth Bridge, 1883-90. In Egypt he was consulting engineer for the dam at Assuan, 1898-1902, and similar enterprises, and he designed the vessel that carried Cleopatra's Needle to London. In later life he was associated with Sir J. Wolfe Barry. Knighted in 1890, he died May 19, 1907.

BAKER, NEWTON DIEHL (h. 1871). American politician. He was born at Martinsburg, West Virginia, Dec. 3, 1871, and



Newton D. Baker, American politician

from 1902 to 1912 was city solicitor of Cleveland, and for four years its mayor. A democrat in politics, in 1916 he was appointed secretary of war by President Wilson, and he was chiefly responsible for the training and dispatch of American troops to France.

BAKER, SIR SAMUEL WHITE (1821-93). British explorer. In 1861, accompanied by his wife, a Hungarian, he started from Cairo on a journey of exploration into Central Africa, chiefly with a view to discovering the sources of the Nile. At Gondokoro, Feb. 1863, he met Speke and Grant. Hearing from them of the supposed existence of another immense lake besides Victoria Nyanza, which they had discovered, Baker proceeded on his journey, and on March 14, 1864, sighted the new sheet of water, which he called Albert Nyanza. He returned to Khartoum in May, 1865, and in 1866 was knighted. In 1869 he was commissioned by the khedive, and with the rank of pasha organized a successful expedition to the Upper Nile to suppress the slave trade. His works include: The Nile Tributaries of Abyssinia, 1867; Ismailia 1874; Wild Beasts and Their Ways, 1890. He died Dec. 30, 1893.



Sir S. W. Baker, British explorer

BAKERLOO. Name given to the London electric underground railway between Waterloo and Baker Street. The first section of the line was opened in 1906, and extensions were afterwards made, notably to Watford. It is part of the system of electric rlys controlled by the Underground Electric Rlys. Co.

BAKERS' COMPANY, THE. London city livery company. A company of white bakers existed in 1307, and the guild of white and brown bakers was incorporated in 1509. A separate charter was granted to the brown bakers in 1622, but the two were united again in the second half of the 17th century. Bakers' Hall, Harp Lane, E.C., was burnt in 1715, rebuilt in 1719, and restored in 1825.

BAKEWELL. Urban district and market town of Derbyshire. It stands on the Wye, 25 m. N.W. of Derby by the L.M.S. Rly. The old cruciform church of All Saints, mentioned in Domesday, has a fine octagonal spire and contains monuments of the Vernon and Manners families. In the churchyard is a cross dating probably from the 8th century. The grammar school was founded in 1637, and there are almshouses of earlier date. Bakewell's chalybeate spring is noted. Haddon Hall and Chatsworth are in the vicinity. Market day, Monday. Pop. 3,000.

Bakewell pudding is a sweet pudding named from this town. The foundation of it is pastry which is covered first with jam, and then with a crust made of flour and yolk of egg. It is garnished with castor sugar and white of egg beaten together into a froth.

BAKHUISEN OR **BACKHUYSEN, LUDOLF** (1631-1708). Dutch painter and engraver. At the age of 28 he went to Amsterdam, where he became a pupil of the landscape painter, Albert van Everdingen. But he virtually abandoned landscape in favour of shipping subjects. He is represented in the National Gallery and in the Louvre.

BAKONY WALD OR **BAKONY FOREST** (Magyar, Bakonyerdő). Upland district of Hungary. Running N.E. from Lake Balaton to the Danube near Budapest, it is 70 m. long and 25 m. wide. In its dense forests large herds of swine are fed, and marble is worked.

Baksheesh (Persian, present). Oriental term for a tip or gratuity. Samuel Purchas uses the word in the sense of free or gratis.

BAKST, LEON NICOLAIEVITCH (1866-1924) Russian painter. In 1906 he settled in Paris and devoted his rare imaginative power to the designing of richly decorative stage costumes and settings. He established his reputation by his designs for the productions of the Imperial Russian Ballet in Paris in 1909. He died Dec. 27, 1924.

BAKU. Seaport on the Caspian Sea, capital of the Soviet republic of Azerbaijan. It is also the name of a district within the limits of the republic. The town is connected by rly with Batum. 559 m., and Poti, 535 m., on the Black Sea, and has steamer communication with Krasnovodsk, the terminus of the Transcasian Rly. Astrakhan, and other ports. A fine natural harbour has made Baku a commercial centre for merchandise dispatched from the Transcasian provinces and Persia; but it owes its great prosperity almost entirely to the vast petroleum deposits in the neighbourhood. The oil-bearing area covers 2,700 acres. There are also tobacco, flour, and chemical industries.

Baku came into prominence in the last year of the Great War, when a British force, under Maj.-Gen. L. C. Dunsterforce, occupied the town in July, 1918. The objects of the expedition were to prevent Germany obtaining control of the Caspian Sea and to save the oil wells in the district. This force was withdrawn in Sept., but on Nov. 17 the British aided by Russians and Armenians, reoccupied Baku, the British civil administration lasting until Aug., 1919. In 1920 the Russians occupied it and set up the Soviet republic of Azerbaijan, with Baku as its capital. See Azerbaijan; consult also The Adventures of Dunsterforce, L. C. Dunsterforce, 1920. Pop. (including district) 446,832.

BAKUNIN, MIKHAIL (1814-76) Russian anarchist. He belonged to the aristocracy and served in the Guards, 1832-8. Revolted against government methods, he travelled in Germany and Switzerland and associated with revolutionary leaders. In 1847 his property was confiscated, and in 1848-9 he took part in the outbreaks at Berlin and Dresden. Handed over to the Russian government, he was sent to Siberia in 1855. He escaped in 1859 to the U.S.A. and thence to London. In 1869 he founded the Alliance of Social Democracy, a rival organization to the International. In 1872 Marx secured Bakunin's expulsion from the Workmen's International Congress, and the latter retired to Switzerland, dying at Berne, June 13, 1876.

BALA Lake of Merionethshire, Wales. The chief source of the river Dee, it extends 4 m. S.W. from Bala town, and is about $\frac{1}{2}$ m. broad and 530 ft. above sea level.

Bala is also a market town and urban district of Merionethshire. On the Dee at the N. end of Bala Lake, it is 14 m. S.W. of Colwyn by the G.W.R. It has a theological college and a grammar school founded in 1712, and is a resort for tourists and anglers. Market day, Sat. Pop. 1,408.

Bala Series is the name given the uppermost division of the Ordovician system, since rocks of this series are well developed at Bala, N. Wales. They consist of shales, slates, and grits, with beds of limestone and volcanic ash. The series contains a varied brachiopod and trilobite fauna, and abundant remains of cystids. Rocks of the Bala series occupy a large area in the S. of the Lake district, and in the S. of Scotland. See Caradoc; Cystids.

BALAAM. Semi-heathen magician mentioned in the O.T. Despite divine warning, he was bribed by Balak, king of Moab, to curse Israel; but, against his will, uttered

blessings and foretold Israel's triumph over Moab. While serving with Midian against the Israelites he was slain in battle (Num. 22-24; Micah 6: Rev. 2).

BALACLAVA. Village and harbour in the Crimea. On the shores of the Black Sea 8 m. S.W. of Sevastopol it is famous for the charge of the British cavalry, Oct. 25, 1854.

Obeying a bungled order, Lord Cardigan led the Light Brigade a mile and a half along a valley against the Russian guns at the end and beneath a murderous fire from them and from either side. Some of the men reached their goal and cut down the gunners, but only a remnant returned. Others straggled in later, but the brigade had 110 killed and 134 wounded out of a total of 673. See Crimean War.

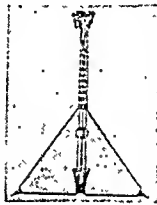


Balaclava helmet

A Balaclava helmet is a form of woollen headgear knitted in one piece and pulled over the head. These helmets were first worn in the Crimea, and vast numbers were supplied during the Great War.

BALALAIKA. Popular Russian musical instrument of the guitar type. It has a triangular body and two, three, or four strings, plucked with the fingers. See Guitar.

BALANCE OF POWER. Name given to a theory of international politics, more or less operative in Europe since the end of the Middle Ages, i.e. about 1450. It means that no one state shall be allowed to become sufficiently powerful to threaten the independence of the others. In other words, there must be sufficient strength, actual or potential, on the side of a country to balance that of its rivals. The foreign policy of Britain, more perhaps than any other country, has been influenced by it. Its greatest manifestation was before the Great War, when the Triple Alliance of Germany, Austria, and Italy was balanced by the entente between Great Britain, France, and Russia. See Diplomacy; Europe; League of Nations.



Balalaika, Russian musical instrument

BALANCE OF TRADE. Term used to indicate the difference in value between the imports and the exports of a country. It is closely concerned with the question of the foreign exchanges, as an adverse trade balance causes the rate of exchange to rise against a country. In 1928 the Board of Trade prepared an elaborate memorandum on the trade balance as it affects Great Britain. Taking into account the items classed as invisible exports, such as interest on foreign loans, earnings of British ships, etc., the conclusion was that in 1927 Great Britain was £96,000,000 to the good. In 1928 the balance in favour of Great Britain was £149,000,000.

BALANCER. In electrical work, a motor generator used for balancing or equalising the load on the two sides of a direct-current three-wire system. Sometimes two sets of storage cells are employed for this purpose.

The balancer consists of two shunt-wound dynamos coupled electrically and connected mechanically. The machine on the side which has the light load is made to drive the machine connected to that with the excess load by varying the resistance in the field windings of the machines, increasing it to run the machine as a motor, and decreasing it for generation of current. See Distribution.

BALANCE SHEET. Document showing the financial position of a company, business or other undertaking. The assets are placed

on the right or credit side, and the liabilities on the left, or debit side, and the two should balance. In the case of a public company a balance sheet must be drawn up, save in exceptional cases, every year. It must be approved and signed as correct by the auditors, and a copy sent to each shareholder and to the registrar of companies at Somerset House. The Companies Act of 1929 made it necessary for directors to give fuller information about their assets in their balance sheets. See Book-keeping; Budget; Company.

BALASINOR. State of India, in the Rewa Kantha agency of Bombay. It has an area of 189 sq. m., and its ruler is a nawab entitled to a salute of nine guns. Balasinor, the capital, is 50 m. N. of Baroda. Pop. 40,563, chiefly Hindus.

BALASORE. Coastal district and town of India, in Bihar and Orissa. The district covers 2,085 sq. m., and produces salt and rice.

The town, the capital of the district, is 118 m. by rly. S.W. of Calcutta; in 1633 it was a considerable port on the Burhabalang river. Later it had English, Dutch, Danish, and French trading factories, but the river mouth has silted up so that the town is now seven m. from the sea. The French still own a plot of 38 acres. Pop. 21,362.

BALATA. Substitute for gutta-percha, used in making belting for machinery. It is made from a gum obtained from the bullet tree, *Mimusops balata*, found in tropical America. See Gutta-percha.

BALATON (German, Plattensee). The largest lake of Hungary. Lying 55 m. S.W. of Budapest at an alt. of 426 ft., it has a length of 50 m., maximum breadth of 10 m., and area of about 250 sq. m. or, with adjacent marshes, often inundated. 420 sq. m. fed by over 40 streams, it has a depth of 20 ft., and discharges into the Danube. The scenery is picturesque, and the lake is famous in Magyar poetry and folklore.

BALAWAT. Ruined city 10 m. E. of Nineveh. There in 1879 the two-leaved door of an Assyrian palace was discovered. It is 27 ft. high, of 4 in. cedar, each leaf being adorned with seven horizontal bronze bands, 8 ft. long, 9 ins. wide. It is now in the British Museum. Each band bears a double row of scenes stamped in repoussé, depicting campaigns of Shalmaneser III.

BALBINUS, DECIMUS CAELIUS (d. 238). Roman emperor. He was one of the two emperors chosen by the Senate in April, 238, as rivals to Maximinus, who had been selected by the soldiers on the Rhine. Balbinus, an orator and a poet, prepared to restore order in Rome, while his more warlike colleague Maximus Papienus set out against Maximinus. He defeated the rebels and was about to march against the Goths when he and Maximus were killed in Rome, Aug., 238.

BALBOA OR PORT OF ANCON. Port of Panama city. It lies at the base of Ancon Hill, at the Pacific end of the Panama Canal, to the opening of which its existence is due. Its harbour is approached by a channel 4 m. long, 500 ft. wide, and 35 ft. deep at low water. There is no anchorage room, and vessels are moored alongside the wharves. The dry dock is 1,000 ft. long, 29 ft. deep at mean low water, and 110 ft. wide at entrance. The harbour is equipped with floating cranes, coaling plant, and oil tanks. Balboa has a wireless station and railways connecting with Ancon and Panama. It was named after the navigator. See Panama.

BALBOA, VASCO NUÑEZ DE (1475-1517). Spanish navigator. In early life Balboa sailed to the New World and settled in Santo Domingo, but being obliged to flee from his creditors, he joined an expedition to Darien. Of this colony he became ruler. He was

the first European to set eyes upon the Pacific Ocean, Sept. 25, 1513. He named there the Gulf of San Miguel, and took possession of the ocean for the Spanish king. He remained in Darien, but in 1514 was superseded as governor by Pedrarias Davila, by whom in 1517 he was beleheaded.

The chief coin of Panama Republic is the balboa. It is equal in value to the American dollar.



Balboa. Coin showing head of the Spanish navigator

BALBRIGGAN (Gaelic, Brecon's town). Watering place of co. Dublin, Irish Free State. It is 22 m. N.E. of Dublin by the G.N. of Ireland Rly., and has a coastguard station and a small fishing harbour. Its fine hosiery, muslins, calico, and cotton are so noted that the name Balbriggan is used for varieties of cotton knit articles. Market days, Mon. and Sat. Pop. 2,273.

BALBUS. Name of several Roman families. Their two most important members were both Lucius Cornelius Balbus; they were uncle and nephew and natives of Cadiz. The elder was one of Julius Caesar's friends, and was consul in 40 B.C. The younger, who also served Caesar and Augustus, was pro-consul of Africa and a writer.

BALDACCHINO. Canopy borne over the Host in processions of the Blessed Sacrament in the Roman Catholic Church. It consists of a rectangular framework covered with cloth of gold or white silk, and supported by four, six, or eight staves, by which it is carried. The word is derived from Baldaccio, the Italian for Bagdad, which supplied the textile fabrics of which the later canopies were made. The most magnificent example in the world is over the high altar in S. Peter's, Rome, executed by Giovanni Bernini for Pope Urban VIII.

BALDER. Sun god in Norse mythology. In the Icelandic Prose Edda Balder is described as the second son of Odin and husband of Nanna, the moon goddess. Nothing could harm him except mistletoe, so Loki, the mischief maker, having found this out, had a mistletoe twig magically turned into a dart. With this he went to the place where the gods were throwing weapons at Balder to prove his invulnerability, and persuaded Hoder, Balder's blind brother, to join in the game by throwing the mistletoe, and so Balder was killed.

BALDMONEY. Variant name for kinds of gentian. It is also given to an umbelliferous plant, *Meum athamanticum*, found on mountain pastures. The latter is used in medicine. See Gentian.

BALDNESS. In mankind, one of the natural changes associated with advancing years. Sometimes, however, it occurs prematurely, and it may even be present at birth. In the morbid condition known as alopecia universalis, or complete baldness, there is total absence of hair, including the eyebrows, eyelashes, moustache, beard, and axillary and pubic hair.

Premature loss of hair may be the result of severe acute illness, in which case the hair is likely to grow again vigorously when recovery occurs. Chronic diseases, especially syphilis, are often associated with permanent thinning. Skin diseases, particularly scrotho, which may be manifested either by a dry and scurfy condition or by an oily state of the scalp, often cause thinning.

BALDOCK. Urban district of Hertfordshire. It is 37 m. from London and five from Hitchin by the L.N.E. Rly. An ancient place, it has a fine church, S. Mary's, and

was once a market town. Near, in 1925, a Roman cemetery was unearthed, and excavations resulted in some interesting finds, now in the museum at Letchworth. Pop. 3,360.

BALDOVINETTI, ALESSIO (c. 1427-99). Italian painter. Born in Florence, he invented a new, but unsuccessful, method of mixing colours: hence most of his works are badly preserved or have perished. He was more successful in mosaic, and restored the mosaics in the cupola of the baptistery at Florence. He died in Florence, Aug. 29, 1499, and was buried in the church of San Lorenzo.

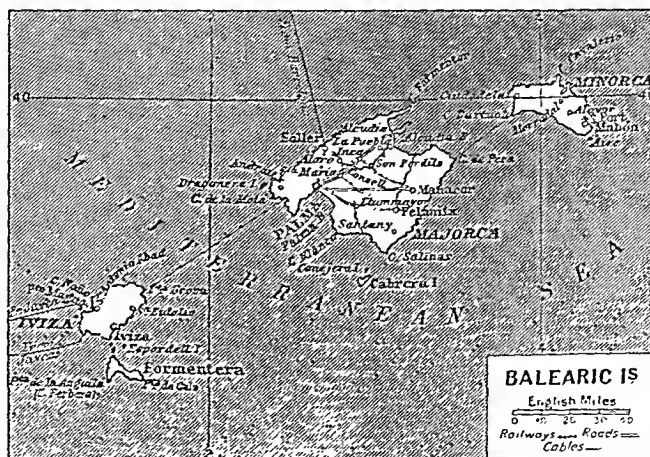
BALDOYLE. Watering place of co. Dublin, Irish Free State. It is 5 m. N.E. of Dublin, and has fishing and limestone industries. Race meetings are held annually.

BALDRIC (Latin *balteus*, belt). A girdle or belt, now rarely used. Usually of leather, it was worn sometimes hanging over one shoulder, across the breast and under the opposite arm, and sometimes round the waist. It was used to support a sword or bugle. The name was also given to the strap round the neck, which held the shield.

BALDUNG, HANS (c. 1480-1545). German painter and engraver. He was a pupil of Albrecht Dürer at Nuremberg. An altar-piece of S. Sebastian, painted in 1507, which formerly in the cathedral at Halle, passed into the Lippmann collection at Vienna, is the first extant painting ascribed to him. In 1509 Baldung settled at Strasbourg, where he died. His masterpiece is the chief altar-piece in the cathedral at Freiburg. His reputation rests chiefly on his designs for engraving, of which specimens are preserved in galleries at Berlin, London, Paris, and Florence.

BALDWIN. Name of two Latin emperors of Constantinople or Romania. As count of Flanders Baldwin I took part in the crusade in which Constantinople was captured in 1204. He was chosen ruler of the new realm, but was taken prisoner by the Bulgarians while besieging Adrianople in April, 1205, and died in prison.

Baldwin II (1217-73) was the son of the emperor Peter and nephew of Baldwin I. He became emperor in 1228, when only a boy. John of Brienne, king of Jerusalem, was chosen regent, and in 1234 Baldwin married his daughter. His reign ended when Michael Palaeologus took Constantinople in 1261 and the Latin kingdom ended. See Romania.



Balearic Isles. Possessing a chequered history of over 2,000 years, these Mediterranean islands have been Spanish since 1503. See p. 182

Baldwin was also the name of four kings of Jerusalem. Baldwin I was the brother of Godfrey of Bouillon and went on the first crusade. He was succeeded in 1118 by his nephew, Baldwin II.

BALDWIN, STANLEY (b. 1867). British statesman. Born August 3, 1867, son of Alfred Baldwin, head of a large engineering firm, he was educated at Harrow and Trinity College, Cambridge. He succeeded his father as M.P. for the Bewdley division in 1908, and became parliamentary secretary to Bonar Law in December, 1916. A junior lord of the treasury, January, 1917, Baldwin was promoted joint financial secretary to the treasury in June of that year. Made a privy councillor in 1920, he entered the coalition cabinet as president of the Board of Trade, 1921. On the downfall of the Lloyd George administration in October, 1922, Baldwin became chancellor of the exchequer. On Bonar Law's resignation in May, 1923, he succeeded as prime minister.



Stanley Baldwin, British statesman
Lalajetle

On fiscal questions he was in favour of some measure of protection, and to get a mandate to carry out his proposals he advised the King to dissolve Parliament on Nov. 15, 1923. A general election was held on Dec. 6. The result was that the Conservative majority of 77 was converted into a minority of 103. In Jan., 1924, he was defeated in Parliament and resigned. Soon, however, Baldwin was again prime minister, as at the general election of Oct., 1924, his party secured a majority of 227. He remained in office until June, 1929, when, having been defeated at the polls, he resigned.

Baldwin's fair-mindedness, generosity and idealism have showed themselves in various ways notably when, during the Great War, he gave one-quarter of his fortune to the national exchequer. Some of Baldwin's addresses and speeches have been published in volumes called *England, 1926*, and *Our Inheritance, 1928*.

His elder son, Oliver Ridsdale Baldwin (b. 1899), was elected Labour M.P. for Dudley in 1929. His book, *Six Prisons and Two Revolutions*, describes his experiences in Asia Minor. He also wrote on political questions.

BALE (late Lat. *bala*, round body). Term for a canvas-covered package generally bound by hoops and fastened under compression. Packages of textile goods in bale canvas without hoops are known as trusses. The bale is a rough measure of the weight of textile raw materials. Raw cotton is bought and sold in quantities denoted as bales. The American cotton bale is 500 lb., Egyptian 700 lb., W. African 400 lb. The Australian bale of raw wool averages 330 lb. and the S. American wool bale 1,000 lb. The bale of raw jute is 400 lb. The word is also used for the packing material.

BALEARIC ISLES (Span.: Baleares, Slingers' Islands). Group of four large and eleven small islands in the Mediterranean. They are situated off the E. coast of Spain, of which they form a province and a military district; area, 1,935 sq. m. Apart from Majorca, the largest, Minorca, Ibiza, Formentera, and Cabrera, the rest are rocky islets. The climate is fine, but variable, and the flora and fauna are similar to those of the nearest mainland. The soil is moderately fertile. The inhabitants are Spanish, with a mixture of Moorish blood. In ancient times they had a reputation as slingers.

The capital and chief port is Palma; Port Mahón, in Minorca, with an excellent harbour, comes next. Ibiza has a natural harbour.

Colonised by the Phoenicians and Carthaginians, the islands were conquered by the Romans, 123 B.C., and by the Moors in A.D. 798, becoming a Moorish kingdom in 1009. Minorca was a British possession 1708-56, and again 1763-82, being ceded to Spain in 1803. Pop. 350,000. There are ancient and prehistoric remains. See map p. 181

BALFE, MICHAEL WILLIAM (1808-70). Irish music composer. He was born in Dublin, May 15 1808, and made a name as an operatic baritone in Paris, as Figaro in Rossini's *Il Barbiere*. He is now chiefly remembered by his light opera. His compositions of this class include: *The Siege of Rochelle*, 1835; *The Maid of Artois*, 1836; *The Bohemian Girl*, 1843; *The Enchantress*, 1845; *The Rose of Castile*, 1857; *Satanella*, 1858; *The Puritan's*



Michael Balfe, Irish music composer

Daughter, 1861; and *The Armourer of Nantes*, 1863. He died Oct. 20, 1870.

BALFOUR, ARTHUR JAMES BALFOUR, 1ST EARL (1848-1930). British statesman. Born at Whittingeham, in Haddingtonshire, July 25, 1848, he was the eldest son of James Maitland Balfour by his marriage with Lady Blanche Mary Harriet Cecil, daughter of the 2nd marquess of Salisbury. He was educated at Eton and Trinity College, Cambridge. At the general election of 1874 Balfour entered the House of Commons for the borough of Hertford in the Conservative interest, and three years later became private secretary to his uncle, Lord Salisbury.

During the 1874-80 Parliament Balfour made little mark. In the next Parliament (1880-85) the Conservative party was in opposition, and he attached himself to the little band of independents, led by Lord Randolph Churchill, who became known as the Fourth Party.

When Gladstone fell and Lord Salisbury formed his first short government in 1885, Balfour was given office as president of the Local Government Board, but he soon changed this post for the secretaryship of Scotland. At the 1885 election he was returned for East Manchester, an association which lasted for 21 years. In 1887 he succeeded Sir Michael Hicks-Beach as chief secretary for Ireland. In Oct., 1891, he became leader of the House of Commons on the death of W. H. Smith. From 1892-5 he was leader of the opposition.

In 1895 the Unionist Party was again returned to power, and Balfour became first lord

of the Treasury and leader of the House of Commons, continuing to hold these two posts down to the end of 1905. From July, 1902, when Lord Salisbury resigned, to Dec., 1905, he was also prime minister to Edward VII.

In 1903 Chamberlain raised the Tariff Reform issue, with which Balfour disagreed. The Unionist Party therefore, was split, and at the general election held in 1906 the Unionists were routed and Balfour was rejected at East Manchester. A seat was found for him in the City of London, and he resumed his old place as leader of the opposition. The struggle that followed the rejection of the Budget in 1909 severely taxed Balfour's physical strength, and in Nov. 1911, he resigned the leadership.

During the Great War, when the first Coalition Government was formed in May, 1915, he went to the Admiralty as first lord, and remained there until the formation of the new Government under Lloyd George in Dec., 1916. He was then transferred to the Foreign Office, and in 1917 was head of the British mission to the U.S.A. During the Paris conference a large share of the most responsible duties of the British delegation fell upon him as secretary of state for foreign affairs. He resigned from the Foreign Office in Oct., 1919, but was lord president of the council 1919-22, and again 1925-29. He died March 19, 1930.

Balfour always cherished a devotion to music, philosophy, and golf. He published in 1879 *A Defence of Philosophie Doubt*, and in 1895 *The Foundations of Belief*. In 1915 he issued his Gifford Lectures under the title of *Theism and Humanism*. His honours included the O.M. and the F.R.S. In 1922 he was made a K.G. and received an earldom. In 1919 he was the chosen chancellor of Cambridge University, and from 1921 to 1928 was president of the British Academy.

Balfour's brothers were men of distinction. Gerald William Balfour (b. 1853), a brilliant classical scholar, was a lecturer at Cambridge. From 1885-1906 he was M.P. for Central Leeds. From 1895-1900 he was chief secretary for Ireland; in 1900-05 president of the Board of Trade, and in 1905-06 of the Local Government Board. His wife, Lady Betty, was a daughter of the 1st earl of Lytton.

Another brother, Francis Maitland Balfour (1851-82) was a distinguished scientist, being professor of animal morphology at Cambridge. He was killed in the Alps in July, 1882. Eustace Balfour (d. 1911), an architect, married Lady Frances, daughter of the 8th duke of Argyll, a lady known as a writer and a champion of women's causes.

BALFOUR, SIR ARTHUR (b. 1873). British manufacturer. Born in London, he entered the steel business in Sheffield, where he founded the firm of Arthur Balfour & Co. He helped to direct other large concerns; also became known as a leader in industrial life generally and filled several important positions. In 1924 he was chairman of the committee appointed to inquire into the export trade, and the reports of this Balfour committee were called the Balfour reports.

BALFOUR, JABEZ SPENCER (1849-1916). British company promoter. He became the principal promoter of the *Liberator*:

Building Society, 1868, and an allied group of similarly speculative concerns. These failed in 1892, with total liabilities of £8,360,000, involving in ruin a large class of small investors. Balfour fled to Buenos Aires in 1893, but was arrested. Sentenced at the Old Bailey in 1895 to 14 years' penal servitude for fraud and conspiracy, and released in 1906, he died suddenly in a train at Newport, Mon., Feb. 23, 1916. From 1880-85 he was Liberal M.P. for Tamworth, and 1889-93 for Burnley. See *Liberator*.

BALFOUR, OF BURLEIGH, ALEXANDER HUGH BRUCE, 6TH BARON (1849-1921). British politician. Born at Kennet, Alloa, Jan. 13, 1849, the son of a commoner, in 1869 he was given the title of Balfour of Burleigh, a title held by his maternal ancestors from 1607 to 1716, when it was forfeited. Educated at Eton and Oriel College, Oxford, he was parliamentary secretary to the board of trade, 1889-92, and from 1895 to 1903 secretary for Scotland, a post he resigned owing to his hostility to tariff reform. He died July 6, 1921.

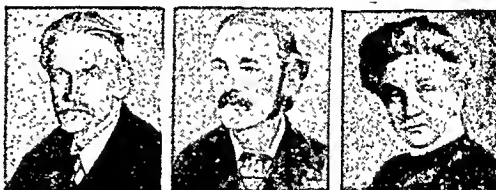


Baron Balfour of Burleigh, British politician

BALFRUSH, BALFURUSH OR BARFURUSH. Town of Persia. It lies 12 m. S. of the Caspian, about 100 m. S.W. of Teheran, on the un-navigable Bhalwal. It has a large trade, by caravan and through its port Meshed-i-Sar, and exports silk, cotton, and rice. Commerce with Teheran and the interior is also carried on by road. Pop. 30,000.

BALHAM. Suburb of London. In the borough of Wandsworth, it is an offshoot of the parish of Streatham and it is fringed by Tooting Common. See London.

BALI. Island of the Dutch E. Indies. It lies E. of Java, being separated by a narrow, shallow strait. With Lombok it forms the residency of Bali and Lombok. The chapel



Balfour: three distinguished members of this family. Left, Gerald Balfour, politician; centre, Francis M. Balfour, scientist; right, Lady Frances Balfour, publicist

Russell

between Bali and Lombok (known as Wallace's line), the main division between Asia and Australasia, has a depth in places of not more than 1,020 ft. Bali is mountainous in the centre, the volcano Gunung Agung being 10,497 ft. high.

In climate, flora, and fauna it resembles Java. Rice, cotton, coffee, sugar, and tobacco are produced. Buleleng is the capital. Area (Bali and Lombok) 4,072 sq. m.; pop. 1,544,952.

BALIEL. Name of a Scottish family, two members of which were kings. It is derived from Bailleul in Normandy and some of its members settled in Scotland before 1200. One of them married into the royal family, and another, John Baliol (d. 1269) and his wife Devorgilla, founded Balliol College, Oxford. Their son, John Baliol (1249-1315), was king of Scotland from 1290 to 1296, when his overlord, Edward I, took him prisoner. Edward Baliol (d. 1367) was crowned king in 1322.

BALK. Town of Afghanistan. Its old name was Bactra, and it is the reputed birth-place and burial place of Zoroaster. In the 3rd century B.C. Bactra, as the capital of Bactria, rivalled Nineveh and Babylon. It was destroyed by Jenghiz Khan A.D. 1220, and is now only a small place. See Bactria.

BALKAN MOUNTAINS (anciently Haemus). Mt. range of S.E. Europe. Traversing Bulgaria from W. to E., with the Stara Planina on the Serbian boundary, it extends



Jabez Balfour, company promoter



Earl of Balfour, British statesman

from the Iron Gates of the Danube to Cape Eminch on the Black Sea. Among the loftiest peaks are Yumrukchal, 7,786 ft.; Kadimlia, 7,478 ft.; and Ambarika, 7,317 ft. Troyan, Rosalita, and Shipka are the best known passes. See Rhodope Mts.

BALKAN PENINSULA. Easternmost of the great peninsulas of southern Europe, formerly called the Illyrian Peninsula. It is bounded N. chiefly by the rivers Danube and Save, E. by the Black Sea and the Sea of Marmara, S.E. by the Aegean, S. by the Mediterranean, and W. by the Adriatic and the Ionian Sea. It is regarded as consisting of Bulgaria and Turkey in Europe on the E., parts of Yugoslavia, Albania and Greece, the total area being about 180,000 sq. m.

Most of the peninsula is mountainous. The central range of the Balkans proper runs through Bulgaria from W. to E.; below this are the southern Balkans and the Rhodope Mts. On the W. are the Dinaric Alps, the Albanian Mts., and the Pindus Mts. The Danube, which receives the Morava, Isker, and other streams, flows to the Black Sea; the Maritsa, Struma, and Vardar are the largest of the rivers falling into the Aegean Sea, and the Narenta, Viosa or Voyusa, and Drina the largest emptying into the Adriatic. The principal lakes are Scutari, Ochrida, and Prespa. The products include wheat, maize, cotton, tobacco, plums, grapes, olives, and mulberries, and cattle, sheep, pigs, and goats.

When Constantinople was taken in 1453 by the Turks, they swept across the land. Before the Great War, mainly as a result of the Balkan Wars, they had lost the whole peninsula except a small portion. See Bulgaria; Greece; Rumania; Yugoslavia, etc.

BALKAN WARS. Two wars fought by the Balkan states in 1912-13. In 1912 Bulgaria, Serbia, Greece, and Montenegro formed themselves into a league with the object of liberating Macedonia from Turkish rule, but each ally had also other aims in view. When, on Oct. 8, Montenegro declared war on Turkey the first war began. Turkey declared war on the other allies on Oct. 17.

There were two main theatres of war, Thrace and Macedonia, but there was also fighting in Albania and elsewhere. In three armies the Bulgars moved to the attack. One invested Adrianople, while the others marched on Kirk Kilisse, which was taken on Oct. 24. Lule Burgas was then captured, and the Turks withdrew within the fortified Chatalja lines.

Meanwhile the Serbians and Greeks had been successful in Macedonia and the Serbians

and Montenegrins in Thrace. On Oct. 23-24 the Serbians defeated the Turks at Kumanovo and occupied Uskub, and after another battle Monastir passed to them on Nov. 18. The Greeks also won two battles, and, forcing the Vardar, took Salonica. The Serbians then reached the Adriatic at Durazzo.

On Dec. 3 an armistice was arranged between Bulgaria and Serbia on the one hand and

On July 10 Rumania intervened. Her troops advanced into Bulgaria unopposed; Turkey saw her opportunity and reoccupied Adrianople without resistance. By July 30 Bulgaria was snrounded. Peace was made on Aug. 10 by the treaty of Bukarest.

BALKHASH. Salt lake of Central Asia. About 120 m. from the Chinese frontier, it is 330 m. long and at its widest 55 m. With an area of some 8,500 sq. m., it is fed by the Ili and other streams, but has no outlet.

BALL, ALBERT (1896-1917). British airman. Born in Nottingham, Aug. 21, 1896, the son of a wealthy business man, he had just entered an engineering business when the Great War broke out. In Oct., 1914, he obtained a commission in the Sherwood Foresters, but was transferred to the Flying Corps, with which he remained until his death. He showed remarkable skill as a fighter, and was rewarded by the M.C., the D.S.O. with bar, and, after his death, the V.C.



Albert Ball, V.C.,
British airman

BALL, JOHN (d. 1381). English priest and social rebel. First heard of at York, and later at Colchester, he was for 20 years an itinerant priest, preaching and organizing the social insurrection which took place under Wat Tyler, 1381. His doctrine was revolutionary, and remarkable for its advocacy of social equality, at that time a novel theory. He adopted for his text the couplet: When Adam delved and Eve span, Who was then the gentleman? He was excommunicated by three successive archbishops of Canterbury, and on the suppression of the rising was hanged at St. Albans, July 15, 1381. The Dream of John Ball, by William Morris, is an appreciation in romance.

BALL, JOHN (b. 1863). English amateur golfer. Born at Hoylake, he won the open championship in 1894. He was amateur champion in 1888, 1890, 1892, 1894, 1899, 1907, 1910, and 1912, and won the Irish open championship in 1893, 1894, and again in 1899.



John Ball,
English golfer

BALL, SIR ROBERT STAWELL (1840-1913). Irish astronomer. Born in Dublin, July 1, 1840, the son of the naturalist Robert Ball (1802-57), in 1874 he became royal astronomer of Ireland. In 1892 he was appointed professor of astronomy at Cambridge. Ball's Treatise on the Theory of Screws, 1900, is a lasting contribution to mathematical science.



Sir Robert Ball,
Irish astronomer

A lucid and popular writer and lecturer on astronomy, he was knighted in 1886, and died Nov. 25, 1913. Consult Reminiscences and Letters, edited by his son, W. V. Ball, 1915.

BALLAD. Narrative song or recital. It is distinguished from purely epic verse by its conciseness, its limitation to a single episode, and its impersonal and elementary dramatic character. Its main appeal is to the stronger or more serious passions; is sometimes painfully tragic, and its function is the production of an impressive dramatic climax.

BALLADE. Verse form of French origin. It was developed to perfection by François Villon, Enstache Deschamps, and Charles d'Orléans, and revived in England in the 19th century, notably by Andrew Lang and



Balkan Peninsula. Map showing the Balkan States, with boundaries as at present constituted, the main railways, cable lines, chief towns and rivers

Turkey on the other, but Greece continued the struggle into Feb., 1913, when the general conflict was renewed.

The features of the second phase of the first war were the successful resistance of the Turks at Chatalja, their loss of Janina to the Greeks on March 6, and of Adrianople to the Bulgars and Serbs on March 25-26. Turkey admitted defeat, and a second armistice was signed at the end of March, except by Montenegro. The first Balkan War was ended on May 30 by the treaty of London, whereby Turkey ceded some of her European territory.

The second Balkan War was fought in 1913 between the Bulgarians on the one side and the Serbians and Greeks on the other. The Balkan League went to pieces as its members quarrelled over the division of the ceded territory. In May, 1913, Serbia and Greece signed a military convention for common action, and on June 29-30 the second war broke out. The Bulgarians suddenly attacked the Greeks, but were worsted and forced to give up Kavalla. They were also beaten by the Serbians in a decisive battle on July 9.

Austin Dobson. The ballade consists of three stanzas, usually of eight lines with identical rhyme arrangement. ababbcc and a fourth stanza, called the envoy of four lines rhymed bcbc. the last line of all four stanzas being the same. It is an excellent poetic medium for expressing delicate fancy.

BALLANCE, JOHN (1839-93). New Zealand statesman. Son of an Ulster farmer, Ballance emigrated to New Zealand. In



J. Ballance, New Zealand statesman

1875 he was chosen a member of the legislature. In 1878 he joined the ministry of Sir George Grey, and was treasurer until 1879. From 1884 to 1887 he was minister for lands and native affairs in Sir Robert Stout's ministry. Leader of the Liberal party from 1889, he became premier in 1891, and was responsible for much radical legislation. He died April 27, 1893.

BALLANTRAE. Seaside resort of Ayrshire, Scotland. On the Stincharr river, 12 m. S.W. of Girvan, it has a pier and small harbour. It has herring and salmon fisheries, and was notorious for smuggling. It was the scene of R. L. Stevenson's Master of Ballantrae. Pop. 1,285.

BALLANTYNE, ROBERT MICHAEL (1825-94) British writer for boys. Born at Edinburgh, April 24, 1825, he was a nephew of James Ballantyne, the printer. After holding a post in the publishing house of Constable of Edinburgh from 1848-55, he devoted himself to literature. He published more than 80 volumes of stories, including *The Coral Island*, *The Lifeboat*, and *The Lighthouse*. Ballantyne died in Rome, Feb. 8, 1894.



R. M. Ballantyne, British author
Fradette & Young

BALLARAT or **BALLAARAT.** City of Victoria Australia. It is 74 m. by rly. N.W. of Melbourne, and is an important rly. junction. Apart from gold mining, it has iron



Ballarat. Start Street, main thoroughfare of a gold-mining centre originally laid out on garden city lines
Courtesy of the Australian Govt.

foundries, woollen mills, flour mills, breweries, and distilleries. It is the seat of Anglican and Roman Catholic bishoprics, has art galleries, a museum, botanic gardens, and a school of mines. Its rise is due to the discovery in 1851 of one of the richest alluvial goldfields in the world. The mines are working auriferous quartz at deep levels. The city and East Ballarat are separate municipalities. Pop. 41,910.

BALLAST (Swed. bar, bare, mere; last, load). Heavy material placed in the bottom

of a ship to steady it. Consisting of iron stone, gravel, or water, it is used when there is not sufficient cargo or other weight carried to bring her to the proper trim for sailing or steaming purposes.

The term is also applied to the sand dropped from balloons for lightening or steadying purposes, and to the gravelly substance used in making roads and as a packing for railway sleepers.

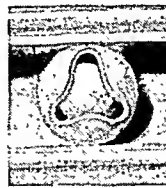
BALLATER (Gael. town on hillside). Burgh and summer resort of Aberdeenshire. It is on the Dee, here crossed by a fine bridge, 43 m. W.S.W. of Aberdeen by the L.N.E. Rly. It was founded in 1770 to furnish accommodation for visitors to the Pannanich medicinal springs. It is the station for Balmoral Castle. Pop. 1,542.

BALLENY ISLANDS. Group of five mountainous islands in Antarctica. They lie 220 m. N. of North Cape, S. Victoria Land. Of volcanic origin, Freeman's Peak, on Young Island, is nearly 12,000 ft. high. They are named after John Balleny, the whale fisher, who discovered them in 1839.

BALLET (Fr. from late Lat. ballare, to dance). Word generally applied to any mimic spectacle accompanied by music. In its Renaissance origins the ballet was essentially a court function. Throughout the next century, at all the royal marriages celebrated at the courts of Paris, Florence, and Milan, a great ballet was produced for the entertainment, not only of the guests, but also when the ballet was in the open, of the populace. This form lasted until the end of the 17th century. Lully (1633-87) introduced women to the ballet stage, and was the first to produce comedy and tragedy ballet.

In Italy the ballet gradually gave way to the opera: in France it existed by the side of opera. It was first introduced into England in the 18th century, and reached its zenith of popularity in the first half of the 19th. A new impetus was thought to have been given to the ballet by a band of Russian dancers, who, headed by Nijinsky and Karsavina, withdrew from the Russian Academy of Dance, under the impresario Sergo Diaghilev, the ballet master Fokine, and the painters Bakst and Benoit. See Russian Ballet.

BALL FLOWER. Architectural ornament. It is a ball almost enclosed by flower petals, and is a characteristic feature of mouldings in the English Decorated Period, where its repetition at short intervals gives points of light to a strip of dark hollow. The windows of the tower of Hereford cathedral and the upper parts of the towers and spires of Lichfield provide fine examples of the use of this kind of ornamental work.



Ball-flower ornament in architecture

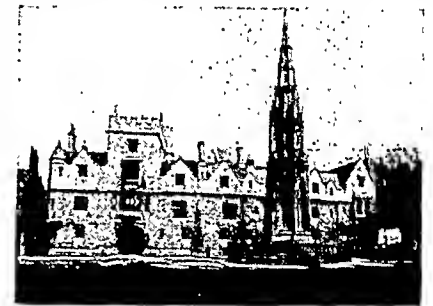
BALLIN, ALBERT (1857-1918). A German shipowner. Born of Jewish parentage in Hamburg, Aug. 15, 1857, Ballin entered business there, and was afterwards in a shipping office in London. On his return to Germany he secured for his firm much emigrant traffic, and in 1886 the business was taken over by the Hamburg-America line, with

which he was afterwards associated. For many years he was the Kaiser's adviser on maritime policy. Ballin's death, announced on Nov. 11, 1918, was attributed to suicide.

BALLINA. Urban district, seaport, and market town of co. Mayo, Irish Free State. On the river Moy, 8 m. S. of Killala by the Gt. Southern Rlys., it has important salmon fisheries. It communicates by two bridges with Ardnaree, its suburb in co. Sligo. Taken by the French, Aug. 25, 1798, it was held by them for three weeks. Market day, Mon. Pop. 4,505.

BALLINASLOE. Urban district and market town of co. Galway, Irish Free State. On the river Suck, it is 93 m. W.S.W. of Dublin by the Gt. Southern Rlys. Its fair (horses, sheep, and cattle) is one of the largest in Ireland, and it holds an annual race meeting in July. Near is Garbally Castle, the seat of the earls of Clancarty. Market day, Sat. Pop. 5,100.

BALLINROBE. Market town of co. Mayo, Irish Free State. It is on the Robe, 3½ m. from Lough Mask, and 15 m. S.W. of Claremorris by the Gt. Southern Rlys. A race meeting is held in Sept. Market day, Mon. Pop. 1,500.



Balliol College, Oxford, looking on St. Giles, with the Martyrs' Memorial to Ridley and Latimer

Valentine

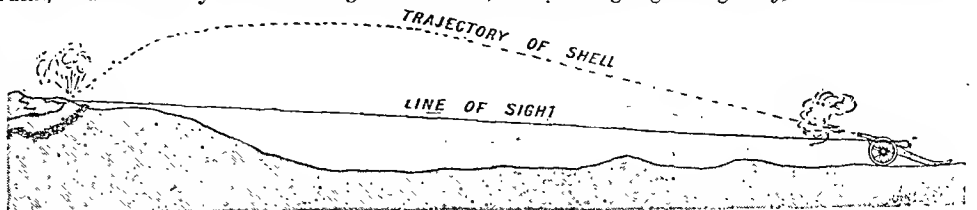
BALLIOL COLLEGE. One of the oldest and most famous colleges of the university of Oxford. It ranks second on the official list. Founded by John Balliol of Barnard Castle in Durham (d. 1269) and his wife



Balliol College arms

Devorgilla between 1263 and 1268, the society consists of a master, twelve fellows, and a number of scholars. Especially during Dr Jowett's mastership, 1870-93, Balliol had a great reputation, and another powerful influence was the philosopher T. H. Green. In 1887 New Inn Hall was incorporated with the college, which occupies a site at the corner of Broad Street and St. Giles. The buildings are mainly modern, and include a large hall, chapel, and library. Alone among Oxford colleges, Balliol has the right to elect its own visitor.

BALLISTICS. (Gr. ballein, to throw). Term used for the theory of the motion of projectiles in a resisting medium such as the air. The loss of velocity of a shell in course of flight varies according to the shape, weight, and diameter of the projectile, and the relationship between the shape, weight, and diameter of a shell is called the ballistic coefficient of the gun. The other force acting on a shell during flight is gravity, and the combined



Ballistics. Diagram showing line of sight and trajectory of projectile from a gun firing with elevation

result of initial velocity, the resistance of the air, and gravity is that the projectile travels on a curved path called the trajectory.

A ballistic test is used for the evaluation of certain properties of explosives, propellants, guns, and projectiles. The power of blasting explosives may be determined in an instrument called the ballistic pendulum, which is a heavy mortar suspended so that it forms the bob of a pendulum. A tamped charge of the explosive is fired from a gun, the muzzle of which is nearly touching that of the mortar, and the deflection of the latter is measured. The ballistic properties of propellants are determined by measuring the pressure caused by their explosion in a gun and the velocity with which the projectile leaves the weapon. See Artillery: Gun.

BALLOON. Bag of impermeable fabric inflated with gas lighter than air. The modern balloon owes its inception to the brothers Montgolfier, who constructed a spherical one, inflated with hot air, in 1783. The hydrogen balloon constructed by Charles and Robert in the same year, which rose to a height of 2,000 ft. and remained aloft for two hours, was the forerunner of the spherical type of to-day. In 1825 Charles Green substituted coal gas for hydrogen. Gay-Lussac (1804) made the first scientific ascent of any note, reaching a height of 11,000 ft. Glaisher and Coxwell in 1862 made a series of ascents for the British Association, on one occasion reaching an altitude of 29,000 ft.

Balloons were used for military purposes during the American Civil War, and a number left Paris during the siege of 1870 carrying passengers, letters, and despatches. England used observation balloons in the South African War. Captive balloons are employed for observation, spotting for artillery, etc. The modern kite-balloon is pear-shaped, fitted at the tapering end with hollow, fin-like air chambers which steady the vessel. The fabric of the envelope is made gas-tight with a solution of rubber. Kite-balloons were used by all armies during the Great War.

The chief race for balloons is the Gordon Bennett Cup. In 1928 the trophy was won outright by the U.S.A. with a flight of 460 miles. The British record is 1,117 miles. See Aeronautics: Airship.

BALLOT (Fr. *ballotte*, little ball). System of secret voting. At first small balls were used in balloting, hence the name, and this method still obtains in electing members to private clubs. In elections of other kinds the usual plan is for the names of the candidates to be printed on a voting paper in alphabetical order, and for the voter to make a cross opposite the name of the person or persons whom he supports. This marking takes place in a private compartment at the local polling station, and the marked paper is folded up and placed by the voter in a ballot box, to which no one has access until the votes are counted. Vote by ballot was first used in England in 1870 and the Ballot Act was passed in 1872. See Election: Vote.

BALPLATZ or **BALHAUSPLATZ**. Square in Vienna, in which was the Austro-Hungarian Foreign Office. Hence, until 1918, the term was frequently used in regard to foreign affairs as a synonym of Austria-Hungary, much as Downing Street is used for Great Britain. The square is in the inner city, not far from the Volksgarten.

BALLYBUNION. Village and watering place of co. Kerry, Irish Free State. It is 9 m. N.W. of Listowel, on the Gt. Southern Rlys., has cliff caves, castle ruins, and a wireless station. A mono-rly. runs to Listowel.

BALLYCASTLE. Seaport, market town, and bathing resort of co. Antrim, Northern Ireland. On Ballycastle Bay, opposite Rathlin Island, it is 68 m. N.W. of Belfast by the

L.M.S. (N.C. of I.) and Ballycastle Rlys. The harbour is choked with sand. It has a wireless station and engages in fishing. Pop. 1,500.

BALLYMENA (Gael. middle-town). Urban district and market town of co. Antrim, Northern Ireland. On the river Braid, it is 33 m. N.W. of Belfast by the L.M.S. (N.C. of I.) Rly. It has linen and flax industries, and dyeing and bleaching works. Near is Ballymena Castle. Market day, Sat. Pop. 11,300.

BALLYMONEY. Urban district and market town of co. Antrim, Northern Ireland. On a tributary of the Bann, 53 m. N.N.W. of Belfast, on the L.M.S. (N.C. of I.) Rly., it has a trade in linen and agricultural produce. Market day, first and third Thurs. in the month. Pop. 3,100.

BALLYMOTTE. Market town of co. Sligo, Irish Free State. 14 m. S. of Sligo on the Gt. Southern Rlys. It has remains of a castle built (1300) by Richard de Burgh, earl of Ulster, and of a monastery. Pop. 930.

BALLYNAHINCH (Gael. town on the island). Market town of co. Down, Northern Ireland. On the river Annacloy, it is 21 m. S. of Belfast, on the Belfast and County Down Rly. Close by are chalybeate springs, with baths. Market day, Thurs. Pop. 1,667.

BALLYSHANNON. Seaport and market town of co. Donegal, Irish Free State. On the Erne estuary, in Donegal Bay, it is 15 m. S.S.W. of Donegal by the G.N. of I. Rly. The harbour is obstructed by a bar and available only for small vessels. There are salmon fisheries and a trade in grain and minerals. Market day, Sat. Pop. 2,170.

BALM (*Melissa officinalis*). Perennial herb of the order Labiatae native of both Europe and W. Asia. The annual stems, about 2 ft. high, and the egg-shaped, wrinkled leaves are hairy. The small white flowers are produced in whorls. The whole plant is fragrant. Bastard balm (*Melittis melissophyllum*), another labiate perennial, is a native of Europe including S. and W. Britain. It has a long, creeping rootstock, and stems one to two feet in height, with oval or oblong leaves and large white flowers spotted with pink or purple.

BALM OF GILEAD. This is a yellowish aromatic gum. Extracted from Arabian and Abyssinian trees, it is valued in the East for its fragrance and medicinal properties, and is often known as Mecca balsam. The N. American tree which produces Canada balsam is sometimes called the Balm of Gilead fir.

BALMACEDA, JOSÉ MANUEL (1838-91). Chilean politician. He was born at Santiago, was appointed a minister of state in 1882, and in 1886 was elected president of the republic. He became unpopular, and in 1891, after he had dissolved congress, civil war broke out. Balmaceda's partisans were defeated near Valparaíso, and he committed suicide.

BALMERINO, LORD. Scottish title borne by the family of Elphinstone from 1604 to 1746. The first lord was a younger son of Robert, Lord Elphinstone. His son John, the 2nd lord, was an enemy of Charles I.

Arthur, son of the 4th baron, became 6th baron on the death in Jan., 1746, of his half-brother. He joined the Jacobites after the battle of Sheriffmuir in 1715 and held a commission in the French army, returning to Scotland in 1733. An officer in the Jacobite army, he was taken prisoner at Culloden, and executed on Tower Hill, Aug. 11, 1746. Balmerino is a village on the firth of Tay.

BALMORAL CASTLE. Royal residence in Aberdeenshire. It stands on the Dee, near Lochnagar, 9 m. W. of Ballater, at an alt. of 926 ft. Bought in 1848 by the Prince Consort, it was rebuilt in 1853-5 in the Scottish baronial



Balmoral Castle. Favourite Scottish residence of three British sovereigns, seen from the Dee

style and became a favourite residence of the queen, from whom it passed to King Edward and then to King George. With adjacent deer forests, the estate covers over 25,000 acres.

BALQUHIDDER. Village of Perthshire, Scotland. On Loch Voil, it has a station 2 m. E. on the L.M.S. Rly. The Braes of Balquhider are associated with Roh Roy, who was buried (1734) in the churchyard. Pop. 875.

BALSA. Name for a raft or float used by S. American Indians. Propelled by sails and oars, it usually consists of two floats made of balsa-tree logs connected by a framework.

BALSAM (Impatiens). Large genus of herbs, rarely shrubby, included in the order Geraniaceae. They are mostly natives of tropical Asia and Africa; a few inhabit Europe, N. America, and S. Africa. The flowers are inverted on their stalks and the sepals are coloured like the petals. The seed capsule bursts at a touch when the seeds are ripe, scattering them with some force.

Several species are cultivated, notably the common balsam (*I. balsamina*) and the giant balsam (*I. roylei*), with a thick stem 10 ft. high, and large purple flowers. The yellow balsam or touch-me-not (*I. noli-me-tangere*) is found wild in a few parts of Britain and Ireland. Balsam is also a term applied to various gum-resins and to the oleo-resinous substances produced by certain trees.

The balsam fir (*Abies balsamifera*) is a coniferous tree of the U.S.A. and Canada. It attains a height of 40 to 60 ft. and is of slender proportions. Its turpentine is very pure and clear, and under the name of Canada balsam is used for cementing optical glasses and for mounting objects for the microscope.

BALTHASAR or **BALTASAR.** Greek form of the Hebrew Belshazzar (q.v.). It was also used in the Middle Ages in naming the three magi—Caspar, Melchior, and Balthasar—who came from the East to Bethlehem (Matt. 2).

BALTIC, THE. Association of London merchants; in full, the Baltic Mercantile and Shipping Exchange. In Elizabethan times merchants trading with Baltic ports were in the habit of meeting at the Virginia and Baltick coffee-house. From the association of such merchants arose the exchange called the Baltic. The modern Baltic is a union, made in 1903, of this association and of the Shipping Exchange. It has about 2,500 members, comprising those who deal in coal, oil, grain, and timber, together with shipowners and shipbrokers concerned in carrying the same. They meet in a building in St. Mary Axe, London, E.C.



Balm. Leaves of this aromatic perennial herb



Balsam. Impatiens noli-me-tangere

BALTIC SEA. Shallow inland sea of N.W. Europe. It is bounded N. by Sweden and Finland, E. by Russia, Esthonia, Latvia, and Lithuania, S. by Germany and Poland, and W. by Denmark and Sweden. The Sound, Great Belt, and Little Belt give it entrance by the

of railway radiate from the city, which has direct steamship communication with the principal Atlantic and European ports. Its harbour, defended by Fort McHenry, has a depth of 27 ft. at the entrance.

Baltimore is the sec of a Roman Catholic archbishop and Protestant bishop. Its canning and preserving industry is very valuable, while ship-building and the manufacture of clothing, cotton and woollen goods, cotton duck, boots and shoes, flour, fertilisers, and tobacco comprise a few of its interests. Among institutions giving higher instruction are Johns Hopkins University, the Peabody Institute, Goucher College, Loyola College, Maryland University, and Morgan College. The Memorial Hall commemorates the Great War. Pop. 794,000.

The city dates from 1729, was named from Lord Baltimore, and was granted its first charter in 1797. In 1918 the area was almost doubled by the incorporation of adjacent districts and now covers 95 sq. m.

The American bird known as the Baltimore oriole has black and orange plumage, the colours of the Baltimores' armorial bearings. The village of Baltimore, co. Cork, Irish Free State, has a school of fisheries founded by the Baroness Burdett-Coutts.

BALTIMORE, GEORGE CALVERT, 1ST BARON (c. 1580-1632). English statesman, father of the founder of the colony of Maryland. Born at Kipling, Yorkshire, he entered Parliament in 1609, and was secretary of state 1619-25, when he resigned on becoming a Roman Catholic and was raised to the Irish peerage. During his secretaryship he obtained a grant of land in Virginia. He died April 15, 1632, before the sealing of the charter, which was issued in favour of his son Cecil, the second baron (1606-75).

BALTISTAN OR LITTLE TIBET. Mountainous region of N. Kashmir, India. Between the Karakoram Mountains and the Himalayas, it is drained by the Upper Indus and its tributaries. Among its many high peaks is

K 2 or Mt. Godwin-Austen, 28,278 ft., the second highest known peak in the world, and it has in Baltoro the largest continental glacier. Iskardo or Skardo is the capital. Pop. 50,000.

BALUCHISTAN. Province of India, bounded N. by Afghanistan and the North-West Frontier Province, E. by Sind and the Punjab, S. by the Arabian Sea, and W. by Persia. Its area is 134,638 sq. m. It consists of British Baluchistan proper (area 9,096 sq. m.), British Agency Territories (area 45,132 sq. m.), and the native States of Kalat or Kelat and Las Bela (area 80,410 sq. m.). Pop. 799,625.



Baluchistan. Wandering native musicians with typical instruments

The chief town is Quetta. The country generally consists of barren mts., deserts and stony plains. The climate is subject to extremes of heat and cold, and the rainfall scanty and uncertain. The highest mt. ranges are the Suleiman Mts. The rivers include the Zhob, Bolan, Mula, and Purali.

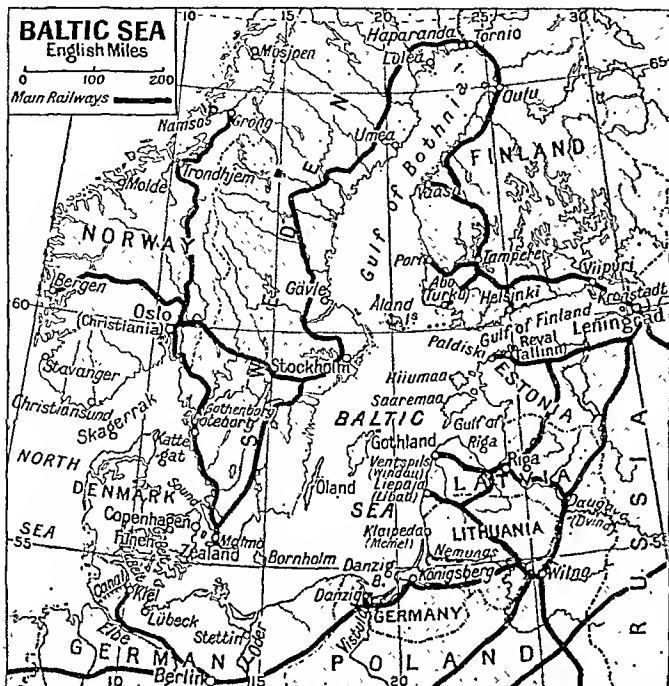
British Baluchistan contains some fertile valleys. The chief of the Agency Territories are the districts of Quetta and Bolan. The Bolan Pass, traversed by a rly., is one of the main lines of communication to the W. and N.W. from India. The native district of Kachhi is a vast alluvial plain.

The head of the civil administration is the Agent to the Governor-General and Chief Commissioner. Most of the people belong to the Brahui, Pathan, and Baluch tribes. The predominant religion is Islam. The agricultural products include wheat, barley, millet, lucerne, rice, maize, and fruit. Makran is famous for its dates. The N.W. Rly. of India enters Baluchistan near Jhatpat, and proceeds to Sibi, and then past Harai and Quetta, to Bostan and Chaman. From Nushki a line goes to the Persian frontier.

BALUSTER (Gr. balaustion, wild pomegranate flower). Originally a classic or neo-classic colonnette, with base, shaft, and capital. It formed one of the several supports, collectively called a balustrade, to a handrail,



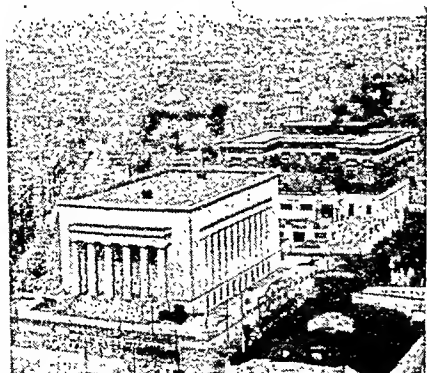
Baron Baltimore, English statesman



Baltic sea. A shallow and almost land-locked sea which washes the shores of Sweden, Finland, the Baltic States, and Germany, and contains numerous islands. Kattegat and the Skagerrack on the N.W. to the North Sea, with which it is connected also by the Kiel Canal. It has an area of 170,000 sq. m.

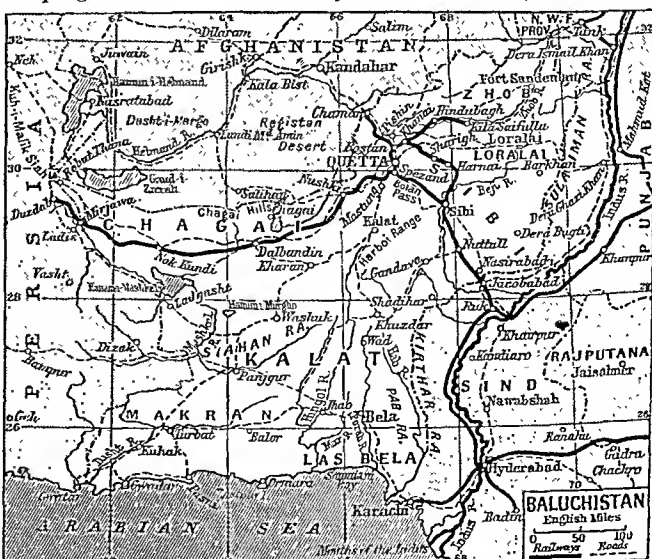
Included in the Baltic are the Gulf of Bothnia on the N., the Gulf of Finland and the Gulf of Riga on the E., and several bays, e.g. the Bay of Danzig. Some 200 rivers flow into it, including the Neva, Dvina or Daugava, Niemen or Memel, Vistula, and Oder. The coastline is 5,000 m. long. Its islands include Zealand, Fünen, Bornholm, Gothland, Öland, Åsö, Dagö, and the Ålän. The seaports include Copenhagen, Stockholm, Helsingfors, Leningrad, Kronstadt, Riga, Memel, Königsberg, Danzig, Stettin, Lübeck, and Kiel.

During the Great War there was considerable naval fighting in the Baltic Sea, especially in 1915, when British submarines cooperated with the Russians against the Germans.



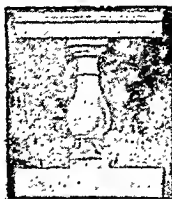
Baltimore. Bird's-eye view of the city with the Federal Reserve Treasury Bank in the foreground

BALTIMORE. Seaport and metropolis of Maryland, U.S.A. On the river Patapsco, it is 185 m. S.W. of New York. Seven lines



Baluchistan. Map of the frontier province which is strategically important as forming a barrier between India and Afghanistan

or the horizontal top member of a low parapet or open screen. Its typical form was a pear-shaped shaft, with the greater circumference at the lower end, but occasionally the shaft consisted of two pear-shaped pieces superimposed. Elaborate English balusters were made in the reigns of Elizabeth and James I, when wood-framed stairways lavishly decorated, came into fashion. Fine examples of English balusters may be seen at the Charterhouse, London, and elsewhere



Baluster, in architecture



Honoré de Balzac, French novelist

to excellent account in his novels.

Refusing to become a lawyer, Balzac led a penurious existence while he strove for literary success. His early work, published under various pseudonyms and in collaboration with other writers, filled about 40 volumes. From 1825 to 1828 he attempted business as a publisher, printer, and type-founder, an enterprise that left him heavily in debt. In 1829 *The Chouans*, a romantic story of the royalist insurrection in La Vendée and Brittany, first brought him recognition, but it was in *The Wild Ass's Skin*, published in 1831 that he showed an immense advance.

He wrote about 80 novels, the best of which include *Eugénie Grandet* (1833), *Father Goriot* (1834), *César Birotteau* (1837), and *Cousin Betty* (1846). The *Human Comedy* contains the completest picture of the social conditions of France during the troublous period of Balzac's own life that has yet been painted. He died Aug. 18, 1850. Consult Balzac, *Emile Faguet*, trans. W. Thorley, 1918; Balzac, *The Man and the Lover*, F. Gribble, 1930.

BAMBERG. City of Bavaria. It is situated on the Regnitz, near its junction with the Main, about 38 m. by rly. N. by W. of Nuremberg. The Main is navigable for barges to within 4 m. of the town, and the Ludwig canal passes the town. The bishopric of Bamberg, founded about 1000, was one of the most important in Germany, the bishops being princes of the empire. The cathedral contains the tomb of its founder, the emperor Henry II, and his wife. From 1648 to 1803 Bamberg had a university. Pop. 50,152.

Bambino (Ital. babe). Term applied to an image of the infant Jesus in swaddling clothes.



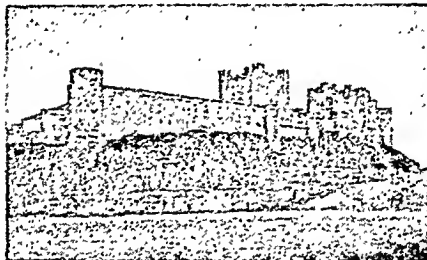
Bambino, an image of the child Jesus in swaddling clothes. *Andrea della Robbia, Florence*

BAMBOO (Malay bambu). Genus of grasses of the order Gramineae and genus Bambusa. They are all natives of warm climates, particularly of East India, China, Japan, and Malaya. The stems, which are of rapid growth, agree with the culms of ordinary grasses, but are on a gigantic scale. They are tubular, with solid joints, and are coated on the exterior with a continuous deposit of flint. These stems serve as masts for small sailing craft, and as material for making native houses, furniture, mats, pails, hats, and capes. The seeds and young shoots are used as food. There are great possibilities in using bamboo pulp as raw material for paper. In 1928 it was stated that it could be delivered in Britain from India at £2 or £3 a ton less than the price of wood pulp.



Bamboo. Giant bamboos in the Botanical Gardens, Peradeniya, Ceylon. *H. G. Ponting, F.R.G.S.*

BAMBURGH. Village on the coast of Northumberland. It existed in Saxon times, and its church, S. Aidan's, dates from the



Bamburgh Castle, the ancient home of the kings of Northumbria. It dates from the 6th century

7th century. Grace Darling is buried in the churchyard. The castle, founded about 547 by Ida, king of Northumbria, stands on a rock opposite the Farne Isles, 4 m. E of Belford, on the L.N.E. Rly. In 1894 it was bought and renovated by Lord Armstrong, and became his residence.

BAMFORD, SAMUEL (1788-1872). British politician. He was born near Middleton, Lancashire, Feb. 28, 1788, and was a weaver. He identified himself with the movement for political reform, and in later life he was for a time a newspaper correspondent. He died at Harpurhey, April 13, 1872. His autobiographical *Passages in the Life of a Radical*, 1844, is a valuable source of information on early 19th century working-class movements in England.

BAMPTON, JOHN (1689-1751). British divine and the founder of a course of divinity sermons or lectures at Oxford. The lecturer, who must be a master of arts of Oxford or Cambridge, is chosen by the heads of colleges, and can never be chosen twice. The

lectures are delivered every summer term at S. Mary's church, and must be afterwards published. Bampton is the name of a market town in Devonshire, 7 m. from Tiverton. It has a station on the G.W. Rly.

BAMRA. Native state of India. It was one of the five Uriya states transferred by the Central Provinces to Bengal in 1905, and is now included in the province of Bihar and Orissa. It has an area of 1,988 sq. m., and Deogarh is the capital. Pop. 134,721.

BANANA (*Musa sapientum*). Large perennial herb. It is probably a native of the E. Indies, and is cultivated in most tropical and sub-tropical climates. It grows to a height of 20 ft., but the true stem is very short, and what appears to be a trunk is formed of the bases of the leaves. Each leaf is from 8 ft. to 10 ft. long and 1 ft. wide. The leaf-stalks form a hollow cylinder, up which the flowering stalk rises to the summit in about six weeks. The flowers are in clusters, arranged spirally round the stalk, but only the lowest groups develop into the big bunch. In the upper clusters only the stamens mature. The plantain and the banana are no longer looked upon as distinct species.

The banana grows as a cultivated plant wherever there is a moist hot climate. After the fruit has ripened, the stem dies, but suckers are sent up from the tuberous root-stock.

An acre planted with bananas is estimated to produce nearly 20 tons of fruit. The trade has assumed large proportions, especially from the W. Indies and the Canaries.

Banana is the name of a port of the Belgian Congo, at the mouth of the river Congo.

BANAT. Region in central Europe enclosed by the Danube, the Theiss or Tisza, the Maros, and the Transylvanian Alps. It covers about 11,000 sq. m.

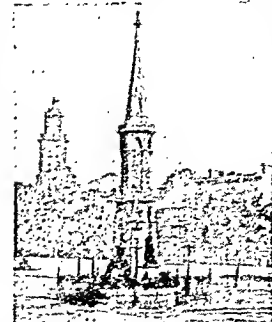
BANBRIDGE. Urban district and market town of co. Down, Northern Ireland. On the river Bann, 24 m. S.W. of Belfast by the G.N.

of I. Rly., it is a centre of the linen industry. Market days, Mon., Tues., Fri. Pop. 5,000.

BANBURY. Borough and market town of Oxfordshire. On the river Cherwell and the Oxford canal, it is 77 m. N.W. of London by the L.M.S., L.N.E. and G.W. Rlys. Famous for its cakes, Banbury has agricultural implement manufactures; also brewing and nursery gardening. An annual steeplechase meeting is held. The parliamentary division of Banbury



Banana. Staking a bunch in order to produce a more luxuriant growth



Banbury. Cross which replaced the famous one of nursery rhyme

returns one member. Traces remain of the 12th century castle, but the original cross commemorated in the nursery rhyme was demolished in 1610, and a modern cross now takes its place. The chief buildings are S. Mary's church and the town hall. Market day, Thurs. Pop. 13,347.

BANBURY, FREDERICK GEORGE BANBURY, BARON (b. 1850). British politician. Educated at Winchester, he became a stockbroker, afterwards becoming chairman of the Great Northern Railway. He entered Parliament in 1892 as M.P. for Peckham; he lost his seat in 1906, but a few months later was elected M.P. for the City of London. In 1902 he was made a baronet and in 1924 was raised to the peerage. In Parliament he specially represented financial interests, and persistently endeavoured to check the growth of expenditure and the tendency to costly legislation.

BANCA OR BANEA. Island and residency of the Dutch E. Indies. Separated from Sumatra by Banca Strait, it is about 145 m. long, from 30 m. to 65 m. broad, and has an area of 4,540 sq. m. The climate is humid and unhealthy for Europeans. Its mountains yield tin and other minerals, and its lowlands produce bananas, wax, sago, and arcaea nuts. Muntok is the capital. Pop. 161,313.

BANCROFT, GEORGE (1800-91). American historian. He was born at Worcester, Massachusetts, Oct. 3, 1800. In 1845 he became secretary of the navy; from 1846-9 he was minister in London, and from 1867-74 in Berlin. He died at Washington, Jan. 17, 1891. His name rests on his History of the United States, on which he was engaged at intervals for more than 50 years.

BANCROFT, SIR SQUIRE (1841-1926). English actor. Born in London, May 14, 1841, he made his first appearance on the stage at the Theatre Royal, Birmingham, Jan. 1861, as Lieut. Manley, in St. Mary's Eve. He made his London debut, April 15, 1865, as Jack Crawley in A Winning Hazard, at the old Prince of Wales's under the management of Marie Wilton, whom he married in 1867. He appeared in all the Robertson comedies and played such important parts as Joseph Surface, Triplet in Masks and Faces, and Count Orloff in Diplomacy. He was knighted in 1897, and died April 19, 1926.

Lady Bancroft first appeared on the stage at Norwich in 1845. Success in London followed, and in 1865 she became joint manager of the old Prince of Wales theatre, and from 1850-85 she and her husband managed the Haymarket theatre. She died May 22, 1921. Consult The Bancrofts, Recollections of 60 Years, Sir Squire Bancroft, 1909.

BANDA. Group of 12 small volcanic islands in the Dutch E. Indies. They lie in the Banda Sea, 60 m. S. of Ceram, and cover an area of 18 sq. m. Eruptions and earthquakes have frequently done damage to the islands, which produce nutmegs, sago, and mace. Banda, on Banda Neira, is the chief town. Discovered by the Portuguese in 1512, they were occupied from time to time by the British and Dutch, and became Dutch in 1814. Pop. 10,000.

BANDANA (Hindustani bandhna, to bind). Silk or cotton fabric with white or brightly coloured spots, or figures on a ground of red,

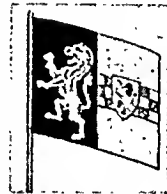
blue, green, yellow, or other colour. The term was originally applied to the yellow or red silk handkerchiefs with white or light-coloured lozenge-shaped spots, made in India, by the dyeing process called bandhnu, in which the parts of the material which were to remain undyed were tied up.

BANDA ORIENTAL. Former name of Uruguay. Formed in 1825, the state was called Banda Oriental del Uruguay, i.e. the eastern bank of the Uruguay. See Uruguay.

BANDER ABBAS, BANDAR ABBAS OR BENDER ABBASI (harbour of Abbas) Town of Persia. The ancient Hormuz and formerly known as Gombroon, it stands on the Persian Gulf, near its entrance on an open roadstead where cargo is discharged by lighters. It became a flourishing port under Abbas the Great. It exports dates and other produce, and has a considerable trade with Bombay and the East. Lying in the British sphere in Persia, under the Anglo-Russian agreement of Aug., 1907, the port was occupied by the British and during the Great War was a naval station. Pop. about 10,000.

BANDEROLE (French). Scroll or band, generally in the shape of a streaming flag, found in works of art of the Renaissance.

The word is applied also to a long narrow flag, which flies from the mast-head of a fighting ship; to the streamer attached to the lance of a knight or to a trumpet; and to the square banner. Sometimes termed a bannerol, borne at the funerals of great men and placed on their tombs. In heraldry a bannerol is a streamer hanging from the crozier of a bishop, and in architecture a band used in sculpture of the Renaissance period for an inscription.



banderole. Heraldic form carried at funerals

BANDICOOT (Perameles). Small marsupial peculiar to Australasia.



Bandicoot. The rabbit-bandicoot (Perameles), the largest of these small Australian marsupials

BAND OF HOPE. Name given to societies to promote total abstinence from intoxicating drink among children. They first appeared in England about 1848, and were established in connexion with churches and Sunday schools, especially among Nonconformists. In 1855 the United Kingdom Band of Hope Union was founded. Its offices are 59 and 60, Old Bailey, London, E.C. There is a Scottish Union with headquarters in Edinburgh.

BANDOLEER OR BANDOLIER (Fr. bandoulière). Shoulder belt with loops for holding cartridges. It forms part of the ordinary accoutrements of a soldier in the British army. It holds 90 rounds, weighs 1 lb. 13 oz., and is worn over the left shoulder. In Cromwell's days the powder charges were carried in bandoleers and bullets loose in the pocket. The use of the bandoleer was discontinued about 1640, but revived during the S. African War.



bandoleer. Left, powder-charges hung on belt, 17th century; right, type used in South African War

BANDON OR Bandonbridge. Market town of co. Cork, Irish Free State. It is on the Bandon and is 20 m. from Cork by the Great Southern Rlys. It was founded in 1608 by the earl of Cork for Protestants and has some small industries. Pop. 3,100. The river Bandon, which flows into Kinsale harbour, is 43 m. long. Spenser called it the "pleasant Bandon," and it is noted for its salmon.

The Irish title of earl of Bandon has been borne by the family of Bernard since 1800, when it was given to Francis Bernard, who had been a baron since 1755. The family seat is Castle Bernard, Bandon, and the earl's eldest son is Viscount Bernard.

BANDONG. Town of Java, Dutch East Indies, 74 m. by rly. S.E. of Batavia. Though surrounded by volcanoes, it is a prosperous commercial centre with a technical high school. Pop. about 20,000.

BANDS. In clerical and other official dress, two small oblong pieces of cambric or white linen joined and fastened round the neck so that the ends fall upon the breast. They are part of the full dress of barristers and others. In Scotland, barristers who are not king's counsel substitute a white tie. Bands still form part of the attire of officiating ministers in Presbyterian churches.



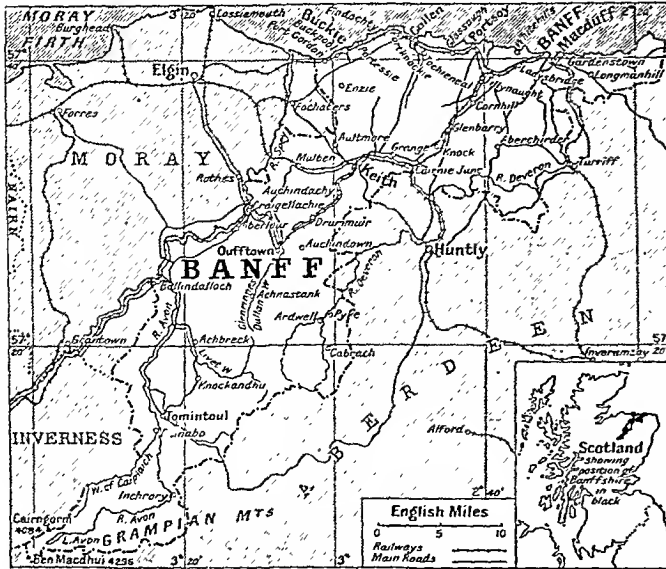
Bands. As worn on clerical attire

BANBERRY OR HERB CHRISTOPHER (Aetæa spicata). Perennial herb of the order Ranunculaceae. It is a native of Europe, and is found as a rare plant in the north of England. The stem is about 18 ins. high. The white flowers are borne in racemes, succeeded by poisonous berries almost black in colour.

BANFF. Royal burgh, market town, seaport, and county town of Banffshire, Scotland. On the Deveron estuary, in Moray Firth, it is 64 m. N.W. of Aberdeen by the L.N.E. Rly. It has a fine town hall, an academy, and a museum. It is a fishing centre. A bridge over the Deveron connects it with Macduff. Duff House was presented to the united towns by the duke of Fife in 1906. Near by is the Bridge of Alvah. Market day, Fri. Pop. 4,100.

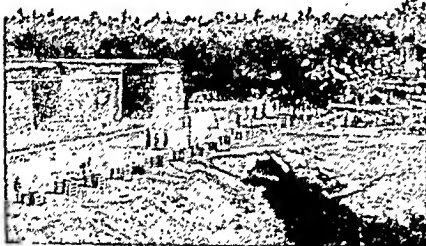
BANFF. Village and summer resort of Alberta, Canada. Situated in the Canadian National Park, it stands on the Bow river, 83 m. W. by N. of Calgary on the C.P.R. Its scenery, hot sulphur springs, hotel accommodation, hunting, fishing, and golfing make it a favoured resort. Its alt. is 4,521 ft.

BANFFSHIRE. Maritime county of Scotland. It has a coastline of 30 m. along Moray Firth, a greatest length N.E. to S.W. of nearly 60 m., and an area of 630 sq. m. Ben Macdui (4,296 ft.), the second highest summit in the United Kingdom, and Cairngorm (4,084 ft.) are on the borders of Aberdeenshire and Inverness-shire. The principal rivers are the Deveron, Spey, and Avon. Loch Avon is the largest lake. Fishing and pastoral pursuits and the quarrying of slate and marble are carried on. Oats and barley are the largest crops, and woollens and whisky are manufactured. Internal communication is by the L.N.E. and L.M.S. Rlys. Banff is the county town. The county returns one member to Parliament. Pop. 52,400. See map p 189.



Banffshire. County in N.E. Scotland, containing Ben Macdhui, the second highest mountain in the United Kingdom. See page 188

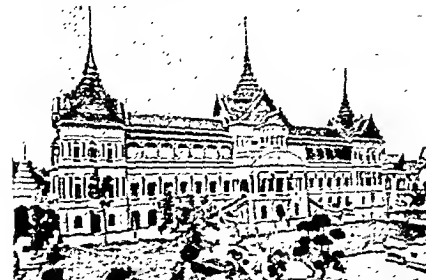
BANGALORE (city of beans). City and capital of Mysore, India. Situated 3,113 ft. above sea level, it is 220 m. by rly. from Madras. An important British cantonment, with a modern palace, a museum, colleges, schools, and a botanic garden, its manufactures include silk, woollens, and carpets. Bangalore dates from the erection of its fort in 1537. Pop. 237,500.



Bangalore. The great fortress stormed by the British in 1791. To the right are the native quarters and bazaar

BANGKOK. Capital and chief seaport of Siam. It lies on both banks of the Menam or Chao Phraya about 20 m. from its mouth. Over 10 sq. m. in extent, the city proper is enclosed by a wall. Among modern buildings are the royal museum, the government offices, the Pasteur Institute, and the Chulalongkorn University.

Bangkok has telegraph and wireless service. A trading centre for the teak, rice, and ivory obtained in the neighbourhood, Bangkok exports these, also cattle, fish, and pepper, and imports cotton goods, machinery, and mineral oil. Several lines of steamships call, and a special service communicates with Hong Kong. Pop. 628,675.



Bangkok. Part of the grand palace and its gardens. Enclosed by walls, it lies in the centre of the city

BANGOR. City and market town of Carnarvonshire, Wales. It lies at the angle of Beaumaris Bay and Menai Strait, 8 m. N.E. of Carnarvon, on the L.M.S. Rly. The old cathedral was destroyed in 1071; the present cathedral, dating from 1496-1532, was restored in 1869-80. Educational institutions include the university college of N. Wales, which was founded in 1884. During the Great War an aerodrome was established here. Market day, Friday. Pop. 11,032.

Another Bangor is a village of Flintshire, 5 m. from Wrexham, on the G.W. Rly. At one time it had a large monastery. An American Bangor is in Maine, at the head of navigation on the Penobscot river. It is a railway centre with a good harbour and has a large trade. Pop. 27,000.

The Bangorian controversy in the Church of England was between those who took the oath of allegiance to William III and those who did not. B. Hoadley, bishop of Bangor, supported the former and gave the dispute its name. See Nonjurors.

BANGOR. Seaport and urban district of co. Down, Northern Ireland. It is on Belfast Lough, 12 m. from Belfast, by the Belfast and County Down Rly., of which it is the terminus. It is a popular watering place with golf links and has some small industries. Its abbey, until destroyed by the Northmen, was one of the largest in Ireland. Pop. 7,800.

BANGS, JOHN KENDRICK (1862-1922). American humorist. Born at Yonkers, N.Y., May 27, 1862, he was a law student before becoming a journalist. His widely known humorous volume *The Houseboat on the Styx*, 1896, was followed by *The Pursuit of the Houseboat*, 1897; *The Enchanted Typewriter*, 1899; *The Idiot at Home*, 1900; *Alice in Municipalland*, 1907; and several plays. He died Jan. 21, 1922.

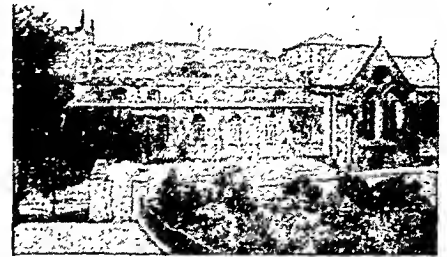
BANIA OR **BANIYA**. Indian caste of moneylenders and dealers in grain and ghi (butter). They are a trading offshoot of the Rajputs, after whom they rank, and number about 4,000,000.

Banian days are days when no meat was provided for sailors. It is derived from the Bania traders, who abstain from meat. Originally there were two banian days weekly in the British navy. They are now abolished, but the term is sometimes used to denote days of meagre fare.

BANISHMENT. Enforced exile. In the Greek and Roman times it was often employed. As a definite punishment for crime in England it dates from the reign of Elizabeth, and was in force until 1853. It is distinct from transportation. It was retained in Russia until the revolution of 1917, and can still be inflicted in some S. American republics for political offences. See Ostracism.

BANJERMASSIN. Seaport and capital of Dutch Borneo, on the Martapura river near its union with the Barito. Large vessels cannot enter the harbour. The town is subject to floods. It exports spices, drugs, rattans, coal, iron, gold, and precious stones. The East

India Co. made a settlement here in 1700. It became Dutch in 1817. The district is hilly inland, but in the valleys and along the coast are rice fields. Pop. city, about 50,000



Bangor, North Wales. Small cruciform cathedral dating from the late 15th century. In the background are seen some of the buildings of University College

BANJO (Gr. pandoura). Stringed instrument. It is played by plucking the strings or striking them with the backs of the nails; sometimes a plectrum or pick is employed. The banjo has five, six, or seven strings.

BANK (Ital. banca, Ger. Bank, bench, moneychangers' table). Legally, a place where a customer opens an account by paying in a sum of money. In return the banker becomes liable for the payment of a like sum to the customer's use, and is bound to honour or cash any cheques or orders for the payment of money which the customer may send to him during business hours to the extent of the sums deposited. It is also a place where the customer may arrange, in agreement with the banker, to obtain advances and overdrafts. A bank has a third legal function, i.e. as a place to deposit valuable securities and even plate and jewelry. In this aspect the banker is a bailee. It is the banker's duty not to disclose the customer's account.

In addition to the state banks in London, Edinburgh, and Dublin, and the great joint stock banks, which have absorbed the old private banks, there are savings banks, including a municipal one in Birmingham, and banks such as Rothschild's and Baring's, that are occupied chiefly with foreign business.

The amalgamation policy reduced the number of large joint stock banks to five, popularly known as the "big five." The Midland is a union of two other great amalgamations, the London, City & Midland and the London Joint Stock; Barclays absorbed the London Provincial & South Western, itself a recent amalgamation; Lloyds took over the Capital & Counties and others; the Westminster is a union of Parr's with the London, County & Westminster, itself a large amalgamation; and the National Provincial is a merger of that bank with the Union of London and Smiths, Smiths having been one of the largest and most successful of the old private banks. These banks have subsidiaries in other countries or alliances with banks there. In Dec., 1929, the ten clearing banks had deposits amounting to £1,810,701,000, and cash in hand of £204,905,000. Their investments were £250,235,000, and advances to customers £989,117,000.

For settling accounts between the various banks clearing houses have been established in the large towns. The chief clearing house is in London, where it was founded in 1775, but the idea had already been used in Edinburgh. The English joint stock banks joined in 1851 and the Bank of England in 1864. It is managed by a committee of bankers, and its office is in Post Office Court, Lombard Street.

To further the interests of persons employed in banking there are Institutes of Banking in London, Edinburgh, and Dublin. The London institute, founded in 1879, holds examinations, has a library, and issues a journal. Its offices

are at 5, Bishopsgate, E.C. There is also an association for employees, the Bank Officers' Guild, at 28, Old Queen Street, S.W.1.

BANKER OR BANK. Card game. An ordinary pack of 52 cards is used, and five or six is the best number of players. The dealer distributes three cards face downwards to each player, and turns up another for himself until an eight or card of lower denomination appears. No player other than the dealer looks at his cards until he has made his bet. Each player, beginning on the dealer's left, may bet, up to the amount of the pool, to which each participant has contributed an equal amount, that there is one of his cards of the same suit which is higher than the dealer's turn-up. Whatever is in the pool at the end of the round goes to the dealer. The deal changes after every round.

BANKET. Beds of gold-bearing conglomerate or pudding stone occurring in S. Africa. Banket is the Dutch word for almond rock, and happily describes the conglomerate, which near the surface is of a brown or reddish colour, due to the decomposition of the iron pyrites it contains. It consists of rounded pebbles of white quartz cemented together by siliceous material. The gold occurs in the cementing material, and is associated with iron pyrites.

BANK HOLIDAY. Day made by law a holiday for banking institutions and taken as such by most business firms. From a business standpoint it is, like Sunday, a dies non.

In 1871 an Act of Parliament, largely the work of Sir John Lubbock (afterwards Lord Avebury), decreed certain days as bank holidays. In England these were and are Easter Monday, Whit Monday, the first Monday in August, and the day after Christmas Day, or, if that day be a Sunday, the following Monday. Christmas Day and Good Friday are also bank holidays. In Scotland the bank holidays are: New Year's Day and Christmas Day or the day following if these fall on a Sunday, Good Friday, the first Monday in May, and the first Monday in August. Other days can be made bank holidays by royal proclamation.

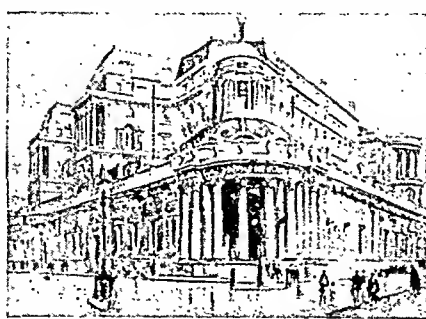
BANKING. Term in aeronautics. It is the act of causing an aeroplane to incline laterally, or to raise one wing above the level of the other, thus facilitating the operation of turning rapidly in the air. The term is derived from the banking or slope on sharp curves of railway tracks or motor-racing courses. See Aeronautics; Aeroplane.

BANK NOTE. Form of paper money issued by the Bank of England and other banks, called hanks of issue, in the British Empire and elsewhere. The notes are really promissory notes payable on demand in gold. This is one essential quality, and the other is that the amount in existence must be limited. By using special paper, such as that made at Laverstoke, Hants, for the Bank of England, and by various ingenious printing devices, precautions are taken against forgery.

BANK OF ENGLAND. Institution that acts as banker to the British Government and performs other state functions. It is divided into two main departments, the banking and the issue. The former transacts much of the ordinary business of a bank, discounting bills, opening accounts for customers, and making advances to them. In addition, it receives on account of the Government all the revenues collected in England and Wales, and manages the National Debt, paying the interest, keeping the registers of stockholders, and selling exchequer bonds, treasury bills, etc. It also acts as banker to other banks, most of which keep substantial balances with it.

The issue department is concerned with the issue of bank notes. Another function is to fix the bank rate. Its affairs are managed by a governor, a deputy governor, and directors, who are elected by the stockholders. Its chief

executive officer is the comptroller. Its headquarters are in Threadneedle Street, London, E.C., and it has ten branches in London and



Bank of England. Sketch, from Sir Herbert Baker's plans, of the reconstructed Bank

the large towns. Its capital is £14,553,000, upon which regular and substantial dividends are paid. It issues a weekly balance sheet. Called the hank return, this appears every Thursday. In 1928 the Bank took over from the Treasury the issue of the notes for £1 and 10s., known as Treasury or Currency Notes. In 1930 the work of reconstructing and enlarging the Bank was in progress.

BANK RATE. Rate at which the Bank of England lends money for short terms, directly or by discounting bills of exchange. As money always seeks its own level it follows that the rate at which the other banks lend money is affected by the bank rate, and a change in the one always means a change in the other. The bank rate is fixed every Thursday, but in most cases the existing rate is confirmed. A similar arrangement is in force in other countries, and a change in the bank rate in any important financial centre, e.g. London or Paris or New York, is quickly reflected in the others.

BANKRUPTCY. Bankruptcy is the status of a person who has been declared by a court of law to be unable to pay his debts. The word is probably derived from the late Latin hancus, a table or counter, and ruptus, broken (Ital. bancarotta), in allusion to the custom said to have prevailed in Italy in the Middle Ages of announcing a tradesman's failure by breaking his counter or bench.

The English law is now contained in the Bankruptcy Acts of 1914 and 1926. The object of the law is to secure and divide the debtor's property equally among his creditors, and, while giving him protection, to make him accountable for his conduct and dealings with his property, and, on his complying with the requirements of the law, to release him from his liabilities.

In Scotland, the law of bankruptcy differs from that of England, although recent legislation has been in the direction of uniformity. The process of realizing and distributing a debtor's property among his creditors is called sequestration.

The Court of Bankruptcy is presided over by a judge of the High Court, who decides difficult questions on appeal from the registrars. The registrars, who are part officials, part judges, transact the ordinary business of the court. It has jurisdiction over all bankruptcy proceedings in the London area except that covered by the Wandsworth County Court. Its headquarters are in Carey Street, London, W.C. Elsewhere bankrupts are dealt with in the county courts.

BANKS. Island of British N. America, in the Arctic Ocean. It is separated by Banks Strait from Melville Island. It was discovered by Parry in 1819 and named after Sir Joseph Banks. There is also a Banks Island off the coast of British Columbia, Canada. It is in the Princess Royal group.

Banks, a group of 17 islands in the South Pacific, a dependency of the New Hebrides, lies between that group and Santa Cruz Islands. Banks is also the name of a headland in New Zealand, on the E. coast of South Island, containing extinct volcanoes. Besides the channel connecting Melville Sound with the Arctic Ocean, there is Banks Strait between Tasmania and Furneaux Islands.

BANKS, SIR JOSEPH (1743-1820). British naturalist. Born in London, Feb. 13, 1743, at the age of 23 he was elected F.R.S. and in the same year started on a botanical exploration of Newfoundland. In 1768 he accompanied Capt. Cook on his voyage round the world. He was, in effect, the first botanical director of Kew Gardens, and was president of the Royal Society from 1778 until his death at Isleworth, June 19, 1820.

BANKSIA. Genus of the natural order Proteaceae named after Sir Joseph Banks. It consists of shrubs and trees with leathery evergreen foliage and flowers massed in thick cylindrical heads resembling bottle-brushes. The leaves are very variable in form in the different species, but are all rigid in texture and clothed on the lower surface with silvery-white or reddish down.



Banksia. Australian flowering shrub

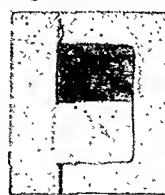
Bankside. District of Southwark, London, S.E. It was noted in Elizabethan times for its theatres, including the Globe (q.v.).

BANN. River of N.E. Ireland. Rising in Mourne Mts. co. Down, it flows N.W., passes through Lough Neagh, forms Lough Beg, and runs N. to the Atlantic 4 m. below Coleraine. It has salmon and eel fisheries.

BANNATYNE, GEORGE (1545-1608). Scottish poetry transcriber. A Burgess of Edinburgh, he wrote the Bannatyne MS. in 1568. This consisted of 800 folio pages, included all the best Scottish poetry from the 15th century, and was subsequently printed.

The Memorials of George Bannatyne were published by the Bannatyne Club, founded in Edinburgh by Sir Walter Scott and others in 1823. Its object was to print rare Scottish works. When it was dissolved in 1861 it had produced 116 volumes.

BANNER (late Latin banderia, bandum, standard). Name given to various kinds of flags, especially those now used in processions



Banner of the Knights Templars

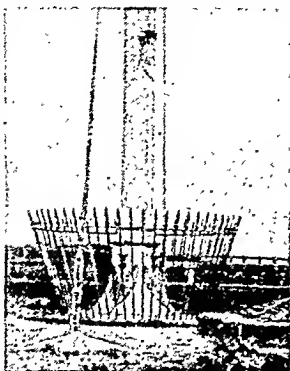
by guilds, friendly societies, and other bodies. They are frequently carried, unlike most flags, between two poles or suspended along the top edge on one pole. In the days of chivalry the banner was a square or oblong flag emblazoned with the owner's arms, and was borne by all ranks above and including knights banneret; under it the owner led his men to battle. See Flag; Knighthood.

BANNISTER, CHARLES (1738-1804). British actor and singer. His first appearance at the Haymarket Theatre was in 1762, and later he joined Garrick at Drury Lane.

His son, John Bannister (1760-1836), was a greater actor. He was at first an art student

at the Royal Academy. In 1778 he appeared at Drury Lane, and from that time until his retirement from the stage in 1815 played constantly at Drury Lane and Covent Garden.

BANNOCKBURN. Village of Stirling-shire, Scotland. It stands on the Bannock, a tributary of the Forth, 2½ m. from Stirling. Here a battle was fought between the English and the Scots, June 24, 1314. The Scots, under Robert Bruce, were besieging Stirling, and to relieve it Edward II collected a large army and invaded Scotland. Bruce prepared to meet him near Bannockburn, where the Bore Stone, on which Bruce is said to have planted his standard, is preserved.



Bannockburn. Flagstaff beside the Bore Stone (right), on which Bruce planted his standard

The English archers opened the fight, but were soon routed by the Scottish horsemen. The final discomfiture of the English came when a body of Bruce's camp-followers, which came in sight over a neighbouring hill, was mistaken for reinforcements. The English lost perhaps 10,000, and the Scots 4,000. In 1929 the site of the battle was acquired for a national park. Consult Bannockburn, J. E. Morris, 1914.

BANNS (Teut. *bannan*, to proclaim). Public notice in church, at morning prayer, on three successive Sundays, of an intended marriage. The practice is universal in the Anglican Church, almost so in the Roman Catholic Church, and prevails in the Church of Scotland. It is a necessary preliminary in England, Wales, and Ireland to all marriages celebrated in the Anglican Church, unless an episcopal licence or a registrar's certificate is obtained. When the parties reside in different parishes the banns must be published in the churches of both.

BANSHEE (Gaelic *bean*, woman; *sith*, fairy). Folklore term applied in Ireland and the Western Highlands of Scotland to a fairy, generally supposed to be a female. She by wailing sounds gives warning to the house of the approaching death of a member of the family. See Fairy; Folklore.

BANSTEAD. Village of Surrey. It is 14 m. S.W. of London, on the Southern Rly., and has an interesting old church and several preparatory and other schools. Banstead Downs, on which are golf links, stretch away to Epsom. Pop. 7,337.

BANSWARA. Native state in the S.W. of Rajputana, India. Hilly and wooded, it lacks water, the Mahi being the only river. It has an area of 1,606 sq. m., and passed under British protection in 1818. Banswara, the chief town, lies about 7 m. W. of the river. Pop. of state, 190,362. See Rajputana

BANTAM. Residency of Java, Dutch East Indies. At the W. end of the island and including the islands off the coast, it has an area of 3,050 sq. m., is swampy in the N. and hilly to the S., and produces rice, pulse, and coffee. Near Serang, the capital, is the decayed sea-

port of Bantam, where the Dutch settled in 1593. Pop. 897,391.

The fowls known as bantams are reproductions in miniature of larger fowls. Believed to have originally reached Britain from Java, they were long restricted to miniature specimens of the common jungle fowl. Bantams' eggs are delicately flavoured, and their flesh is of fine quality. (See Poultry.)

During the Great War the term bantam battalion was applied to a battalion consisting of men below the normal height and weight.

BANTENG (*Bos sondaicus*). Small species of wild ox found in Burma, the Malay peninsula, Borneo, and Java. While the cows are usually chestnut in colour, the bulls tend to become black. Fierce in its native jungles, it has been domesticated by inter-breeding, especially in Java

BANTING, FREDERICK GRANT (b. 1890). Canadian physician. He graduated M.B. from the University of Toronto in 1916, also obtaining a London degree in 1918. In cooperation with Professor Macleod and others he discovered in 1922 a curative drug for diabetes, which he called insulin. In 1923 he became professor of medical research in the University of Toronto, and he and Professor Macleod were awarded the Nobel prize for medicine in the same year. See Insulin.



F. G. Banting, Canadian physician

BANTOCK, SIR GRANVILLE (b. 1868). British music composer and conductor. Born in London, Aug. 7, 1868, he entered the Royal Academy of Music in 1889, where he was the first to win the Macfarren scholarship for composition. In 1897 Bantock was appointed musical director at The Tower, New Brighton, in 1900 principal of the Birmingham and Midland Institute School of Music, and in 1908 professor of music at Birmingham University. He was knighted in 1930. His compositions include *Omar Khayyam*, *Atlanta in Calydon*, *Hebridean Symphony*, and *Scenes from the Scottish Highlands*.

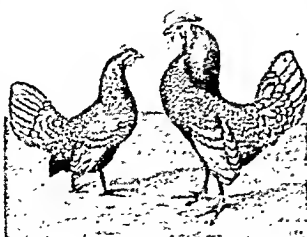


Sir Granville Bantock, British composer

BANTRY. Market town of co. Cork, Irish Free State. At the head of Bantry Bay, it is 58 m. S.W. of Cork by the Gt. Southern Rlys. It is a fishing and tourist centre, manufactures tweeds and friezes, and is a station on the coach route to Killybegs. Pop. 2,685.

Bantry Bay contains Bere and Whiddy islands, on the latter of which the U.S. navy had an aircraft station during the Great War. It was the scene of attempts by the French to invade Ireland in 1689 and 1796, and of a landing by King William's forces in 1697. In 1689, on May 1, there was an engagement here between the English and the French fleets. The battle was quite without result and almost without loss. Glengarriff, at the head of the bay, is a famous beauty spot.

BANTU (native word *ba-ntu* or *aba-ntu*, men). Name of the main group of languages spoken in Africa S. of a line reaching, on the W., 50° N. and running irregularly to Lake Albert, thence, with a deep curve enclosing the Masai, S.E. to the sea at a point S. of the equator. Bantu languages, in number nearly 400, exclusive of semi-



Bantam fowl. Silver laced bantam, typical specimens of these small fowls

Bantu spoken to the N. and W., are the mother tongue of some 50,000,000 natives.

Bantu is also used as a racial term. It includes all types from the Bahima, a pale-faced people, perhaps only half negro, to the very black Atoŋga of Nyasa, and from the tall Zulu to the pygmies of the forests or the Abongo of Gabun. Generally speaking, however, S. and Central Africa are populated by tribes who are indistinguishable from W. coast negroes.

BANVILLE, THÉODORE FAULLAIN DE (1823-91). French poet and dramatist. His *Les Cariatides*, 1842, *Les Stalactites*, 1846, and *Odes Funambulesques*, 1857, a volume of verse reviving many of the old mediæval metres, made his reputation as a poet. De Banville also wrote plays, including *Gringoire*, 1866, and volumes of short stories, and acted as dramatic critic. He died in Paris, March 12, 1891.

BANYAN (*Ficus indica*). A fig tree of enormous proportions, a native of India. It supports its long, lateral branches with adventitious roots which sprout from the branch and descend to the earth, thicken, and gradually assume the proportions of trunks. By means of these supports the branches lengthen almost indefinitely. The leaves are oblong.



Banyan. Indian fig tree which grows props to support its branches

BAOBAB (*Adansonia digitata*). African tree of the order Sterculiaceae. Its trunk attains a thickness of 30 ft., though it does not reach a height at all in proportion, between 40 ft. and 70 ft. being usual. Its leaves are digitate, the flowers being solitary, white, and about 6 ins. across. The fruit, known as monkey bread, consists of a woody capsule a foot or more long, filled with pulp in which the seeds are immersed. The slightly acid pulp is eaten, and its juice is used as a medicine.

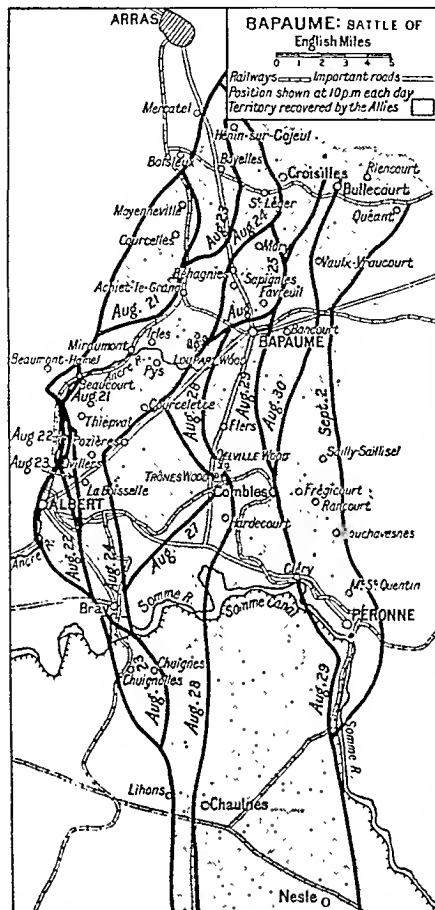


Baobab. Flower and fruit of this African tree

BAPAUME. Town of France, in the département of Pas-de-Calais, 15 m. S.E. of Arras. It was ceded to France by the Treaty of the Pyrenees, 1659, and was the scene of a fierce battle, Jan. 2-3, 1871. In the Great War the Germans held Bapaume from Nov. 1914, to March 17, 1917, and recaptured it March 25, 1918. It was taken by the British, Aug. 29, 1918. After the Great War Bapaume was adopted by Sheffield. Pop. in 1914 3,000.

The battle of Bapaume was fought between the British and Germans in Aug.-Sept., 1918. After his victory in the battle of Amiens (q.v.) Haig decided to follow out the original plan which the British staff had prepared in 1916 and attack from a point S. of Arras, near Boileux, to Lihons. On Aug. 21 Byng's 3rd army, attacking on a front from Moyenneville to near Miraumont, captured the German front line and cleared the N. bank of the Ancre near Beaumont, the river being forced the next day, while a flank attack compelled the Germans to abandon Albert. The 3rd and 4th British armies attacked on Aug. 23 on a front of 33 m. from near Mercatel to Lihons, reached positions astride the Arras-Bapaume road, and neared the formidable German works at Thiépval, which were carried the next day.

The second phase of the battle was the capture by the 2nd Australian division of the powerful Mont St Quentin position on Aug. 30—



Bapaume Battle. Lines showing the daily advance of Haig's troops in Aug.-Sept., 1918. In ten days they drove the Germans across the old Somme battlefield.

Sept. 1, while other Australian troops entered Peronne. To assist them the 3rd and 4th armies pressed the Germans hard and captured many important positions. The battle, which closed on Sept. 2, had far-reaching results.

BAPHOMET. Name of a mystic idol or symbol. Its secret worship formed one of the chief accusations against the Templars. The word is a common medieval form of Mahomet, but its meaning and origin in relation to the Templars are obscure.

BAPTISM (Gr. baptizein, to dip in water). Rite of initiation into the Christian Church. As such, it is only administered once, and upon this point all Churches that practise baptism are agreed. In the early Church total immersion was the rule, but this has been modified in the direction of affusion (pouring), or of sprinkling, by many Churches. A simple formula is pronounced by the person baptizing, usually the priest.

The belief that baptism washed the soul from all sin led early to the problem of sin committed after baptism; the belief that such sins were particularly heinous developed the practice of deferring baptism until late in life—a practice only checked by the development of infant baptism.

Baptism, regarded as a sacrament in the Anglican, Roman Catholic, and Eastern Churches, implies the action of God through the corporate Church, imparting life. The rite denotes the regenerating power of Christ. The modern position varies from the sacramental doctrine that the rite actually regenerates the unconscious infant, to the opposite and extreme

view that the ceremony is no more than an act of dedication on the part of the parents.

BAPTISTERY (Greek baptisterion, bathing-place). Term for the part of a church containing a font and reserved for the baptismal service. From the 2nd century baptisteries as separate circular or octagonal buildings were erected adjoining the church. That attached to the church of St. John Lateran at Rome is one of the oldest extant. The only examples in England are at Cranbrook and Canterbury.

When immersion gave way to affusion, i.e. the pouring of water, and to aspersion, or sprinkling, separate baptisteries became unnecessary, and the term was applied to that part of the church where the font was placed. Modern Baptists, however, while not employing special buildings, use a tank for immersion in place of the ancient piscina, termed by them a baptistery.

BAPTISTS. Baptists constitute one branch of Evangelical Protestants. They maintain that the only proper subjects of Christian baptism are believers who have personally accepted Jesus Christ as Saviour and King, and that the true mode of baptism is the immersion of the believer in water.

The origins of modern Baptist churches may be traced on two lines, Arminian or General Baptists, who believe in the universal scope of the Atonement, and Calvinist or Particular Baptists, who believe in a restricted Atonement. The former was established in Amsterdam in 1611 by separatist refugees from England, headed by John Smyth and Thomas Helwys. In 1612 they returned to England and formed the first English church practising believers' baptism. The latter was founded by Henry Jacob, who, returning to England from the Netherlands in 1616, formed an Independent church in Southwark. This church was Calvinistic in doctrine.

The main features of the 19th century were: (1) growth of open communion churches, that is, for other than immersed believers. (2) Increased sense of interdependence among the churches, and the formation of the Baptist Union of England and Wales. (3) Growth of institutions for the training of ministers. (4) Rapid extension of foreign missions.

Since 1891 Particular and General Baptists have been amalgamated in home and foreign work. In the British Isles there are some 4,230 churches, with 41,000 members, 60,000 Sunday school teachers, 500,000 scholars and more than 5,000 lay preachers. In the U.S.A. Baptists are one of the chief Christian bodies, members alone numbering 8,347,331.

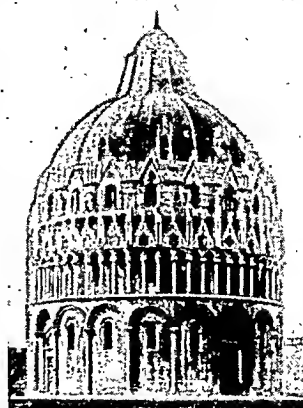
The British churches are united in the Baptist Union, which has headquarters at 4, Southampton Row, London, W.C.1, where are also the offices of the Baptist World Alliance, an association representing nearly all the countries of the world. The denomination has theological colleges at Leeds, Bristol, and elsewhere. The Baptist Missionary Society, founded in 1792, has its headquarters at 19, Fumival Street, London, E.C.4.

BAR. Name given to the higher branch of the legal profession, i.e. barristers. It originated in the partition or bar which in an English law court divides members and officials of the court from suitors, prisoners, advocates, and the general public, men who become advocates being said to be called to the bar. In England the call takes place at one of the four Inns of Court.

For the Irish Free State there is the King's Inn, Dublin, and for Northern Ireland an Inn in Belfast. Canada, Australia, and other parts of the Empire have their own bars. In Scotland the term barrister is not used, that of advocate taking its place.

A law student is required to produce proofs of a good general education, to pass examinations in legal subjects, and to attend the inn for twelve terms, roughly, three years, attendance being registered by eating a certain number of dinners in hall. The student must then be proposed and seconded by two benchers, after which he is called to the bar.

Barristers are divided into two ranks—king's counsel, those called within the bar; and ordinary barristers, without. A barrister may not accept business direct from a layman, but must be instructed by a solicitor, and is bound by a very strict standard of conduct and



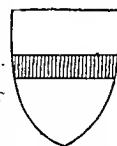
Baptistry at Pisa, completed in 1278. It has a diameter of 116 ft., and a dome 190 ft. high.

etiquette. The discipline of the bar is in the hands of the Inns of Court individually, with an appeal to the Lord Chancellor or to the judges as visitors. The Bar Council is a body of English barristers elected by a ballot of the whole bar. It has no actual powers over the bar, but is an advisory body.

The admission of women to the English bar was definitely legalised, and in 1922 the first woman, Miss Ivy Williams, was called.

In the House of Commons the bar remains literally a bar, that is, a brass rod dividing that part of the House strictly reserved for members from the outer part. Offenders are occasionally summoned to the bar, and new members wait there before taking the oath.

BAR. In heraldry, a narrow band carried horizontally across the middle of the shield, and a diminutive of the fess. When a shield is divided into a number of horizontal bands it is termed barry.



Bar in heraldry

BAR. In geography, shallowing of the water in, or at the mouth of, a river. Where rivers flow into a shallow sea with high tides, the bar may necessitate dredging operations.

BARABBAS. Jewish robber and murderer, who, on the occasion of the feast of the Passover, was released by Pilate at the request of the Jews instead of Jesus (Matt. 27; Mark 15; Luke 23; John 18).

BARANOVITCHI or **BARANOWICZE.** Town of Poland, formerly in the Russian Government of Minsk. An important rly. junction on the Warsaw-Moscow line, it is 125 m. S.E. of Vilna. In the Great War a battle was fought in the vicinity of Baranovitchi between the Russians and Germans, July, 1916. While Brusiloff was carrying on his great offensive on the southern part of the Eastern front in June, 1916, Alexeieff, then commander-in-chief, cooperated by directing offensive movements on the central and northern parts of that front, his object being to prevent the enemy from sending reinforcements south. After weeks of heavy fighting the Russians accomplished their purpose.

BARBADOS (Port. bearded, from the bearded fig-tree found there). Easternmost of the Windward Isles, British West Indies. It covers an area of 166 sq. m. Sugar, cotton, tobacco, coffee, indigo, and arrowroot are produced, while sugar, molasses, rum, and cotton are exported. Barbados has a healthy climate,

about the middle of the 19th century it became the home of certain French landscape painters, who became known as the Barbizon

old and beautiful. modernist building, is of the suburbs. The

A new cathedral, a being erected in one the old palace of the kings of Aragon is now a museum; the king of Spain has a newer one. The meeting place of the diet of Aragon is a notable building, another being the palace of justice. There are several museums and libraries. The city hall, custom house and bourse may be mentioned, as may the modern offices of many banks and other business concerns. The university, founded in 1450, possesses a fine range of buildings, and those for the exhibitions occupy a commanding position. The Rambla is the chief



Barbizon Farm, from a painting by Théodore Rousseau one of the leading representatives of the school of painters named after this French village

school. Their leading tenets were freedom from convention and the interpretation of nature as it appeared to the artist. The leading Barbizon painters were Théodore Rousseau, Millet, Corot, Troyon, and Daubigny. Consult *The Barbizon School of Painters*, D. C. Thomson, 1891

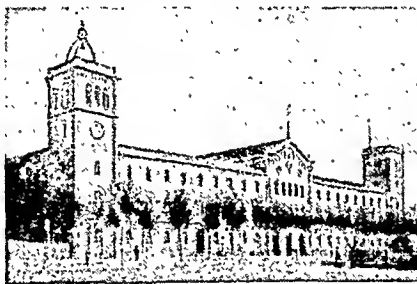
BARBOUR, JOHN (c. 1316-95). Scottish poet. His fame rests on *The Bruce* or *Brus*, a patriotic epic in 14,000 octosyllabic lines, which he composed in 1375. Barbour was for many years archdeacon of Aberdeen.

BARBUSSE, HENRI (b. 1874). French author. Born at Asnières, Seine, he produced a volume of poetry in 1895 and soon had an array of books, both prose and verse, to his credit. His writings concerning the Great War were among the most remarkable renderings of the realities of modern warfare as experienced by the rank and file among the combatants. *Le Feu*, 1916, was trans. into English by F. Wray, 1917. Not less notable was *Clarté*, 1919, Eng. trans. F. Wray, 1919.

BARCELONA. Chief seaport, second largest city, and most important manufacturing town of Spain. It stands on the N.E. coast, at the mouth of the Llobregat valley, 430 m. by rly. N.E. of Madrid, and is connected by railway with France. The capital of Barcelona province, it has a fine Gothic cathedral and nearly 100 churches, some

thoroughfare, and the city has fine parks and open spaces. It consists of an old town, a new town, and a shipping quarter, with new suburbs around. There is a large harbour for the enormous trade of the port. A great international exhibition was opened here in 1929. Pop. 760,348

There is a town called Barcelona in Venezuela, the capital of Anzoategui state.



Barcelona. The University: its foundation dates from 1450, the present building from 1873 only
J. Laureat

BARCLAY, FLORENCE LOUISA (1862-1921) British novelist. Born Dec. 2, 1862, her father was the Rev. S. Charlesworth, rector of Limsfield. She married the Rev. C. Barclay, and died March 10, 1921. The most successful of her novels was *The Rosary*, 1909.

BARCLAY, ROBERT (1779-1854). Scottish athlete. The son of a Scottish laird, Robert Barclay of Ury, who took the name of Allardice on his marriage, he is sometimes known as Barclay-Allardice, but more generally as Captain Barclay. His fame rests on his unusual strength and athletic powers. At Newmarket in 1809 he walked a mile in each of 1,000 successive hours, and twice he walked 64 miles in ten hours. He died May 8, 1854.

BARD. Old-time Celtic poet. Bards celebrated in song the exploits of the chieftains to whom they were attached, and are supposed to have belonged to the Druid hierarchy. Spenser refers to them as flourishing in Ireland in the 16th century, and they long continued in Wales, where their tradition is kept up at the Eisteddfod (q.v.).



Bard. A Cornish bard in his robes

BARDSEY. Island of N. Wales. At the extreme S.W. point of Carnarvonshire, it has an area of 444 acres. Traditionally the last retreat of the Welsh bards, it has a village and harbour, with lighthouse. Pop. 296.

BARDWAN OR **BURDWAN**. Town of Bengal, India, the capital of the district and division of Bardwan. On the Damodar, 67 m. by rly. N.W. of Calcutta, it consists of over 70 villages, and contains the maharajah's palaces and many temples. The district contains the coalfield of Raniganj. Pop. 36,000

BAREBONE'S PARLIAMENT. Derivative name given to an English Parliament summoned by Cromwell after the expulsion of the Rump. It was so called on account of the name of one of its leading members. Praise-God Barebone, a Fleet Street leather-seller. It consisted of 139 members and sat from July 4 to Dec. 12, 1653, when Cromwell dissolved it.

BARÈGES. Inland watering-place of France, in the department of Hautes-Pyrénées. High above the river Bastan, 12 m. S.E. of Pierrefitte, its springs have been used for over 200 years for skin diseases. A gauze-like dress fabric of silk and wool, or of wool only, called *barège*, is manufactured here.

BAREILLY OR **BARELLI**. City, district, and division of India, in the United Provinces. The city is an important rly. junction, 154 m. by rly. N.W. of Lucknow, and has a government college, cantonment, and native schools. It manufactures furniture and textiles, and trades in cotton, grain, and sugar, sugar refining being the chief industry. Pop. 129,459, almost equally Hindus and Mahomedans. The district has an area of 1,579 sq. m., and the division, formerly called the Rohilkhand division, contains 10,829 sq. m.

BARENTS OR **BARENTZ, WILLEM** (d. 1597). Dutch navigator and explorer. In a third unsuccessful attempt (1596) to find the north-east passage to Asia his ship was held in the ice off Novaia Zemlia. Barents and some of his companions perished in the following year. His winter quarters were discovered in 1871, and in 1875 a portion of his journal. Consult *The Three Voyages of Barents to the Arctic Regions*, Gerrit de Veer, Eng. trans. W. Phillip, 2nd ed. 1876.

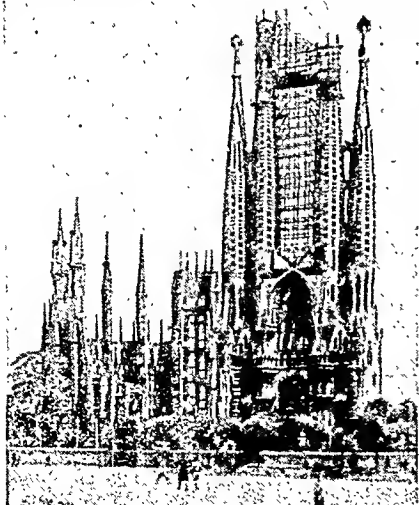
There is a small uninhabited island called Barents in the Arctic Ocean, one of the Spitsbergen group, lying off the E. coast of the main island.

Barents Land is the northern division of the N. island of Novaia Zemlia.

Barents Sea is a part of the Arctic Ocean, between Lapland, Spitsbergen, Franz Josef Land, and Novaia Zemlia.

BARFLEUR. Small French watering-place and port in the department of Manche. On the Cotentin peninsula, 15 m. E. of Cherbourg, it was a flourishing seaport in the Middle Ages. The *White Ship*, which went down in 1120 with Prince William on board, sailed from here. Outside Cape Barfleur was fought the naval battle of La Hogue, May 19, 1692, in which the French were beaten and all hopes of restoring James II destroyed. This victory has given the name Barfleur to several British battleships. See *La Hogue*.

BARGE (late Lat. *barga*, flat boat). Term applied to a variety of small craft. It was originally reserved for luxuriously appointed rowing vessels used for conveying sovereigns and other dignitaries on short river or coastal journeys. House-boats and college barges permanently moored on the upper reaches of the Thames are modern representatives of this type. A state barge, kept at Windsor, was used by King George V and Queen Mary on Aug. 4, 1919, in the Thames naval pageant to celebrate peace.



Barcelona. Unfinished cathedral, built in the modernist style, in a new quarter outside the city

The three principal types of barge are (1) a long, narrow, flat-bottomed craft used for inland navigation and dependent for loco-

modal, begun in 1025, was rebuilt 1170-S and modernised in 1745. The basilica of San Nicola was founded in 1087. The city is the seat of a state university. Bari manufactures pianofortes, organs, furniture, soap, and wax candles, and exports brandy, wine, olive oil, almonds, grain, cotton, and wool. Pop. 174,619.

BARIATINSKI, LYDIA YAVORSKA, PRINCESS (1874-1921). Russian actress. Born at Kiev, Aug. 3, 1874, she married Prince Vladimir Bariatinski. Coming to London in 1909, she appeared successfully at The Little Theatre, 1910, The Royalty, 1911, The Court, 1912, and The Ambassadors, 1913, and gave notable performances of Rebecca in Ibsen's Rosmers-

holm and of Nora in The Doll's House. She married, in March, 1920, John Pollock, the playwright, son of Sir Frederick Pollock, and died Sept. 3, 1921.

BARILLA (Spanish, barrilla). Plant which grows near the coast in Spain, Sicily, and the Canary Islands. Its botanical name is *Salsola soda*, the specific name soda being due to the fact that the plant yields an ash rich in soda when grown where salt is found in the soil in abnormal quantities. The name harilla is applied to the impure soda obtained from its ash. This contains about 20 p.e. of alkali, and was much employed in soap-making until superseded by soda.

BARING. Name of an English family of bankers. Its founder was John Baring, son of a Lutheran minister at Bremen who, early in the 18th century, migrated to England and became a cloth manufacturer at Larkbear near Exeter. His son Francis (1740-1810), who established the London banking firm, was made a baronet in 1793 and was for many years a Whig M.P.

Some of his descendants rose to high positions in the public service, notably his second son, Alexander (1774-1848), created Lord Ashburton in 1835; a grandson, Charles (1807-79), who was bishop of Durham; and another grandson, Francis Thornhill (1796-1866), created Lord Northbrook in 1866. The family acquired two other peerages, both still extant: Edward Charles Baring (1828-97) was created Baron Revelstoke in 1885, and Evelyn Baring (1841-1917) became earl of Cromer, 1901. Maurice Baring (b. 1874), son of 1st Lord Revelstoke, is known as a writer on Russia and Russian literature.

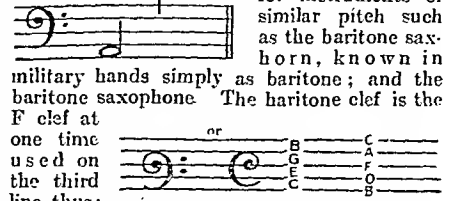
BARING-GOULD, SABINE (1834-1924). British author and cleric. Born Jan. 28, 1834, and educated at Clare College, Cambridge, he was ordained in 1864. In 1872 he inherited the ancestral estate of Lew Trenchard in Devonshire, and in 1881 became rector of the parish. His acquaintance with folklore, especially of the west of England, is shown in his writings.

Among his novels, *Mehalah*, 1880, *John Herring*, 1883, *Court Royal*, 1886, *Red Spider*, 1887, *The Penny-comequicks*, 1889, *The Broom Squire*, 1890, and *The Crock of Gold*, 1899, are the best. He was also the author of a number of hymns, and he died Jan. 2, 1924.

BARISAL or **BURNISOL**. Town and river port of India, capital of the Bakarganj (Backergunge) district of Bengal. On the Barisal river, 118 m. E. of Calcutta, it is a

trade centre. The strange noises called Barisal guns, attributed to breakers, subsidence, or seismic disturbance, have not yet been explained scientifically. Barisal is in a great rice-producing district, and is the eastern headquarters of the great system of navigable channels in the Ganges delta. Pop. 27,000.

BARITONE (Gr. barys, heavy; tonos, pitch, tone). Musical term. It is applied (1) to a man's voice of medium weight and pitch, thus: and is also used (2) for instruments of similar pitch such as the baritone saxhorn, known in military hands simply as baritone; and the baritone saxophone. The baritone clef is the F clef at one time used on the third line, thus:



BARIUM (Gr. barys, heavy). Metallic element; symbol, Ba; atomic weight, 137.37; atomic number, 56. Barium is not found native in the metallic state. The chief native forms are barytes or heavy-spar, which consists of barium sulphate, BaSO_4 , and witherite (barium carbonate), BaCO_3 . The metal is obtained by electrolysis of barium chloride. Barium sulphate is a white heavy substance insoluble in water. It is much used as a paint in place of white lead under the name of permanent white or blanc fixe.

Paper coated chiefly with a mixture of blanc fixe and gelatine, and known as baryta paper, is used in the manufacture of photographic printing papers.

BARK. External coating of tree trunks and branches, used in medicine and also as a tanning material. In medicine it more particularly indicates the product of various species and varieties of cinchona—known as Peruvian bark, and the source of quinine.

Bark cloth is the name given to fabric made by primitive peoples from the inner bark of several plants, for clothing, hangings, and matting. It is felted, not woven or plaited. See Cinchona: Cork; Tanning

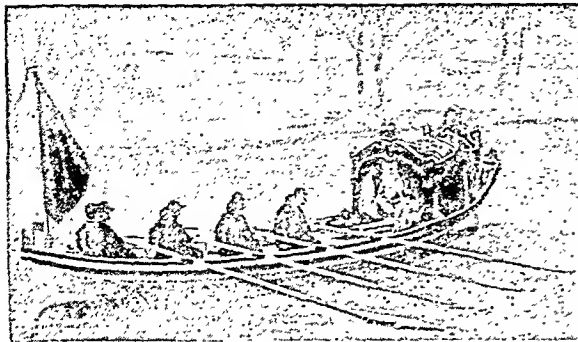
BARCA or **BARCA**. Region of N. Africa. It is situated between the Gulf of Sidra and Egypt, and forms part of the Italian colony of Libya. Occupying the site of the ancient Cyrenaica, it was at one time fertile, but is now mostly an arid desert. Its industries are agriculture, cattle rearing, and sponge-fishing. Numerous remains testify to a high state of civilization in Roman times. See Libya.

BARKAL or **JEBEL BARKAL**. Hill in the Anglo-Egyptian Sudan. The Holy Mountain of the Egyptian inscriptions, it is situated in the Dongola province, in the neighbourhood of Merawi, and is 302 ft. high. On the plain near the hill are the ruins of nine small pyramids; there are eight more on the hill itself.

BARKER, HARLEY GRANVILLE (b. 1877). British dramatist. Born in London, he took to play-writing after having started as an actor. His earliest piece, *The Marrying of Anne Leete*, was produced in 1901. The impression he made in 1905 with *The Voysey Inheritance* was increased in 1907 by *Waste*. In 1910 came *The Madras House*. He also wrote *Prunella*, with Laurence Housman, 1906, and as theatrical manager staged *Twelfth Night* at the Savoy Theatre in Nov., 1912. His other writings include *Three Short Plays*, 1917; *The Exemplary Theatre*, 1922; and, with his wife, English versions of Spanish plays:



Granville Barker, British dramatist. Ellis & Watery



Barge. Royal barge used by King George V and Queen Mary in the peace pageant on the Thames in 1919

tion upon either towage or a small motor. (2) A sailing vessel, broad in beam and of shallow draught, for coastal navigation. (3) A steamboat, as carried by battleships.

BARGE-BEARD. Architectural term for a board suspended from the inner edge of a gable roof where it projects beyond the walls. Barge-boards, often richly carved, were a prominent feature of medieval domestic architecture, especially in England.

BARGHEST or **BERCHEST**. Traditional figure, frequently of a dog or other animal. It is supposed to haunt many places in the north of England, in some of which it is only heard and not seen, when, like the banshee (q.v.), it is said to be a harbinger of death.

BARHAM, CHARLES MIDDLETON, 1ST BARON (1726-1813). British sailor. He entered the navy and in 1745 was promoted lieutenant. He was comptroller of the navy 1778-90, and was made admiral in 1795. In 1805 Pitt appointed him First Lord of the Admiralty and made him a baron. Some of the credit for the prompt measures taken against the French before Trafalgar belongs to him.

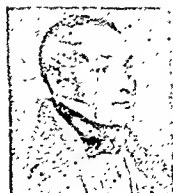
Barham is the name of a British battleship of the Queen Elizabeth (q.v.) class. She was the flagship of Vice-Admiral Sir H. Evan-Thomas, commanding the fifth battle squadron at the battle of Jutland, 1916.

BARHAM, RICHARD HARRIS (1788-1845). British author. He took orders in 1813, became a minor canon of S. Paul's in 1821, and in 1842 received the living of S. Faith's, in the City of London. The first series of his *Ingoldsby Legends*, contributed to Bentley's *Miscellany*, then edited by Charles Dickens, in 1837, was published collectively in 1840, and a further series was issued posthumously in 1847. Both have been reprinted. He died June 17, 1845.

BARI or **BARI DELLE PUGLIE** (anc. Barium). City and seaport of Italy. On a peninsula in the Adriatic, it is an important rly. junction, 69 m. N.W. of Brindisi. The old town is closely built, the modern large and rectangular planned. The see of an archbishop, its cath-



Baron Barham, British sailor



R. H. Barham, British author



S. Baring-Gould, British author W. & D. Downey

BARKER, THOMAS (1769-1847) English painter, known as Barker of Bath from his long association with that town. A painter of rural genre, his talent is best seen in pictures like *The Woodman* and *A Landscape* at the National Gallery. He is also represented in the South Kensington Museum. Many of his designs were reproduced in pottery and textile materials. He died Dec. 11, 1847.

His son, Thomas Jones Barker (1815-82), was also a painter, chiefly of military subjects. Many of his pictures, notably *The Meeting of Wellington and Blücher*, were very popular as engravings.

BARKER'S MILL. An apparatus based on the principle of the hydraulic tourniquet. It consists of a vessel containing water and free to rotate about a vertical axis. Near its base are provided outlet pipes through which the water is discharged horizontally, in a direction tangential to a circle having its centre in the axis of rotation of the vessel. The mill operates upon the reaction principle, the unbalanced pressures at the discharge orifices causing the vessel to rotate.

BARKING. Urban district and market town of Essex. On the Roding, 8 m. E. of London by the L.M.S., L.N.E., and Dist. Rlys., it has market gardens, jute factories and chemical works, and trades in fish and timber. A large station for generating electric power was opened in 1925. At Barking Creek are large sewage works. Its abbey of Benedictine nuns, founded A.D. 670, and one of the richest in England, was burnt by the Vikings in 870. Barking is the sec. of a bishop suffragan, and its church of S. Margaret, a Norman building with later additions, contains fine brasses. Market day, Sat. Pop. 35,523.

BARKLY EAST. Small town of Cape Province, South Africa, capital of Barkly East district. Situated in mountainous country, 5,830 ft. above sea level, it is on the Kraai river 82 m. S.E. by E. from Aliwal North. Sheep pasturing is the chief occupation. Barkly West, in Griqualand West, Cape Province, is an important diamond mining centre. Both towns are named after Sir Henry Barkly, governor of Cape Colony 1870-77.

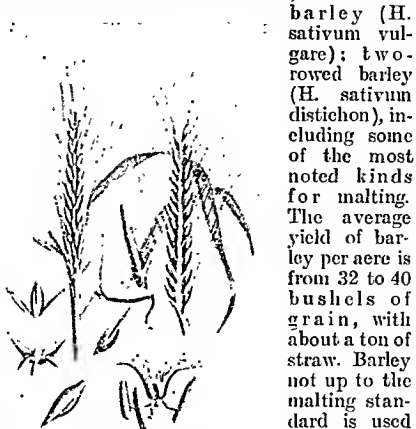
BAR-LE-DUC. Town of France, capital of the department of Meuse. On the river Ornain, 62 m. W. of Nancy by the Eastern Rly., it is situated on the edge of the Argonne plateau, where the Rhine-Meuse canal comes down to the plain. The upper town, formerly the capital of the duchy of Bar, contains the church of S. Pierre, a clock tower, and the remains of a château. At Bar-le-Duc the Old Pretender lived for a time. Pop. 17,000.

The counts of Barrois or the district of Bar ranked among the most powerful vassals of the French kings. In 1354 Count Robert was made a duke. In the 15th century Bar was united with Lorraine, and in 1633 the two were made part of the royal domain.

BARLETTA. City and seaport of Italy. On an island in the Adriatic, it is about 35 m. N.W. of Bari and in the prov. of that name. It has a considerable trade by sea, exporting wine and other products of southern Italy, and importing coal, petroleum, corn, chemical manures, and timber. It has a Romanesque cathedral, mainly 12th century, and an old Gothic church, S. Sepulchre. The castle dates from the 16th century. The palace of Manfred is now a convent. In 1503, when part of the kingdom of Naples, Barletta was the scene of the combat between thirteen French and Italian knights, led by Bayard and Prospero Colonna respectively. Pop. 51,536.

BARLEY (*Hordeum sativum*). A hardy cereal crop of the grass family. It is grown mostly for malting purposes. Three species are recognized, according to the arrangement of the grains in the ear: six-rowed barley

(*Hordeum sativum hexastichon*), regarded as the oldest cultivated form; four-rowed



Barley flower spikes, unripe and ripe. Below, left, two detached flowers; beneath them a barley corn; right, a fully expanded flower. Between the stalks, barley corns in process of germination

BARLEYCORN, JOHN. Personification of the malt liquor made from barley, a familiar figure in old English ballads and tracts. Often he appears as a knight, as in the tract *The Arraigning and Indicting of Sir John Barleycorn, Knt.*, printed for Timothy Tossput. Robert Burns's well-known ballad represents him as being crushed between two millstones. An old English lineal measure, one-third of an inch, was termed a barleycorn.

BARMECIDE FEAST. Phrase signifying poor hospitality. The expression is derived from an incident in *The Arabian Nights*, in which Schacabac seeks charity from a member of the Barmecides, a noble and wealthy Persian family, and is entertained at a splendid but imaginary feast. Host and guest praise the non-existent dishes, which both pretend to eat; until the guest, having fallen in with the Barmecide's humour, is substantially fed.



Barmen. Train on the Schwebebahn or suspended electric railway, that connects Barmen with Elberfeld

BARMEN. Town of Prussia. It is on the Wupper, about 25 m. N.E. of Cologne. Its port is Düsseldorf on the Rhine. On the main line from Aix-la-Chapelle to Berlin, Barmen is connected by rly. with the busy industrial district round it, one line being an overhead electric one. Its industries include bleaching, dyeing, and the manufacture of ribbon, dress trimmings and linings, cotton and woollen goods, carpets, and beer. Pop. 187,099.

BARMOUTH (Welsh, *Abermaw*). Urban district and market town of Merionethshire. On Cardigan Bay, at the mouth of the Mawddach, it is 9 m. W. by S. of Dolgelly by the G.W. Rly. A popular watering place, it is picturesquely placed near Cader Idris. Old Barmouth, with its parish church, is on a cliff. Market day, Sat. Pop. 3,559.

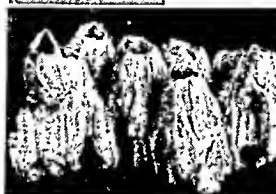
BARNABAS. Christian saint. Originally a Levite named Josias (R.V. Joseph), a native

of Cyprus, he was converted and became a co-worker with S. Paul, whom he introduced to the apostles at Jerusalem (Acts 4, 9, 11, 13-15; Gal. 2: 1 Cor. 9). Nothing is known of his life beyond the N.T. record. His festival is kept on June 11.

The Gospel of Barnabas is one of the apocryphal gospels. It is based largely on the four canonical Gospels of the Bible and is marked by frequent Jewish and Mahomedan interpolations. The writer makes Jesus Christ disown the Messiahship and confer the title upon Mahomet. The epistle of Barnabas (2nd century) is addressed to the Hebrews.

BARNABITES. Roman Catholic order. Founded in 1530 at Milan, and officially styled the Clerks Regular of S. Paul by Pope Paul III in 1535, the order became known as Barnabites from its early association with the church of S. Barnabas at Milan.

BARNACLE. Name applied to crustaceans of the order cirripedia. The Lepadidae or stalked barnacles attach themselves by a fleshy stalk to floating timber and the bottoms of ships. Akin to them are the sessile or stalkless barnacles, commonly called acorn barnacles.



Barnacle. Below, acorn barnacles, large form of *Balanus hansen*. Above, barnacle of the stalked kind

BARNACLE GOOSE (*Bernicla leucopsis*). Bird of the Arctic regions which migrates to the northern parts of Europe in the winter. In the early Middle Ages it was supposed to be produced from the crustacean, hence its name. It is smaller than the wild goose.

BARNARD, EDWARD EMERSON (1857-1923). American astronomer. Born at Nashville, Tennessee, Dec. 16, 1857, he was educated at Vanderbilt University. In 1887 he became an assistant at Lick Observatory, California, and made a name by his discovery of Jupiter's fifth satellite and 16 comets. In 1895 he became professor of astronomy in the university of Chicago and astronomer of the Yerkes Observatory at Williams Bay, Wisconsin. He died Feb. 7, 1923.

BARNARD, FREDERICK (1846-96). British artist. Born in London, May 26, 1846, he began to illustrate for Punch in 1863, but the bulk of his drawings appeared in *Good Words*, *Once a Week*, *The Illustrated London News*, and *Pnn*. He illustrated the Household Edition of Charles Dickens's works and died at Wimbledon, Sept. 28, 1896.



Frederick Barnard, British artist

BARNARD, GEORGE GREY (b. 1863). American sculptor. Born May 24, 1863, he studied art in Paris, where he lived for 12



Barmouth. Trestle railway bridge across the Mawddach estuary. Behind is the Cader Idris range

years. Returning to the U.S.A., his works soon attracted notice. The chief are perhaps *The Great God Pan* in Central Park, New York; *A Monument to Democracy*; and *Let there be Light*. He was responsible for the statues that adorn the Capitol at Harrisburg and for the bronze statue of Lincoln at Cincinnati, which evoked much criticism.

BARNARD CASTLE. Urban district and market town of Durham. On the Tees, it is 15 m. W. of Darlington by the L.N.E.R. Dominating the town is the ruined castle founded about 1100 by one of the Balfour family and close by is the Bowes art museum. Barnard Castle is the scene of Scott's *Rokeby*. It gives its name to a county division returning one member to Parliament. Market day, Wed. Pop. 4,737

BARNARD, THOMAS JOHN (1845-1905). British philanthropist. Born in Dublin, July 4, 1845, he was trained in London as a medical missionary. Having taken his degree, he turned his attention to the cause of destitute children, and to this work devoted the rest of his life. He died at Surbiton, Sept. 19, 1905.

The first of Dr. Barnardo's homes was opened, for boys only, at 18, Stepney Causeway in 1866. Soon after girls were admitted, and during the next 40 years the work grew enormously. In addition to large premises in Stepney Causeway, London, E., there are country and convalescent homes and special accommodation for babies and for blind, deaf, and crippled children. In 1929, 18,000 children and young people were dealt with, and altogether 107,000 have passed through the homes. The average number in the homes at one time is nearly 8,000. Some 30,000 have been sent to Canada, and nearly 11,000 served in the Great War. The homes are maintained by voluntary contributions.

BARNATO, BARNETT ISAACS (1852-97). Anglo-Jewish financier. Born in London, the son of Isaac Isaacs, Barnett went to S. Africa in 1873, where he took the name of Barnato, and was known as Barney Barnato. He began to deal in diamonds at Kimberley, and hought up claims regarded by many as exhausted. Other companies were absorbed by his firm and the De Beers, and finally the rival concerns were amalgamated in 1888.



Barnett Barnato,
Anglo-Jewish
financier
Elliott & Fry

On June 14, 1897, while on a voyage to England, he threw himself overboard. Consult Life, H. Raymond, 1897.

BARNAVE, ANTOINE PIERRE JOSEPH MARIE (1761-93). French Revolutionary leader. Born at Grenoble, Oct. 22, 1761, he became a lawyer, and won a reputation by his political writings. He was sent to the states-general, which met at Versailles in May, 1789 and in 1790 was chosen president of the assembly. Barnave's personal contact with the royal family, when he escorted them back from Varennes, inclined him further to moderate courses. Having returned to Grenoble in 1792, he planned a counter revolution, and was consequently arrested, and on Nov. 29, 1793, was executed.

BARNBY, SIR JOSEPH (1838-96). British musician. Born at York, Aug. 12, 1838, he went to the Royal Academy of Music, London, in 1854. From 1871-86 he was organist at S. Anne's, Soho, where he established the annual performance of Bach's *S. John Passion*

Music. Barnby's Choir, the parent of the Royal Choral Society, was started in 1867, and he conducted this up to his death, Jan. 28, 1896. Barnby was precentor of Eton, 1875-92, and principal of the Guildhall School of Music, 1892-6. He was knighted in 1892.



Sir Joseph Barnby,
British musician
Elliott & Fry

people. The tune, which resembles a Scottish air, was composed for a dance in a burlesque at the Gaiety Theatre, London.

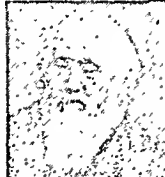
BARNES. Urban district of London. On the Thames, in the county of Surrey, it is mainly a residential district, 7 m. S.W. of London by the Southern Rly. Mentioned in Domesday as Barne, it has a restored church, S. Mary's. The old manor house of Barn Elms is occupied by the Ranelagh Club. Barnes Common is a large open space. The district adjoining in the bend of the river is called Castelnau. Pop. 34,299.

BARNES, ERNEST WILLIAM (b. 1874). British prelate. Born April 1, 1874, he was educated at King Edward's School, Birmingham, and Trinity College, Cambridge, where he was fellow and tutor. In 1902 he was ordained, and in 1909 was elected F.R.S. In 1915 he was appointed master of the Temple; in 1918 canon of Westminster, and in 1924 bishop of Birmingham. In religious matters a modernist Dr Barnes has written a good deal on the relations between religion and science. Controversy has also been aroused by his resolute denunciation of the extreme Anglo-Catholics in the Church of England.



E. W. Barnes,
British prelate
Russell

BARNES, WILLIAM (1801-86). British poet. Born Feb. 22, 1801, a member of an old Dorset family, he graduated at Cambridge. He was ordained in 1847, and in 1862 was appointed rector of Winterborne-Came. His first volume of *Poems of Rural Life* in Dorset Dialect was published in 1844, and the collected edition in 1879.



William Barnes,
British poet

In addition to his poems, which are a storehouse of the old Dorset dialect, Barnes wrote several philological works. He died Oct. 7, 1886.

BARNET. Urban district and market town of Hertfordshire. It is 11 m. N. of London by the L.N.E.R. Its horse fair in Sept. is still one of the largest in England. Chipping Barnet is a parish within the urban district, and New and East Barnet are suburbs. Market day, Wed. Pop. 11,772.

Friend Barnet, Middlesex, about 3 m. south, is a separate urban district, with a population of 17,612.

The battle of

Barnet was fought April 14, 1471, between the Yorkists under Edward of York, afterwards Edward IV, and the Lancastrians under Warwick. Edward marched out of London, and the fight began in a fog. Each side gained early successes, but in the end the Yorkists won a great victory and Warwick was among the killed. See *Roses*, Wars of the.

BARNETT, SAMUEL AUGUSTUS (1844-1913). British social reformer. Born in Bristol, Feb. 8, 1844, he was educated at Wadham College, Oxford, and was ordained. From 1872-94 he was vicar of S. Jude's, Whitechapel, and while there he had a great share in founding Toynebee Hall, of which he was warden, 1884-1906. He was canon of Westminster from 1906 until his death, June 17, 1913. In 1873 he married Henrietta Octavia Rowland, who was closely identified with his life work. Barnett House, Oxford, was founded in his memory in 1916. Consult Life, H. O. Barnett, 1918.



Samuel A. Barnett,
British social
reformer
T. R. Hodgner

BARNEVELDT, JAN VAN OLDEN (1547-1619). Dutch statesman. Born at Amersfoort, Utrecht, he qualified as an advocate in 1569. He supported William the Silent in the struggle against Spain, and in 1585 was made advocate-general of the province of Holland. On William's death Prince Maurice of Nassau was made stadtholder by his influence, but differences of policy at once arose. In the end Barneveldt, who supported the Arminians against the Calvinists, was arrested by order of Maurice, and in illegal fashion was sentenced to death as a traitor. He was beheaded May 13, 1619.

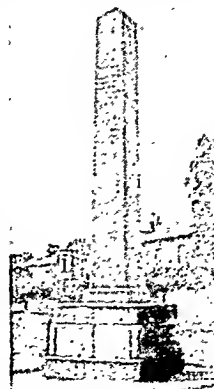
In 1623 his two sons, Wilhelm and Reinier, made an unsuccessful attempt to overthrow Maurice. The plot was discovered and Reinier was executed, but Wilhelm escaped from the country. Consult Life and Death of John of Barneveldt, J. L. Motley, 1874.

BARNOLDSWICK. Urban district of Yorkshire (W.R.). It is 9 m. S.W. of Skipton, on the L.M.S. Rly. and the Leeds and Liverpool canal. Cotton weaving is the chief industry. Pop. 12,590.

BARNSLEY. County borough and market town of Yorkshire (W.R.). On the river Dearne, 16 m. N. of Sheffield, it is served by the L.N.E. and L.M.S. Rlys. The Barnsley canal connects it with Leeds and Wakefield. In a rich coal district, it has textile and other manufactures. S. Mary's church is a Gothic building erected in 1821. There is a grammar school, founded in 1660. Barnsley sends one member to Parliament. Its football club won the Association Cup in 1912. Market day, Wed. Pop. 70,760.

BARNSTAPLE. Borough, seaport, and market town of Devonshire. At the head of the Taw estuary, 40 m. by rly. N.W. of Exeter, it has stations on the G.W. and Southern Rlys., and is the terminus of a light rly. to Lynton. Its bridge is 700 ft. long and has 16 arches. The church of S. Peter and S. Paul, with its twisted spire, is 14th century. Pilton church is largely modern. Adjoining the Pannier Market is Butchers' Row. The town manufactures furniture, gloves, lace, and pottery called Barum ware. There is an annual fair, held in September. Market days, Tues. and Fri. Pop. 14,409.

Barnstaple was a trading centre before the Norman Conquest, was early known for the manufacture of woollen goods, and formerly did a large trade in wine and wool.



Barnet, Hadley High Stone,
site of the Battle of Barnet

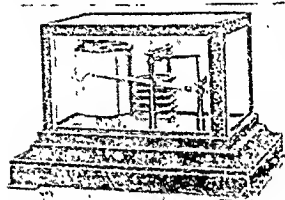
BARNUM, PHINEAS TAYLOR (1810-91); American showman. He was born at Bethel, Connecticut, July 5, 1810, and began his career as a showman in 1835, but met with little success until in 1844 he exploited Charles Stratton—General Tom Thumb. In 1871 he began the formation of the Greatest Show on Earth, a monster combination of circuses, menagerie and exhibition of human freaks, and his partners and he amassed a large fortune. Barnum published his Autobiography in 1854, and died April 7, 1891.



Phineas T. Barnum, American showman

BARODA. Native state of India, in the Bombay Presidency. Under a Marhatta chief, called the gaekwar, the territory intermingles with other native states and British districts in Kathiawar and Gujarat, is well supplied with rlys., and covers 8,127 sq. m. Fertile in the N., it produces cereals, cotton, opium, tobacco, sugar, oil-seeds, and a breed of white cattle. Pop. 2,126,522.

In the Great War the gaekwar, Sir Sayaji Rao III, subscribed to war funds and placed his troops at the disposal of the king-emperor.

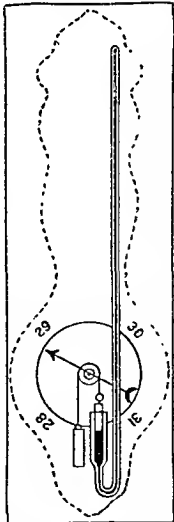


Barograph made by Negretti and Zambra for the automatic registration of readings of a barometer

Baroda, the capital, is 246 m. from Bombay. It contains temples and palaces as well as schools and colleges

BAROGRAPH (Gr. baros, weight, graphēin, to write). Form of barometer which registers automatically the readings on a weather or other kind of chart.

BAROMETER (Gr. baros, weight; metron, measure). Instrument which measures the pressure of the atmosphere. A mercurial barometer consists essentially of a glass tube closed at one end. This tube is filled with mercury, inverted, and the open end placed in a cup of mercury. The mercury column then falls a little and some of the mercury runs back into the tube, leaving in the tube a column about 30 ins high. When the air pressure upon the surface of the mercury is decreased, some mercury flows from the tube to the cup; when it is increased some is forced into the tube, so that the column stands higher. Another barometer is the aneroid (q.v.).



Barometer. Diagram of mercurial instrument

BARON (late Latin baro, man, vassal). Title in the British peerage. On its introduction into England about 1066 the word meant the man or vassal of a king or lord, one who held land from him. At this time it was used very loosely, but in a century or so a distinction sprang up between greater and lesser barons. The lesser barons were gradually merged into the commonalty.

Barons were first made by letters patent in 1387, and since then all barons have been so

created. In the letters patent the conditions of inheritance are laid down. These usually confine it to male heirs of the grantee's body, but sometimes a daughter and her descendants are allowed to inherit; in a few cases baronesses have been created.

In the case of the older baronies, those by writ, as they are called, they descend, in the absence of a male heir, to daughters equally.

This means that the title goes into abeyance until all the heirs save one are dead or until the Crown selects one of the co-heirs, and, in her favour, or in his, if a male descendant of one of the daughters, calls it out of abeyance.

A baron is addressed as the Right Honourable and all his children are entitled to the prefix Honourable. His coronet has on it six silver balls, of which four are always shown in drawings. Until 1679 and 1716 respectively the earls of Chester and the bishops of Durham, both counties palatine, had their own barons

BARONET (dim. of baron). Hereditary British order. Baronets of England were



Baronet's badge, granted in 1929

created by James I in 1611, ostensibly for settling Ulster, but in reality as a source of revenue, drawn from the fees. Baronets of Ireland date from 1619. Baronets of Scotland or Nova Scotia, originated by James I for settling Nova Scotia, were instituted by Charles I in 1625. Since the union of England and Scotland in 1707 baronetcies of Great Britain have been given to Englishmen and Scotsmen,

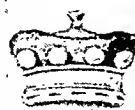
and since the union of Great Britain and Ireland in 1800 baronetcies of the United Kingdom to Irishmen. The first baronet was Sir Nicholas Bacon, of Redgrave, Suffolk. Baronets take precedence of all knights except knights of the Garter. A new badge was granted to them in 1929

BARONSCOURT. Seat of the duke of Abercorn in co. Tyrone, Northern Ireland. It is 3 m. S.W. of Newtown Stewart, and the estate is finely wooded. Baron's Court is the name of a London district between Earl's Court and Hammersmith.

BARONY. In England, in feudal times, the land which entitled a man to be summoned to Parliament as a baron. In Scotland the word was used for a large freehold estate, not necessarily the property of one summoned to Parliament. In Ireland the counties are divided into baronies.

BAROQUE. Term meaning originally a pearl of irregular shape, used by jewellers for imitation jewelry. More familiarly it is applied to the neo-classic architecture and sculpture of the late 16th century, which are generally considered to be debased in style. See Architecture; Rococo.

BAROSSA. Ridge about 17 m. from Madrid. Here a battle was fought between the British and the French in the Peninsular War, March 5, 1811. A British force, commanded by Sir Thomas Graham, was holding Cadiz, which was invested by the French under Victor. Graham decided to take 12,000 men by sea to Algeiras, and land them in the rear of the French. Of this force about 4,000 were British, and the rest Spaniards. They marched parallel with the coast from Algeiras for about 12 m. until they reached Barossa. The British infantry moved forward in two masses, delivering a telling fire, and afterwards charged the French, who were driven away in disorder. Other French troops struggled desperately, but the British outfought them.



Baron's coronet

BAROTSELAND. Country in Rhodesia. Formerly a separate administration known as North-Western Rhodesia, it was amalgamated with North-Eastern Rhodesia Aug. 17, 1911, to form Northern Rhodesia. It is watered by tributaries of the Congo and the Zambezi. Mungu is the chief administrative station and Lealui (Lilui) the residence of the paramount chief. The Barotse, who gave their name to the country, are a negro race. See Africa; Rhodesia

BAROUCHE. Roomy four-wheeled carriage, with an adjustable hood behind, capable of seating two couples facing each other. It is a modification of German barutsche, adapted from Italian barroccio, a two-wheeled car (Lat. bi, double; rota, wheel).

BARQUE (late Lat. barca, skiff). Three-, four-, or five-masted sailing vessel. It carries square sails on all masts except the aftermost, on which the sails are rigged fore and aft, i.e. in a line with the run of the ship. The



Barque. Sailing vessel with fore and aft rigged sails on the mizzen-mast and square sails elsewhere

word bark is sometimes used in the same sense, but more often for any sailing vessel of fair size. A barquentine is a vessel, usually three-masted, with square sails on the fore-mast only.

BARQUISIMETO. City of Venezuela, formerly called Nueva Segovia. On the Barquisimeto river, it is 103 m. by rly. S.W. of Tucacas, its port on Triste Gulf. Lying high in a healthy, fertile district, it has a cathedral, college, schools, and other public institutions, and a wireless station. A busy trading centre, it exports coffee, cocoa, sugar, rum, hides, skins, and fibre. Pop. 23,109.

BARRA. Island of the Outer Hebrides, Inverness-shire, Scotland. About 4 m. S. of Uist, it contains two villages, and farms, with 20 smaller islands, a parish of 35 sq. m. There is a steamer service with Glasgow. Cattle rearing is carried on. Pop. 2,456.

BARRA. Small kingdom of West Africa, in the British colony of Gambia. It lies N. of the river Gambia and extends to its mouth. Barra Point is opposite Bathurst, and with it forms the inner mouth of the river.

BARRACKPUR OR **BARRACKFORE**. Town and cantonment of Bengal, India, in the district of 24 Parganas. On the Hooghly river, 15 m. by rly. N. of Calcutta, it is a favourite retreat for Europeans and contains the suburban seat of the viceroy. It was the scene of sepoy risings in 1824 and 1857. Pop. North and South Barrackpur, 40,000.

BARRACKS (Ital. baracca, hooth, hut). Buildings for the permanent accommodation of soldiers, sailors, or marines. Until the end of the 18th century the construction of barracks in England was strongly opposed as tending to the increase of a standing army, and the term marching regiment dates from the period when infantry moved from place to place, being quartered for the night upon the inhabitants. With the introduction of barracks certain towns became known as garrison towns.

Modern barracks include houses for senior officers and rooms for junior ones, in addition to mess rooms, billiard room, library and

offices. There are similar quarters for the sergeants and separate accommodation for married soldiers. For the unmarried men there are sleeping quarters, canteens, and recreation rooms. Guardrooms, workshops, store rooms and laundries are also provided. The regulations lay down the amount of cubic space which must be allowed for each man. In Great Britain barrack construction is supervised by the Royal Engineers.

BARRACUDA (*Sphyræna barracuda*). Large fish belonging to the order *Telosteii* or bony fishes. Found in the southern seas, it often attains a length of 5 ft., and is largely eaten in S. Africa, Australia, and S. America.

BARRAGE. Word derived from bar, a hindrance. It is used mainly in two senses. To describe a bar made artificially in a river in order to increase the depth of water. This has been done with success on the Nile (q.v.).

During the Great War the word obtained a new, although allied, meaning, being applied to a regulated volume of artillery fire, falling continuously on a certain area. A moving or creeping barrage, first used in the battle of the Somme, 1916, was directed so as to fall a little way in front of advancing troops in order to protect them from the enemy's attentions. Another form of barrage was that put behind the enemy's position with the object of stopping reinforcements or supplies from reaching him. See Artillery.

Barramunda. Local name for the Queensland mudfish or *craterodus* (q.v.).

BARRANQUILLA. Town of Colombia, S. America. It is on the Magdalena, 7 m. above its mouth, and 16 m. by rly. S.E. of Puerto Colombia, its seaport. The head of navigation on the Magdalena, it is the chief commercial centre of Colombia, is an important seat of the Panama hat industry, and has good wharfage. It is connected by an air service with Buenaventura on the Pacific coast. Pop. 81,330.

BARRAS, PAUL FRANÇOIS NICOLAS, COMTE DE (1755-1829). French Revolutionist. Born of a noble Provençal family, June 30, 1755, he shared in the defence of Pondichéry in 1778. At the outbreak of the Revolution in 1789 he supported the Third Estate, sat in the Convention of 1792, and voted for the death of Louis XVI. He helped to overthrow Robespierre, became one of the five Directors of 1795, and employed Bonaparte to protect the Convention from the National Guard. He died Jan. 29, 1829.

BARRATRY (Old Fr. *barat*). Word meaning literally barter, with the secondary meaning of knavery or cheating. It is used in its primary sense in ecclesiastical law to signify simony. More commonly it signifies constant incitement of suits, disturbances, or quarrels, and is a crime. In maritime law the term is used to denote any wilfully wrongful act by the master or crew with intent to defraud the owner or charterer, e.g. smuggling.

BARREL (Fr. *baril*). An unofficial dry and liquid measure of capacity, varying according to the substance measured. A barrel of beer contains 36 galls., and of wine, 31½ galls. A barrel of flour contains 196 lb.; of pork or beef, 200 lb.; of butter, 4 firkins or 224 lb. A barrel of berrings holds about 800 fish.

BARREL ORGAN. Small pipe organ. It is sometimes portable, and is controlled by a revolving cylinder with pins in suitable positions coming in contact with the levers that admit the wind to the pipes. Occasionally reeds of the harmonium type take the place of pipes. The cylinder (or barrel) and the bellows are actuated by the same motive power, either clockwork or hand-crank.

BARRENWORT (*Epimedium alpinum*). Herb of the order *Berberidaceæ*. It has a creeping rootstock and leaves divided into three sets of heart-shaped leaflets of firm, smooth texture on long stalks.

BARRÈS, MAURICE (1862-1923). French novelist. Born Aug. 17, 1862, he published *Huit Jours chez M. Rénan* in 1888. In 1889 he became deputy for Nancy, and retained the seat until 1893. It was as a writer of fiction of a conservative character that he became known. His stories include *Un Amateur d'Âmes*, 1899; *L'Ennemi des Lois*, 1893; *Les Déracinés*, 1897; and *L'Appel au Soldat*, 1900. He died Dec. 4, 1923.

BARRETT, WILSON (1846-1904). British actor. Born near Chelmsford, Feb. 18, 1846, he made his first appearance at Halifax, in 1864. In 1877



Wilson Barrett as Wilfred Denver in *The Silver King*
Downey

he became lessee of the Theatre Royal, Hull, and in 1878 of the Grand Theatre, Leeds. In Sept., 1879, he became manager of the Court Theatre, London. On June 4, 1881, Barrett began his management of The Princess's, which lasted with some intervals until 1889. From 1886-96 he played chiefly in the provinces and in America, and he achieved a new London success at The Lyric, Jan. 4, 1896, with *The Sign of the Cross*. He died in London, July 22, 1904.

BARRHEAD. Burgh of Renfrewshire, Scotland. On the Levern it is 7 m. S.W. of Glasgow by the L.M.S. Rly. Founded in 1773, it has developed into a prosperous town, with brass and iron foundries and other manufactures. There is an annual fair. Pop. 11,466.

BARRICADE. (Span. *barrica*, *barrel*). Term for obstacles erected in streets by rioters and others. Barricades to obstruct the progress of troops were characteristic of the street fighting in Paris in 1830 and 1848 and in the suppression of the Commune in 1871. Such consisted of casks, paving stones, rubble, abandoned vehicles, and even furniture.

BARRIE, SIR JAMES MATTHEW (b. 1860). British author. Born May 9, 1860, at Kirriemuir, Forfarshire (Angus), where he received his early education, he went later to Glasgow and Dumfries Academies and Edinburgh University (1878-82), where he graduated M.A. From Feb., 1883, until the end of 1884, Barrie acted as leader writer on *The Nottingham Journal*, settling in London in 1885. In 1887 he published his first book, *Better Dead*, but his reputation was established with *Auld Licht Idylls* (1888), sketches of humble life in Kirriemuir, which he called *Thrums*. This success was followed in the same year by *When a Man's Single* and *An Edinburgh Eleven*, the latter under the pen name of Gavin Ogilvy. Barrie's other books are: *A Window in Thrums*, 1889, *My Lady Nicotine*, 1890. The



Sir James Barrie, British novelist and playwright
Lizzie Caswell Smith

Little Minister, 1891, *Sentimental Tommy*, 1896, *Margaret Ogilvy*, 1896, *Tommy and Grizel*, 1900, and *The Little White Bird*, 1902. The



Barrie's birthplace at Kirriemuir, Forfarshire (Angus), the weaving town he made famous as *Thrums*

last mentioned work contained the germ of what was to prove the greatest of Barrie's stage successes, *Peter Pan*.

After various attempts in the theatre, Walker, London, 1892, a genuine light comedy, scored a success, but not until *The Professor's Love Story*, 1894, did the author show any mastery of the difficult technique of his new medium. With his dramatic version of *The Little Minister*, 1897, which proved immensely popular, Barrie had become as eminent in dramatic authorship as he was in letters. *The Wedding Guest*, 1900, had only a moderate success, but *Quality Street*, 1902, *The Admirable Crichton*, 1902, and *Little Mary*, 1903, all had prosperous runs. *Peter Pan*, 1904, met with a rapturous reception, renewed each succeeding year.

His other full-length plays are: *Alice Sit-by-the-Fire*, 1905, *What Every Woman Knows*, 1908, *A Kiss for Cinderella*, 1916, *Dear Brutus*, 1917, and *Mary Rose*, 1920. He has written many brilliant one-act plays, especially *The Twelve Pound Look*, 1914, and *The Old Lady Shows Her Medals*, 1918.

In July, 1894, Barrie married Mary Ansell, an actress who made her mark in Walker, London; but the union was dissolved at the husband's initiative in 1910. He was made a baronet in 1913 and received the O.M. in 1922. Consult Barrie: *The Story of a Genius*. J. A. Hammerton, 1929.

BARRIE. Town of Ontario, Canada, the capital of Simcoe co. On Lake Simcoe, 64 m. N.W. of Toronto, it is an important junction on the C.P.R. and C.N.R., and a head port for the lake steamers. Pop. 6,420

BARRIER. Term meaning a bar or obstacle. The Barrier Act was an act passed by the General Assembly of the Church of Scotland in 1697, providing that any change in the constitution of the Church must first be approved by the presbyteries.

The term barrier reef is applied to coast formations either encircling an island or extending along a continental land mass. The best example of the latter is the Great Barrier Reef, which follows the coast of N.E. Australia.

The Barrier Treaties were treaties signed between the Dutch Republic and other European countries with the object of keeping a barrier of fortresses between France and the Netherlands. The first was signed in 1709. Among the barrier towns were Namur, Ghent, Lille, Ypres, Menin, and Tournai.

BARRIERE, THÉODORE (1823-77). French dramatist. Born in Paris, he spent ten years in the ministry of war and marine, drawing topographical and hydrographical maps, before the success of a vaudeville, *Rosière et Nourrice*, led him to change his occupation. The author of 100 plays, his chief work is *La Vie de Bohème*, 1849, adapted from the novel of Murger by the author and himself.

BARRINGTON, RUTLAND (1853-1922). Stage name of George Rutland Fleet, a British actor. Born at Penge, Jan. 15, 1853. He made his debut on the stage as Sir George Barclay in *Clancarty* at The Olympic, Sept. 1, 1874. He took leading parts in the Gilbert and Sullivan operas, was a member of George Edwardes's company at Daly's, his own manager at The St. James's, 1888-9, appeared on the halls in 1909, took the part of Falstaff at His Majesty's in 1911, was Chorus in *The Yellow Jacket* at The Duke of York's in 1913, and wrote *Bartomere Towers*, produced at The Savoy in 1893. He died June 1, 1922.



Rutland Barrington, British actor
Bassano

Barrister. In England, Ireland, and other parts of the Empire a member of the senior branch of the legal profession. See Bar.

BARROT, CAMILLE HYACINTHE ODILON (1791-1873). French politician. Born at Villefort of a legal family, he was a believer in constitutional monarchy and signed the address of remonstrance to Charles X in March, 1830. He at first supported the Orleans dynasty, but later turned against it. He acquiesced reluctantly in the Second Republic, but refused to acknowledge Louis Napoleon as emperor, and was imprisoned temporarily. After Napoleon's fall he was made president of the council of state. He died Aug. 6, 1873.

BARROW (A.S. beorg, hill). Term for a prehistoric grave-mound. Sometimes applied to a natural height, e.g. Trentishoe barrow, Barnstaple, 1,500 ft. high, or an early British camp, e.g. Elsworth barrow, Somersetshire, the term denotes more particularly an artificial tumulus, especially one raised in Neolithic, Bronze Age, and late Celtic times in the Mediterranean region and western Europe. There are two types, long and round. Of about 120 long barrows in England, 60 are in Wiltshire and 30 in Gloucestershire. The smaller ones are 120 ft. by 30 ft., and 10 ft. high; West Kennet, Wiltshire, is 335 ft. long. They may enclose small cists, as at Littleton Drew, Wiltshire, or timbered structures, as at Wor Barrow, Dorset. Many are surrounded by a stone circle or a ditch. They have yielded flint implements and rough, non-sepulchral pottery. In Scandinavian and French barrows gold is often found; in British, rarely.

Round barrows may be in small groups, as at Seven Barrows, Hants, or in crowded cemeteries. There are about 2,000 each in Wiltshire and Orkney, and large numbers elsewhere, showing that they were used for single or family interments by the people at large. See Anthropology.

BARROW. River of Leinster, Irish Free State. Rising in the Slieve Bloom Mts., it flows 120 m. E. and S., and at its junction with the Suir broadens into Waterford harbour. At Athy, below which it is navigable for barges, it is joined by the Grand Canal, and above New Ross receives the Nore. With the Suir it drains an area of 3,550 sq. m. It is navigable for small vessels to New Ross.

BARROW, ISAAC (1630-77). British scholar. The son of a London merchant, and nephew of Isaac Barrow (1614-80), bishop of St. Asaph, Barrow entered Trinity College, Cambridge, where he had a great reputation in both classics and mathematics. He was an avowed royalist, like his father, whose loyalty to Charles I cost him his fortune, but in spite of this he was made fellow of Trinity in 1649. In 1659 he was ordained, and in 1660 he was elected professor of Greek at Cambridge and of mathematics at Gresham College, London, and in 1663 Lucasian professor of mathematics at

Cambridge, the first holder of that post. He then resigned his professorship in London, and in 1669 vacated his mathematical chair in favour of his pupil, Isaac Newton. From 1673 until his death, in London, May 4, 1677, he was master of Trinity. Barrow was one of the greatest scholars and preachers of his time. His sermons are models of reasoned argument, occasionally touching the highest notes of oratory.

BARROW, SIR JOHN (1764-1848). British administrator. Born of humble parentage, near Ulverston, where he was educated, Barrow early showed an exceptional facility for mathematics. His first employment was in a foundry at Liverpool, and this was followed by a voyage to Greenland. For three years he taught mathematics at Greenwich, and then went to China and to S. Africa. In 1804 he was appointed second secretary of the Admiralty, a post he held almost until his death, Nov. 23, 1848. An obelisk marks his burial place in the churchyard at Pratt Street, Camden Town.

His name is perpetuated by Barrow Strait, a channel in the Arctic connecting Melville and Lancaster Sounds, and also by Cape Barrow and Point Barrow. He wrote *Voyages of Arctic Discovery* and other works.

BARROW-IN-FURNESS. County, mun., and parl. borough, and seaport of Lancashire. On Morecambe Bay, opposite Walney Island,



Barrow-in-Furness. Town Hall of this industrial centre

Bessemer process, and the development of railway facilities. Copper and slate are recovered. There are engineering, smelting, iron, jute, paper, and flax works, besides shipyards. Railway rolling-stock is manufactured. The Devonshire, Buccleuch, and Ramsden docks afford ample accommodation. Cavendish dock has been leased by the Rly. to Messrs. Vickers for building hangars and manoeuvring airships and dirigibles. There is an airship factory on Walney Island. There are also a graving dock and a depositing dock. Objects of interest are the town hall and the Furness Abbey ruins. One member is returned to Parliament. The borough includes Vickerstown, on Walney Island. Market days, Wed. and Sat. Pop. 69,750.

BARROW-ON-SOAR. Village of Leicestershire. It is 12 m. N. of Leicester by the L.M.S. Rly. Lace, hosiery, and cement are manufactured. It is the centre of a large rural district. Pop. 2,750.

BARRY. Urban district and seaport of Glamorganshire, S. Wales. On the Bristol Channel, 7 m. S.W. of Cardiff, it is a terminus of the G.W. Rly., which owns the docks, and has branch connexions with the L.M.S. line. It owes its commercial importance to the opening in 1889 of the first of its docks, which cover 114 acres and accommodate the largest vessels. There are three large graving docks and some 19,500 ft. of quayage. Coal and coke are exported, and timber, pit props, and iron goods imported. Barry possesses a large market. Pop. 38,945. The Barry Railway, since 1920 part of the G.W. system, was founded in 1884 to connect the rich coalfields of Glamorganshire, then just being developed, with the sea.

BARRY, SIR CHARLES (1795-1860). British architect. The son of a London

stationer, he was born May 13, 1795, and was apprenticed to a surveyor in Lambeth. In 1812 a drawing by him was first shown at the Royal Academy, and after a visit to Italy he began to practise in London. Success came quickly. He was responsible for the Athenaeum in Manchester, the grammar school in Birmingham and the Reform and Travellers' Clubs in Pall Mall, London. In 1836 his design for the new Houses of Parliament was accepted, but he did not live to finish the work. In 1844 he was elected R.A., and in 1852 was knighted. He died at Clapham, May 12, 1860, and was buried in Westminster Abbey.

Two of Barry's sons were architects. Another was Sir John Wolfe-Barry (1836-1918), the famous engineer, and another Alfred Barry, bishop of Sidney 1884-89. See Parliament.

BARRY, ELIZABETH (1658-1713). English actress. Supposed to be the daughter of Edward Barry, a supporter of Charles I in the Civil War, she first appeared on the stage about 1673. Her reputation was made in tragedy, and as the creator of Cordelia in Tate's version of *King Lear*, Isabella in Southerne's *The Fatal Marriage*, and Belvidera in Otway's *Venice Preserved*, she achieved immense success and ranks as one of the greatest of English actresses.

BARRY, ERNEST (b. 1882). British oarsman. His elder brother, W. A. Barry, champion of England, taught him to scull, and one of his first successful races was in 1903 for Doggett's coat and badge. In 1908 he won the sculling championship of England, and in 1912 the championship of the world. He lost the latter to Alfred D. Pelton in 1919, whom he defeated in 1920.



Ernest Barry, British oarsman, former champion of the world

BARRY, JAMES (1741-1806). Irish painter. Son of a shipmaster, he studied art at West's Academy, Dublin. The patronage of Burke enabled him to travel, and he spent four years in Italy. On his return to England, he became an R.A. in 1773. Between 1777-83 Barry decorated gratuitously the Great Room of the Society of Arts in London with pictures illustrating human progress in civilization. In 1782 he was appointed professor of painting to the Royal Academy, but his attacks upon the Academy ended in his expulsion in 1799.

BARRY, MARIE JEANNE BÉOU, COMTESSE DU (1743-93). Mistress of Louis XV. Born at Vaucouleurs, the daughter of a sempstress, she became at 18 a milliner's assistant in Paris, and at 19 went to live with the profligate Jean, comte du Barry, by whom she was introduced to the king. From 1769 she was Louis's mistress and for the rest of the reign made and unmade ministers at will. She was despised by the court for her low birth, but was neither stupid nor vindictive; good nature and beauty were her chief characteristics. She was guillotined Dec. 7, 1793.

BARRY, SPRANGER (1719-77). Irish actor. Born in Dublin, where he made his first appearance in 1744, he went to London in 1746, playing *Othello* at Drury Lane. In 1750 he moved to Covent Garden and continued to challenge comparison with Garrick.

From 1758-67 he played in Duhlin and Cork, and, having ruined himself by theatrical management, returned to London, where, at Drury Lane, under Garrick's management, he again played Othello. In 1774 he returned to London and to Covent Garden.

His second wife, Ann Street Barry (1734-1801), was distinguished between 1774-98 as a tragic actress, and as Desdemona was held to be superior to Mrs. Siddons.



Spranger Barry,
Irish actor
After Sir J. Reynolds

BART OR BARTH, JEAN (1650-1702). French sailor. Born of humble parents at Dunkirk, he served in the Dutch navy, and after 1672 in the French. During the wars towards the end of the 17th century he gained a reputation as a privateer, and did much damage to English and Dutch shipping. He was made an admiral by Louis XIV in 1697, but peace put an end to his activities, and he died April 27, 1702, at Dunkirk.

BARTH, HEINRICH (1821-65). A German explorer. Born at Hamburg, Feb. 16, 1821, and educated at Berlin University, he travelled in Africa and Syria, 1845. From 1850-55 he took part in a mission of the British Government to Central Africa, investigating the remains of ancient civilizations and the modern resources and conditions of the country. In 1863 he was appointed professor at Berlin, where he died, Nov. 25, 1865.

BARTHOLDI, FRÉDÉRIC AUGUSTE (1834-1904). French sculptor. A native of Colmar, of Italian descent, he studied under Ary Scheffer. His first important work was a colossal statue of General Rapp. Others were the monument to the memory of Martin Schongauer, 1861, in the courtyard of the Colmar museum; Lafayette, at New York, 1872; the Lion of Belfort, and the figure of Liberty in New York harbour.

BARTHOLOMÉ, PAUL ALBERT (1848-1928). French painter and sculptor. He studied art in Paris in the studio of Léon Gérôme. His masterpiece is a group of statuary, *Aux Morts* (To the Dead), a beautiful sculpture at Père-Lachaise. As a painter he exhibited at the Salon, but after 1886 he confined himself mainly to sculpture, though he produced a number of fine black-and-white drawings. He died Oct. 30, 1928.

BARTHOLOMEW. Christian saint and one of the twelve apostles (Matt. 10; Mark 3; Luke 6; Acts 1). He is identified by many scholars with Nathanael (John 1), but the evidence is only circumstantial. His festival is kept on Aug. 24. A tradition exists that he was flayed alive in Armenia.

BARTHOLOMEW FAIR. London fair held in Smithfield from 1120-1855. Until 1751 it began on S. Bartholomew's Day, Aug. 24, but after the change in the calendar, on Sept. 3. It was the chief fair for the sale of cloth. To this is due the name of Cloth Fair, an opening off Smithfield.



L. J. F. Barthou,
French statesman

The London thoroughfare of Bartholomew Close, out of Smithfield, is so called from being near the church of S. Bartholomew the Great. Milton and Hogarth lived here. Considerable damage was done on Sept. 8, 1915, by bombs during a Zeppelin raid.

BARTHOLOMEW FAIR. London fair held in Smithfield from 1120-1855. Until 1751 it began on S. Bartholomew's Day, Aug. 24, but after the change in the calendar, on Sept. 3. It was the chief fair for the sale of cloth. To this is due the name of Cloth Fair, an opening off Smithfield.

In 1889. He was minister of public works in 1894-95 and minister of the interior in 1896-98. He was prime minister, Mar.-Dec., 1913. In 1917 he was a leading member of Poincaré's cabinet. In 1921 he was minister for war, and in 1922 he was president of the Reparations Commission and represented France at the conference of Genoa. In 1922-24 and again 1926-29 he served under Poincaré and then Briand as minister of justice and vice-president of the council. Barthou's published works gained for him the reputation of a charming and impressive writer. In 1919 he was elected member of the French Academy.

BARTIZAN (French *bretèche*). In architecture, a small turret overhanging the angles at the top of a tower or projecting from the walls of a building. Sir Walter Scott uses the word in his descriptions of medieval strongholds, and it has been adopted by later writers as the equivalent to machicolation (q.v.).



Bartizan. A small projecting turret

BARTOLOMEO, FRA (1475-1517). Italian painter. He was born near Florence, and became an ardent disciple of Savonarola.



Fra Bartolommeo,
Italian painter

He joined the Dominican order in 1500, though he never became a priest. In 1506 he became acquainted with Raphael in Florence, and devoted his time to painting until his death, Oct. 31, 1517. One of his finest pictures is the figure of S. Mark, now in the Pitti Palace, painted in 1514 under the influence of Michelangelo. The Presentation in the Temple, at Vienna, is another masterpiece, and his decorations for his own convent of San Marco, for the hospital of Santa Maria Nuova, and other Florentine buildings are notable.

BARTOLOZZI, FRANCESCO (c. 1727-1815). Italian engraver. Born at Florence, the son of a goldsmith, he studied painting and engraving at Florence, Rome, and Venice, and settled in England in 1764. He was one of the original painter members of the R.A., and as a stipple engraver he won a high reputation and was responsible for an enormous amount of work. In 1802 he left England to superintend the National Academy at Lishon, where he died, March 7, 1815.



Francesco Bartolozzi,
Italian engraver
J. Vendramini

BARTON, BERNARD (1784-1849). British poet. Born at Carlisle, of Quaker parentage, from 1809 until his death he was clerk in a bank at Woodbridge, Suffolk. He was a correspondent of Southey and a friend of Lamb, having attracted the notice of the one by his *Metrical Effusions* and of the other by his *Napoleon and Other Poems*. He died Feb. 19, 1849. Consult Bernard Barton and His Friends, E. V. Lucas, 1893.

BARTON, CLARA (1821-1912). An American nurse. She organized supplies for the relief of the wounded in the American

Civil War, and on the outbreak of the Franco-Prussian War in 1870 attached herself to the German army and established a number of military hospitals. She was instrumental in founding the American Red Cross Society in 1881, and as its president was actively connected with the work until 1904. She died April 12, 1912.

BARTON, SIR EDMUND (1849-1920). Australian statesman. Born in Sydney, Jan. 18, 1849, in 1879 he became a member of the legislature of New South Wales.

From 1883-87 he was speaker, and in 1887 entered the legislative council, being for a time attorney-general. He represented his state in the Federal Convention of 1897-98, and in 1901 became the first prime minister of Australia and minister for external affairs. He held those offices until 1903, when he was made a judge of the high court of Australia. Knighted in 1902, he died Jan. 7, 1920.



Sir Edmund Barton,
Australian statesman

BARTON, ELIZABETH (1506-34). Maid, or Nun, of Kent. She was born at Aldington, Kent, and in 1525 was in the service of a certain Thomas Cohn, whose employer was William Warham, archbishop of Canterbury. Warham's attention was called to her strange religious utterances, and he sent two monks of Canterbury to keep her under observation. One of these, Edward Bocking, decided she might be used to counteract the Protestant movement. Persuaded by Bocking, Elizabeth became a nun at Canterbury, 1527, and attracted wide attention by her revelations. For declaring against Henry VIII she was hanged at Tyburn, April 20, 1534.

BARTON BEDS. Brown, grey, and blue clays, forming part of the Upper Eocene Beds of the Hampshire Basin. About 250 ft.-300 ft. thick, they are noted for the abundance and the beautiful state of preservation of their fossils. The fauna, largely gasteropods, is of a type that indicates a warmer climate than that of the British Isles at present; many of the genera, such as *Conus*, *Murex*, and *Mitra*, are almost entirely confined to the warmer seas. The name comes from Barton, a village in Hampshire where the clays are well exposed.

BARTON-UPON-HUMBER. Urban district and market town of Lincolnshire. On the S. side of the Humber, 6 m. S.W. of Hull, it is a branch terminus of the L.N.E.R. The church of S. Peter is noted for its tower,

whose upper part is Early Norman, while the lower probably dates from Saxon times. S. Mary's church dates from the 14th century. The town is connected with Hull by ferry. Market day, Mon. Pop. 6,454.

BARTON-UPON-IRWELL. Parish of Lancashire, $\frac{1}{2}$ m. W. of Manchester. Here in 1770 Brindley constructed an aqueduct to carry the Bridgewater Canal across the Irwell. This gave place in 1893 to an aqueduct by which the canal is now carried over the Manchester Ship Canal. The aqueduct swings to allow the passage of shipping. Barton is the centre of a rural district (pop. 12,500).



Barton Beds. Specimens from the fossiliferous Barton clay. See above

BARUCH. Biblical character. Son of Neriah, he appears in the O.T. as the faithful disciple and friend of the prophet Jeremiah in

the last days of Judah's struggle for existence (604-586 B.C.). He was a man of influence, one of the princes (Jer. 26), and is described as the scribe (Jer. 36).

The Apocalypse of Baruch is an apocryphal work the author of which assumes the name of the Jewish character, Baruch. It became known only in 1866 when the Italian scholar Cerian published a Latin translation of a Syrian version which he had discovered in the Milan library. The Apocalypse is concerned with the fall of Jerusalem and the advent of a new Messianic age. It seems to have been composed, or rather compiled, shortly after A.D. 100.

The book of Baruch is part of the O.T. Apocrypha. Apparently of Jewish origin, and largely concerned with the sins and sorrows of Israel, the earliest extant version is that of the Septuagint. It is believed to have been written between about 150 B.C. and the 1st century of the Christian era. See Apocrypha.

BARYE, ANTOINE LOUIS (1796-1875). French sculptor. Born in Paris, Sept. 24, 1796, he was apprenticed to a goldsmith, but carried off the Salon medal in 1819, and he won the Grand Prix with a relief in 1820. The extraordinarily powerful realism of his animal statuary appealed to the public. His works were largely purchased for America, but in Paris there are several bronzes, including, at the Luxembourg, the celebrated Jaguar Devouring a Hare; a magnificent Lion Seated, in the garden of the Tuileries; and the Combat of the Centaur and Lapitha. He died June 25, 1875.

BARYTES or **HEAVY SPAR**. Natural sulphate of barium. It is noted for its high specific gravity (4.3 to 4.6). More often found in veins than in bedded deposits. It is a common associate of lead ores. Paper coated with a mixture chiefly of sulphate of barium (blanc fixe) and gelatine, and known as baryta paper, is used for photographic printing. See Barium.

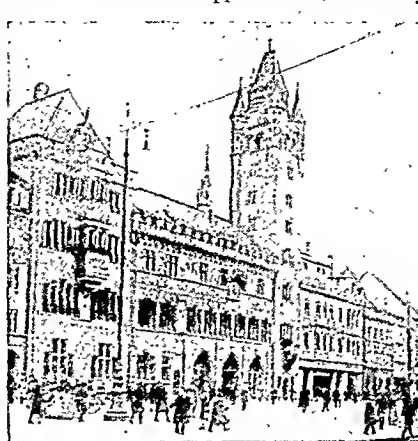
BASALT. Name applied to basic lavas that are rich in ferrous and magnesian silicates. In structure they may range from glassy to finely crystalline rocks. In colour they are generally dark grey or black. The constituent minerals are essentially plagioclase feldspars, olivine, and augite, with accessory iron ores. The word comes from basaltis, the Latin form of the native name of a dark species of hard marble found in Ethiopia.

Owing to the fluidity of basaltic lavas when erupted, they most often form sheets of no great thickness but of considerable extent. Successive flows poured out one upon the other often give the country a terraced aspect. The peculiar hexagonal prismatic jointing that gives rise to the basaltic columns of the N. of Ireland, Staffa, and elsewhere is due to the shrinkage of the molten material on solidification and cooling. See Geology; Rocks.

BASE (Lat. basis, step, pedestal). Term applied to the oxides or hydroxides of metals which combine with acids to form new bodies known as salts. Bases very soluble in water are termed alkalis, but the word base is frequently applied to any compound capable of neutralising an acid. A strong base is one which combines with a large proportion of the acid, or reacts with various acids to form very stable salts. A weak base has the opposite meaning. Basic oxides are oxides which react with acids to produce salts. Organic bases are groups of elements containing carbon and nitrogen which exhibit the properties of bases. See Chemistry.

BASE. In war, any frontier town or seaport from which an army moves forward to meet the enemy, and to which it would retreat in case of necessity. British bases in France during the Great War were Boulogne, Calais, Dunkirk, Dieppe, Havre, Rouen and Cherbourg. Mudros was a base for the Gallipoli campaign, Salonica for the Balkan campaign, and Basra for that in Mesopotamia.

In heraldry the base is the lower third of a shield or banner. It is not a charge like the chief or upper third; but any



Basel. The Town Hall, a 16th century building. The frescoes on the façade are reputed to be by Holbein

charge borne below the fess point is said to be in base. (See Shield.)

A base line is a line measured off for the start of triangulation in ordnance surveys. The base line of the British survey is on Salisbury Plain, in Wiltshire.

BASEBALL. National game of America. The game may be roughly described as a combination of rounders and cricket, and is in all probability a scientific form of the early American school game of One Old Cat, with its after developments of Two, Three, and Four Old Cat. The field is marked out in the form of a diamond, 90 ft. square, with a base at each of its four corners, named the home plate (or base), and first, second, and third base. A bat, in the form of a club tapering at the handle end, and a ball 9 ins. to 9½ ins. in circumference, and weighing 5 oz. to 5½ oz., are the implements employed. Various guards are worn to protect the hands and face.

There are nine players on each side, the score being made by runs. The distribution of the fielding side is as follows: the pitcher and the catcher (answering to the bowler and wicket-keeper of cricket), first baseman, second baseman, short stop, and third baseman, and the three outfielders—left, right, and centre. The pitcher delivers the ball to the batsman standing at the home plate, who endeavours to hit it in such a manner and direction as shall give him time to reach at least one of the bases before the ball can be returned to the baseman standing there. If the batsman succeeds in reaching the base in safety, another takes his stroke from the home plate, and the first striker tries in the meanwhile to reach the next base; the last comer at the same time trying to reach second base. A side is out when three batsmen are dismissed. Nine innings are played by each side, and an entire game is generally completed under 2½ hours. Since the Great War the game has been played to some extent in England, especially at Stamford Bridge, London. In the U.S.A. the game is controlled by the National Baseball Association, founded in 1858.

BASEL, BASLE, OR BÄLE. City of Switzerland. On both banks of the Rhine, it is a great railway and distributing centre. The city has large electricity

works and metal, chemical, and ribbon making industries. There are four annual markets and an annual fair. Its muster was a cathedral until 1529. In the cloisters are buried several celebrated men, including Erasmus. The university, founded 1460, was a famous centre in the late Middle Ages. The town hall dates from 1508. The Basel rly. station, completed in 1922, is one of the largest in Europe. In 1929 it was decided to make Basel the seat of the International Bank for Reparations. Basel was founded by Valentinian. It joined the Swiss Confederation in 1501. Pop. 141,150.

The Council of Basel was a general council of the Church summoned by Pope Martin V in 1431. It was the last attempt at control made by those who held the conciliar theory, i.e. that the authority of the Church resided not in the papacy, but in a general council. (See Papacy.)

The Treaty of Basel was signed April 5, 1795, between the French republic and Prussia, and July 22, 1795, between the republic and Spain. By it Prussia was forced to secede from the coalition and surrender all her territory on the left bank of the Rhine. To Spain France gave back her conquests, but received the Spanish part of Haiti.

BASHAN (Hebrew, rich soil). Region of Palestine, E. of the Sea of Galilee, in the upper Jordan valley. It contained cities of refuge (Deut. 4). Extensive remains of its ancient cities have been found. Bashan is frequently mentioned in the O.T. Its most famous king was Og, who was a giant. Its cattle were famed for their ferocity; hence references to bulls of Bashan.

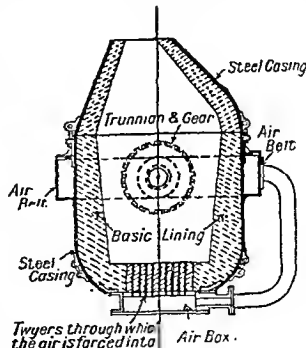
BASHI-BAZOUKS (Turk. bash, head; bozuz, disordered, lawless). Turkish irregular troops. Their atrocities in Bulgaria, in 1876, aroused intense feeling in Britain.

BASHKIR. Autonomous republic of the Union of Russian Socialist Soviet Republics. It is in the S. Ural region, has an area of 90,860 sq. m., and a pop. of 2,741,000. Ufa is the capital. The inhabitants are a pastoral people of Finnish stock. See Russia.

BASHKIRTSEFF, MARIE KONSTANTINOVA (1860-84). Russian painter and author. Born at Gavriontsi, Russia, she was brought up in Italy. She went to Paris in 1877, where she studied painting under T. Robert-Fleury, and, exhibiting her first works under the name of Marie Konstantinova Russ, achieved success in 1883 with Une Parisienne and The Meeting. She died in Paris of consumption, Oct. 31, 1884. Her fame rests rather on her writings, especially her Journal, than on her paintings. They have been translated into English.



Marie Bashkirtseff, Russian writer
Self-portrait, Luxembourg



Basic Liner. Section showing the basic lining to a Bessemer converter

BASIC LINER. Term used in metallurgy. In preparing the furnace or converter in which he carried out his process of producing steel, Bessemer followed ordinary blast furnace practice and lined the converter with fireclay or gunister bricks, i.e. with a material consisting largely of silica. By making the furnace liner of a basic material, it was found possible to utilise other irons containing much larger proportions of phosphorus. The material most suitable as a basic liner is burnt magnesian

limestone, an impure dolomite consisting of carbonates of lime and magnesia, and a little silica. Bricks are made of this material moulded with a small amount of hot tar added to hold them together during the early stages of the firing in the kiln. The small quantity of silica helps to bind the bricks firmly.

BASIC SLAG. Non-acid phosphatic manure obtained as a by-product when steel is manufactured from ores containing phosphorus. The percentage composition is: phosphoric acid, 8 to 20; silica, 5 to 15; sulphuric acid, 0.2 to 1; lime, 35 to 55; iron oxides, 10 to 20; alumina, 1 to 8; magnesia, 2 to 8. Its chief use is on poor pastures. The growth of clover is promoted in a remarkable manner, and, as clover fixes free nitrogen, basic slag indirectly adds to the amount of nitrogenous plant food. See Manure; Soil.

BASIL (Gr. basilikos, royal). Aromatic herb of the order Labiatae, to which most of the culinary sweet herbs belong. Sweet basil (*Ocimum basilicum*), a native of India, has been cultivated in Europe many centuries on account of its clove-like flavour. *O. sanctum*, a shrubby species, is the holy basil or tulsi of the Hindus, who plant it about their temples and make rosaries of beads cut from its wood. The popular names basil thyme and wild basil are given to species of *Satureia*.

BASIL (329-79) (Gr. basileus, king). Saint and bishop. Born at Caesarea in Asia Minor of Christian parents, he was called the Great to distinguish him from his father, S. Basil the Elder. He was educated in Athens and Constantinople, and then returned to Caesarea as teacher and professor of rhetoric. Coming more directly under the influence of religion, he made a tour of the hermitages in Syria, Mesopotamia, and Egypt, and, founding a monastery in his native Pontus, drew the hermits into communities and became the real founder of Eastern monasticism. Ordained priest in 363, in 370 he was made bishop of Caesarea, where he founded schools and hospitals. He died Jan. 1, 379, and his feast is kept on Jan. 30.

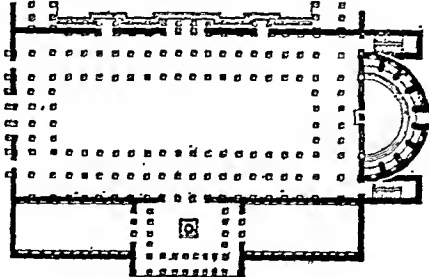
The Basilian monks were members of religious communities of men, founded about A.D. 358 by S. Basil. In Russia alone there were about 10,000 monks and 400 monasteries before 1918. Communities of nuns were also formed under S. Basil's rule. They are now found in Poland, Syria, and elsewhere. The habit is a black woollen tunic, and a hood with streamers. See Monasticism.

BASIL. Name of two East Roman emperors. Basil I was chosen joint emperor with Michael in 866. He brought about Michael's murder and ruled until his death, the result of a hunting accident, Aug. 29, 886. Basil II, a son of Romanus II and a descendant of Basil I, was emperor, 976-1025.

BASILDON. Villages of Berkshire, Upper and Lower. Near is Basildon House, long the residence of Alfred Morrison; in 1929, with the estate, it was bought by Sir E. M. Iliffe. It is on the Thames, 8 m. from Reading.

BASILICA. In the Hellenistic age, a large building erected for the accommodation of a number of people gathered together for business purposes, or for the sitting of a court of justice. The Romans adapted the Hellenistic basilica to manifold uses. It was employed by them not only as an exchange, but as a rendezvous for society idlers.

With the conversion of Constantine to Christianity, the basilica suggested itself as



Basilica. Plan of the Basilica Ulpia at Rome. The main rectangle was about 370 ft. long by 180 ft. wide, while the internal height was about 120 ft.

the model for the Christian church. That known as Constantine's basilica in the Forum Romanum was begun by Maxentius and finished by Constantine in A.D. 312. It is vast beyond previous example, the area being about 19,500 sq. ft.

The best preserved basilicas of the early Christians are in Ravenna. There the church of S. John the Evangelist retains the original shape and organism, and in the same town the basilicas of S. Apollinare in Classe and S. Apollinare Nuovo, both of the 5th century, are the oldest extant. See Apse; Clerestory.

BASILICON (Gr. royal). Name of various ointments of alleged sovereign virtue. They are made of wax, resin, and oil mixed with other substances, and used as salves for ulcers, burns, chilblains, etc. The form which contained the four ingredients wax, resin, oil, and black pitch was especially prized, and was known as the great basilicon, black basilicon, or tetrapharmacum (four drugs). The aromatic culinary herb sweet basil is called basilicon.

The basilicon doron or royal gift was a pamphlet written by James I when he was James VI of Scotland. Written for his son Henry, it was printed in 1599, and showed the king's liking for episcopacy.

BASILISK (Gr. basiliskos, little king). Fabulous snake-like creature supposed by the ancients to be king of the serpents. It was so called from the crown or crest on its head. Its

glance was deadly, and it could be attacked only by using a mirror. In the 16th and 17th centuries, when ordnance were named after reptiles, a large brass cannon was called a basilisk. The name is now applied to a genus of crested lizards (*Basiliscus*), natives of Central America. In the A.V. the word is translated by cockatrice (e.g. Jer. 8, 17).



Basilisk. Crested lizard of America, showing the crown or crest on its head

BASIN (late Lat. bacinus, water-vessel). Word employed in several senses. Its main meaning is that of a hollow vessel for holding water, and from this the others are derived. In engineering, a basin is a wholly or partially enclosed area in which water may be impounded or into which it may flow.

In geology, a basin is a region in which the bedded deposits dip towards a centre. The result is that the newest rocks occur in the central portion of the area, and are surrounded by successively older deposits. The phenomenon is the converse of dome. Typical examples are the Hampshire basin, the London and Paris basins, and the great sunken area around Utah lying between the Wahsatch Mts. and the Sierra Nevada.

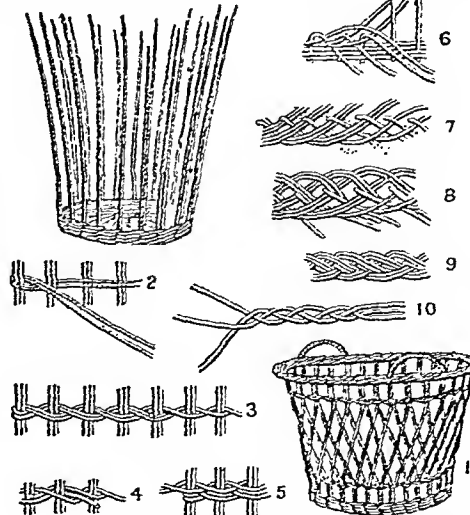
In geography, basin is the catchment area of a river, or the whole of the land drained by a river and its tributaries. See Dock; Harbour; River.

BASINGSTOKE. Borough and market town of Hampshire. An important rly. junction on the Southern and G.W. Rlys., it is 48 m. by rly. W.S.W. of London, with which it has communication by water through the Basingstoke Canal, the Wey, and the Thames. It trades in malt, corn, and timber, and manufactures farm implements, beer, and clothing. It gives its name to a parl. co. div. returning one member. Basingstoke has a site for an aerodrome in its town planning scheme. Market day, Wed. Pop. 12,718.

Near by are the ruins of Basing House, a residence of the marquesses of Winchester, famous for its resistance to the Parliamentarians during the Civil War.

BASKET. Article for holding something, made usually of rushes or twigs. The most valuable material used in ordinary basket-making is the willow twig or osier, which grows wild in England, but is also extensively cultivated in osier beds, especially in Leicestershire and Nottinghamshire.

The actual making of baskets has altered very little from the earliest times, almost all being made by hand with very simple tools. A shop-knife, a picking knife, bodkin, shears, command-cr, a yard-measure, and an iron for closing up the weaving are the most important. The work is generally done on a broad elm plank, raised a brick's breadth from the floor, upon which lies a lapboard and a tool box. The former is a slightly slanting board about 3 ft. by 2 ft., upon which the



Basket. Making a waste-paper basket. 1. Fitting in byestakes. 2, 3, 4, and 5. Making the fitch. 6. Beginning plaited border. 7, 8, and 9. Plaiting the border. 10. The handle. 11. The finished basket

basket is built. When the bottom of the basket is woven and the stakes for the side are inserted it is fastened upon the lapboard by the bodkin as a pivot.



Basketmakers' Company arms

The Britons were renowned in Rome for their baskets (bascaudae), and the form of the baskets made by them underwent little alteration until late in the 19th century, when innovations in shape and size were introduced.

The Basketmakers' Company, founded in 1569, is one of the London livery companies.

BASKET BALL. Ball game in which only the hands are used in propelling the ball. The goal or basket at each end consists of a net 18 ins. in diameter suspended from a metal ring, backed by a screen. The object of the game is to throw or bat with the hand an inflated leather ball, 18 ins. in circumference, towards the opposite end; a goal is scored when the ball is thrown into the net.

The game can be played on turf or in a covered building, the actual area of play consisting of a space 60 ft. by 40 ft. Indoor matches are usually limited to five players on each side, comprising centre, right and left forwards, and right and left backs. Play begins by the referee tossing the ball over the heads of the opposing centres, who stand within a 4 ft. circle in the middle.

BASQUE. Name of a people of the W. Pyrenees, at the bend of the Bay of Biscay. They inhabit Vizcaya or Biscay, Guipizcoa, and Álava: Navarra, in Spain, and the S.W. third of the Bascos-Pyrénées department, in France. There may be 400,000 in Spain, 150,000 in France, and more than 100,000 in America, mostly in Argentina. The Basques call themselves Euscaldunac, and their speech Euscarian.

The Euscarian language is holophrastic, i.e. the sentence is a single verbal unit. It is therefore pre-Aryan. Its ancestry lies in Palaeolithic Europe, and it has developed in geographical isolation, along lines of its own, various agglutinative and polysynthetic elements now tending to decay. Quite two-thirds of the vocabulary is borrowed, but in the remainder affinity with Berber is traceable. While nine-tenths of the Basques are agriculturists, they are also intrepid seamen. They dominated the whale fishery in the N. Atlantic, and took part in establishing the cod fisheries of Newfoundland.



Basque. Typical member of this race inhabiting the Western Pyrenees

The Basque Roads, an ancient division of N.E. Spain, comprise the modern provs. of Guipizcoa, Vizcaya (Biscay), and Álava, with an area of 2,739 sq. m.

The Basque Provinces, an ancient division of N.E. Spain, comprise the modern provs. of Guipizcoa, Vizcaya (Biscay), and Álava, with an area of 2,739 sq. m.

BASRA, BASSORA, or BUSSORA. Chief port of Iraq, in Mesopotamia. It stands on the Shatt-el-Arab, 60 m. from the Persian Gulf and about 270 m. S.E. of Bagdad. Founded by the caliph Omar in A.D. 636, it later became the capital of a vilayet of the same name. It had a fluctuating prosperity as a port and as

the centre of a large trade in dates, which are still the largest item on its export list. Its population was formerly about 100,000, but



Basra. Aerial view of aerodrome at Shaiba, the station for Basra, on the England to India route Imperial Airways, Ltd.

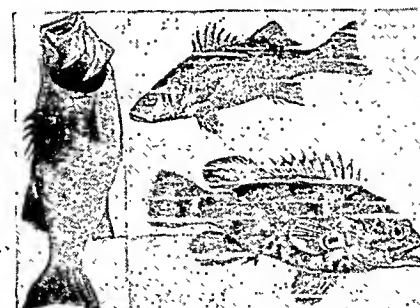
in 1914 it had fallen to 30,000. At the present time it is about 50,000.

Occupied by the British, Nov. 22, 1914, Basra became a military base for the subsequent campaign in Mesopotamia. By the exertions of the Inland Water Transport Service it rapidly became a great port, equipped in the most modern manner. Since 1920 it has had direct rly. communication with Bagdad. It is an important air-station on the England-India route, the aerodrome being at Shaiba.

BASS (late Lat. bassus, low). In music (1) the lower portion of the series of audible scale sounds; (2) the lowest or fundamental note of a chord; (3) the left-hand portion of the organ or pianoforte keyboard; (4) the lowest and heaviest voice of men.

The name is also given to various instruments of deep tone such as the violoncello or bass viol, bass clarinet, bass saxophone, bass tuba, and bass drum.

BASS OR BASSE. Fish of the perch family, usually from a foot to 18 ins. in length, voracious and fierce. Some species are marine.



Bass. On the left is a bass weighing 320 lb. On the right are: above, common bass; below, stone-bass

others inhabit fresh water. The bass is common around the southern shores of England and Ireland, and often ascends the rivers. The flesh of the marine species is coarse, but that of the fresh-water species in America is superior. Sea bass may weigh up to 400 lb.

BASS OR BAST. Inner fibrous bark of certain trees. The strands are used for making mats and soft baskets, etc., and in the garden for tying up plants.

BASS, MICHAEL THOMAS (1799-1884). British brewer. Born July 6, 1799, he was the son and grandson of brewers at Burton-on-Trent, the business having been started in 1777 by his grandfather, William Bass. Michael Bass took into partnership two of his assistants, and the firm was known as Bass, Ratcliff & Gretton. In 1848 Bass was returned to Parliament as

Liberal M.P. for Derby, and he kept his seat until 1883. He declined a baronetcy, and died April 29, 1884, at Rangemoor, Staffordshire, an estate he had purchased. Bass's eldest son, Michael Arthur Bass, a Liberal M.P., in 1882 was made a baronet, and in 1886 Baron Burton. When he died, in 1909, his baronetcy passed to his nephew, W. A. Hamar Bass, but his barony to his daughter.

The beer brewed by his firm is colloquially known as bass. Its two main varieties are bitter and Burton.

BASSEIN OR BASSIM. Town and port of Lower Burma. Capital of the Irawadi division and of the district of Bassein, it stands on the Bassein river, an outlet of the Irawadi, 75 m. from the sea. It is connected by steamer with Rangoon and by rly. with Rangoon and the interior. Rice is largely exported. Founded about 1250, it was captured by the British in 1852. Pop. 42,563. The district covers 4,127 sq. m. and has a pop. of 489,473.

There is another Bassein, in Bombay presidency, at the S. end of Bassein Island, about 27 m. N. of Bombay. Once a town of considerable importance, with a pop. of nearly 70,000, it has fallen into decay.

BASSENTHWAITE. Lake in Cumberland. A few miles N.W. of Keswick, it lies 224 ft. above sea level, is 4 m. long by $\frac{1}{2}$ m. wide, and has a depth of 70 ft. It has been separated from Lake Derwentwater by the silt deposited by the Greta and Newlands Beck. The village of Bassenthwaite, on the W. side of the lake, has a station on the L.M.S. Rly.

BASSES-ALPES. Department of France, adjoining Italy on the E. Its area is 2,697 sq. m. It is mainly mountainous and thinly populated, sheep rearing being the principal industry. The highest point is the Aiguille de Chambeyron, 11,150 ft. In the fertile valleys grain and fruit are cultivated. Digne is the capital, and the chief rivers are the Durance and Verdon. The largest towns are Digne, Castellane, Barcelonnette, and Sisteron. It was once part of Provence. Pop. 83,347.

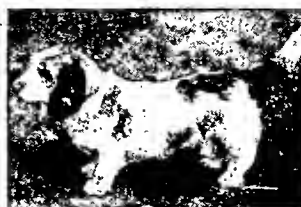
BASSES-PYRÉNÉES. Department of France. It lies in the region of the Pyrenees and fronts, between the Adour and Bidassoa, the Bay of Biscay. Mainly mountainous, with much forest land, it has an area of 2,977 sq. m. The chief rivers are the Adour, Gave de Pau, and Nive. The valleys are fertile, agriculture flourishes, and horses and cattle are reared. Fruit, including the vine, is grown. Pau is the capital and Bayonne the chief port. Other towns are Biarritz, Orthez, and Oloron, and there are mineral springs. It is largely identical with the old province of Béarn. Pop. 414,556.

BASSETTERRE. Seaport and capital of St. Christopher (St. Kitts), Leeward Isles, British West Indies. Situated on the W. coast, the chief exports are coconuts, sugar, syrup, and cotton. Ships lie in the open roadstead to discharge cargo by lighters. Pop. 7,736.

There is a town called Basse-terro in Guadeloupe, French West Indies. It stands on an open roadstead on the S.W. point of the western of the two islands forming Guadeloupe, the island itself being also known as Basse-terro. It is the seat of the government. Pop. 8,379.

BASSET HORN. Tenor clarinet in F, playing from the treble clef and sounding a fifth below the written pitch. It has extra keys which extend the downward compass to the lower F.

BASSET HOUND. Hound of French origin, employed in covert hunting. Long in the body, with short and crooked legs and



Basset Hound. Queen Alexandra's champion dog, Sandringham Valour

a somewhat heavy head of the bloodhound type, it is remarkably sagacious. It should be black and white, with tan on the head.

BASSOON (Ital. fagotto). Musical instrument. It is the natural bass of the oboe (hautboy) in the orchestra, and in practice the bass of the whole group of wood-wind instruments. The ordinary bassoon is made of wood, with a conical bore a little more than 8 ft. in length. Its tone is produced by a double reed attached to a metal crook about a foot long, in shape approaching the letter S. The scale is controlled by the closing and opening of lateral holes by the fingers, and by keys where the holes are out of reach of the hands.

BASS ROCK. Circular volcanic island in the Firth of Forth, 3 m. E.N.E. of North Berwick. It has an area of 7 acres and a



Bass Rock. Island in the Firth of Forth on which is a lighthouse. To the left is Tantallon Castle

greatest elevation of 350 ft. It has a lighthouse, and is crowded with aquatic birds, especially solan geese. It is penetrated for some distance by a tunnel 15 ft. in height. In 1671 it was purchased by the Government, who converted it into a prison for the Covenanters. Tantallon Castle lies opposite.

BASS STRAIT. Shallow channel between Australia and Tasmania. About 195 m. long, with a greatest breadth of 140 m., it contains many islands and coral reefs. It is named after George Bass, who sailed through it in 1798.

BASSWOOD OR **AMERICAN LIME** (*Tilia americana*). N. American tree of the natural order Tiliaceae. The name basswood was originally given to the common lime, whose inner bark produced bass or bast. See *Lime*.

BAST, BASTET, OR UBASTI. An Egyptian goddess. Symbolising the beneficent solar heat, as distinct from the fiercer heat of the lioness-headed Sekhet, she is usually cat-headed, with sun shield and sistrum (rattle), and is delineated thus on a Pompeian wall-painting. Mentioned under the III dynasty, she was especially worshipped at Bubastis. She was identified by the Greeks with Artemis (q.v.).

BASTAR. Native state of India, in the Central Provinces. Mountainous and covered with jungle, it has an area of 13,062 sq. m. and produces rice, silk, hides, and timber. Pop. 464,407.

BASTARD (Fr. bâtard, from late Lat. bastum, a pack-saddle). One not born in lawful wedlock, or within a competent time thereafter; also a person who has been declared by a competent court not to be the child of its mother's husband. The presumption is that a child born during lawful wedlock is legitimate. The mother is responsible before the law for the child's maintenance.

In Scotland the subsequent marriage of the parents has always made a bastard legitimate in the eyes of the law. This is now so in

England, as a law making this alteration was passed in 1926. (See *Adoption*.)

In heraldry a bastard bar, or bar sinister, is a mark upon the shield to show illegitimacy.

BASTIA. Seaport of Corsica. On the N.E. coast, 98 m. by rly N.E. of Ajaccio, it was formerly the capital and is now the chief commercial town. It has a good harbour at the rly. terminus,

and exports tan extracts, citrons, oil, wine, charcoal, copper, and antimony. Coal, grain, and flour are imported. The industries include fishing and the manufacture of tobacco, candles, soap, and macaroni, the distilling of oil, spirits, and liqueurs, and there are tanyards, dyeworks, and marble quarries. Founded by the Genoese, 1383, it became French in 1769, and was captured several times by the English. Pop. 29,998.

BASTIAN, HENRY CHARLTON (1837-1915). British scientist. Born at Truro, April 26, 1837, he qualified as a doctor. From 1867-87 he was professor of pathological anatomy, and from 1887-95 of the principles and practice of medicine at University College, London. He is chiefly known as an advocate of the theory that life could originate from non-living matter. On this he wrote *The Beginnings of Life*, 1872, but his theory was rejected by other scientists. He died Nov. 17, 1915.

BASTIEN-LEPAGE, JULES (1848-84). French painter. He was born at Damvillers, Meuse, Nov. 1, 1848, his father being a small farmer. In 1867, after a few months as a clerk in the Damvillers post office, he went to Paris and joined the École des Beaux Arts. His first picture at the Salon, a *Portrait of a Young Man*, shown in 1870, attracted little attention. On the outbreak of the Franco-Prussian War he served with a company of francs-tireurs. In 1874 his *Spring Song* was bought by the state. In 1877 his *Hayfield* was bought for the Luxembourg, and his *Joan of Arc*, 1880, set the seal on his fame. He died in Paris, Dec. 10, 1884.



J. Bastien-Lepage, French painter
Self portrait

BASTILLE (old French bastir, to build). French term applied originally to any fortress defended by bastions, but finally restricted to the famous Paris fortress-prison.

The Bastille had its origin in two towers on each side of the Gate of St. Antoine. Additional towers were built about 1375 by Hugues Aubriot, provost of Paris. In its final form it had eight towers. From a stato prison it became a general prison, and from the number of persons imprisoned by lettres de cachet it came to be regarded as an emblem of tyranny and oppression. At the outbreak of the Revolution the Bastille was attacked by the Paris populace, July 14, 1789, and destroyed. The anniversary of the taking of the Bastille is kept as a holiday in France.

BASTINADO (Span. bastonada, Fr. bâton, stick). Method of punishment employed mainly in eastern countries. It generally takes the form of blows on the soles of the feet, and its steady continuance is one of the most exquisite kinds of torture known.

BASUTOLAND. Territory in S. Africa, under British administration. It was annexed to Cape Colony in 1871, but in 1879-80 the Basutos revolted, and in 1884 their country was taken over by Great Britain.

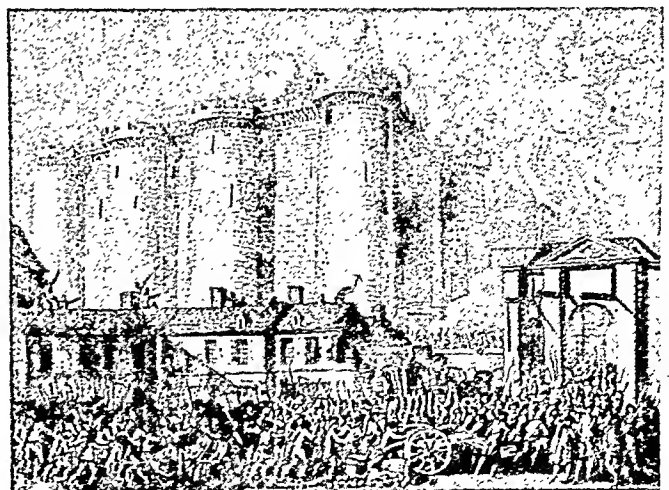
Basutoland is a mountainous plateau, with an average elevation exceeding 6,000 ft. and rising on the E. in the Drakensberg above 10,000 ft.; the Orange river rises here in Mont aux Sources (10,763 ft.). It is bounded by the Orange Free State, Natal, and the Cape Province, and covers an area of 11,716 sq. m. Maseru, the capital, is connected by rly. with the Bloemfontein-Natal line. Large herds of cattle are reared. Pop. 540,000.

BAT (old English bakke). Name applied to all the members of the order Chiroptera. The fore limbs are modified to form wings, the fingers being enormously developed, and longer than the mouse-like body of the animal. Between the fingers a membrane extends along the two sides of the animal, and involves the hind limbs and the tail. Most bats are insectivorous, but the large bats of India live on fruit, and certain species will suck the blood of a sleeping animal. All are nocturnal in habit. Sixteen species of bats have been recorded as British, but only four are common. See *illus. p. 206*.

BATAILLE, HENRY (1872-1922). French dramatist and poet. He was born at Nîmes, and published *La Chambre Blanche*, his earliest volume of poems, in 1895, and another volume, *Le Beau Voyage*, in 1904. His long series of stage successes began with *Maman Colibri*, 1904. In 1916 he published *La Divine Tragédie*, and in the following year *Écrits sur le Théâtre*. He died March 2, 1922.

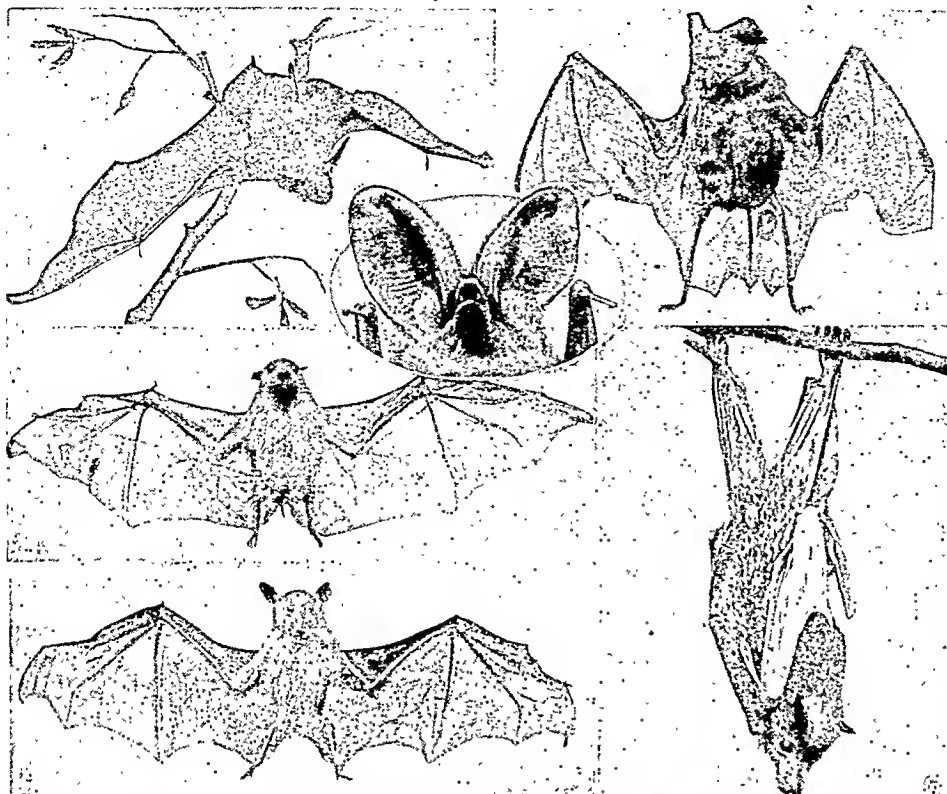
BATAVIA. Old name for Holland, from the Teutonic tribe, the Batavi. The name was occasionally used for Holland and the Netherlands, just as Gaul was for France. In 1795, when the Netherlands were reorganized, the country was called the Batavian Republic, a name it retained until the kingdom of Holland was formed in 1806. This republic was almost identical in size and boundaries with the present kingdom of the Netherlands (q.v.).

BATAVIA. Seaport and chief town of Java, and capital of the Dutch East Indies. It is on the N.W. coast, at the mouth of the



Bastille. The Revolutionary mob storming the famous prison, which was regarded as the symbol of tyranny in France, July 14, 1789

After Prieur



Bat: different species found in various parts of the world. 1. Marine bat. 2. Great leaf-nosed bat; the nose leaf is an organ of perception. 3. Long-eared bat, a common British species. 4. Tube-nosed bat, from Celebes. 5. Abyssinian spotted bat, which feeds largely on figs. 6. Malay fox-bat, the wing span of which measures upwards of 5 feet. See page 205

Jilivong or Jacatra river. The old town comprises the business and native quarter, and the modern city contains the European residential quarter and the chief public buildings. The harbours are at Tanjong Priok, 6 m. N.E. Batavia is the chief emporium of the Dutch E. Indies. Exports include coffee, rice, sago, sugar, tea, tobacco, hides, spices, trepang, rattans, birds' nests, tin, and timber. Founded by the Dutch as a factory in 1610, it was taken by the British in 1811 and restored to the Dutch in 1816. At Buitenzorg, 35 m. S., is one of the finest botanical gardens in the world. Pop. 253,000.

There is a town called Batavia in New York State, U.S.A., pop. 15,600

BATESON, WILLIAM (1861-1926). British scientist. He devoted himself to the study of some of the biological problems raised by Darwin, Mendel, and others. He wrote *Materials for the Study of Variation*, 1894; *Mendel's Principles of Heredity*, 1902; and *Problems of Genetics*, 1913. In 1903 he was made professor of biology at Cambridge, and in 1910 director of the John Innes Horticultural Institution, Merton Park, Surrey. He died Feb. 8, 1926.

Bateson's sister, Mary Bateson (1865-1906), ably edited documents relating to the history of Leicester and other English towns.

BATH, ORDER OF THE. British order given for military and civil service. It was founded at least as early as 1399, but it fell into abeyance and was not revived until 1725. It was remodelled in 1815 and is now the military badge is a red cross, edged and knobbed the capital of a vilayet of the lion of England in had a fluctuating prosperity

thistle, and shamrock springing from a sceptre between three crowns, within a circle inscribed *Tria Juncta in Uno* (three joined in one), and surrounded by a wreath of green laurel, issuing from a scroll inscribed *Ich Dien* (I serve). The civil badge is an oval circlet with the motto and within this the incised emblems of the rose, thistle, shamrock, sceptre, and three crowns. The ribbon is red. The chapel of Henry VII in Westminster Abbey was assigned to the order in 1725

BATH. City and county borough of Somerset. In the Avon valley, 107 m. by rly. W. of London, and 11 m. E.S.E. of Bristol, it is served by the G.W. and L.M.S. Rlys., and water communication with London is afforded by the Kennet and Avon Canal, and with Bristol by the Avon river. The city is arranged in a series of natural crescents backed by hills. Its sheltered position and mineral springs have made it popular.

The Perpendicular Abbey Church, dating from 1499, superseded a Norman cathedral, begun in 1090, on the translation of the see of Wells to Bath, and completed 70 years later. It is now the secondary cathedral of the diocese. Other buildings include the Great Pump Room, the Victoria Art Gallery and Library, the Assembly Rooms and the Holburne Art Museum. The Free Grammar School, established by Edward VI in 1552, was removed to its present site in 1752. S. John the Baptist's Hospital was founded in the 12th century and rebuilt in 1728. Other buildings are the guild-

hall, with the banqueting ball therein, and the new municipal offices. The bath chair is named from the city, as also is the oolite or freestone worked in the district. A weekly market is held on Wednesday, and there are two race meetings annually.

Bath was founded, according to tradition, in 863 B.C., and was the *Aquae Sulis* of the Romans. Its modern prosperity is chiefly due to Beau Nash. Pop. 69,920.

BATH, WILLIAM PULTENEY, EARL OF (1684-1764). British politician. The son of William Pulteney, he was born March 22, 1684.

In 1705 he entered Parliament as Whig M.P. for Hedon, and retained this seat until 1734; from then until he was made earl of Bath in 1742 he represented Middlesex. In 1714 he was made

William Pulteney, Earl of Bath

secretary for war, but left office in 1717. Associating subsequently with the Tories, he attacked Walpole vigorously in Parliament and also in Bolingbroke's paper, *The Craftsman*, for which he wrote constantly. He was a minister after Walpole's fall, in 1742, remaining as such until 1746. He died July 7, 1764. His only son having died, the title became extinct.

In 1789 Thomas Thynne, Viscount Weymouth (1734-96), long a secretary of state, was made marquis of Bath, and the title is still held by his descendants. The family seat is Longleat, and the eldest son is called Viscount Weymouth.

BATHBRICK. Light friable brick of sand and clay. Used for scouring purposes, it is



made largely in the neighbourhood of Bridgwater, Somerset, the materials being taken from the bed of the river Parrett.

BATHGATE. Burgh and market town of Lidlithgowshire. It is 25 m. E. of Glasgow by the L.N.E.R. It has foundries and distilleries, and is a centre of an iron and coal mining district. Market day, Mon. Pop. 8,504

BATHOMETER (Gr. *bathos*, depth; *metron*, measure). Instrument for measuring the depth of the sea under a vessel which is in motion. It was invented by Sir William Siemens. Though highly ingenious, it has not superseded the sounding line. See Bathymetry.



Bath. 1. W. front of Abbey church, a masterpiece of Perpendicular architecture. 2. Old Roman bath, ascribed to the emperor Claudius



BASRA. Bath. of Iraq, in Mesopotamia. Shatt-el-Arab, 60 m. about 270 m. S.E. of Basra. The capital of a vilayet of the Mesopotamia. It had a fluctuating prosperity

BATHOS (Gr. depth) In speech or writing, an expression absurdly inadequate to its theme, or one that suddenly falls from the sublime to the ridiculous, for example, the well-known:

And thou, Dathouse, thou great God of War.
Lieutenant-Colonel to the Earl of Mar.

BATHS. The use of baths as a means of recreation and cleanliness has been general from the earliest times. Among many ancient civilized nations it was often a kind of religious ceremonial. Among the Egyptians, Indians, Persians, Japanese, and other Oriental nations it was and is extensively practised.

Discoveries at Crete and Mycenae have shown the existence of baths in pre-Homeric times and the Homeric poems themselves speak of a warm bath being prepared for a guest before a meal. In Sparta a warm bath followed by a cold douche was called laconicon, a term used in connexion with Roman baths.

In Rome, the use of baths constructed after the Greek model grew rapidly after the 3rd century B.C., and under the Empire both private and public baths reached the height of luxury. An idea of their extent can be obtained from the ruins of the *thermae* of Titus, Caracalla, and Diocletian, while the Roman bath at Caerwent in Monmouthshire shows the general arrangement.

BATHS USED MEDICINALLY. Baths afford a useful method of applying cold or heat to the skin in various forms of illness, and of introducing drugs into the body as a special form of treatment. Cold baths may be prescribed where the patient is suffering from high fever. A hot bath has a stimulating effect and increases the rate of the heart beat.

Hot air and vapour baths are largely used in medicine, for the local application of dry heat in chronic rheumatism, sciatica, neuritis, and other forms of illness. In the Turkish bath, which is a special form of hot air bath, the temperature of the hot rooms ranges usually from 125° to 180°, though sometimes 220° is reached in the hottest chamber.

Besides artificial baths, medicinal springs in many parts of the world are used for therapeutic purposes, for example, thermal baths at Buxton, Bath, Aix-les-Bains, etc., salt baths at Droitwich; sulphur baths at Harrogate; and so on.

BATHSHEBA. Wife of Uriah the Hittite. She became the wife of David and the mother of Solomon (2 Sam. 11 and 12; 1 Kings 1 and 2). See David.

BATHURST. City of New South Wales, Australia, in Bathurst co. On Macquarie river, 145 m. by rly. W. of Sydney, it is the centre of a wheat growing district, and is noted for horse breeding. It has rly. workshops, boot factories, tanneries, breweries, and flour mills. The Bathurst goldfields were discovered in 1851; copper and silver also are mined and marble is quarried. Bathurst has an experimental farm. Founded in 1815 it became a city in 1862. Pop. 9,060. There is an island, 30 m. long, called Bathurst off the N.W. coast of Northern Territory, Australia.

BATHURST. Seaport of W. Africa. Capital of the British colony of Gambia, it is situated on St. Mary's Island, a sandbank about 3½ m. long and 1½ m. broad, 7 m. from the mouth of the Gambia river. The island is largely a swamp, but the town is clean and well regulated and trades in rice, flour, cotton goods, sugar, tobacco, nuts, spirits, rubber, hides, guni, and wax. It has cable communication with Sierra Leone and St. Vincent (Cape Verde), and is in wireless communication with Georgetown. Pop. about 9,000. Another Bathurst is a town of Cape Province, S. Africa, 34 m. from Grahamstown.

Bathurst is also the name of an inlet on the

N. coast of Canada, within the Arctic Circle. Here H. V. Radford was killed while exploring in 1912. The Stefansson Canadian expedition reported in 1916 vast deposits of low-grade copper along Bathurst Inlet and Coronation Gulf. There is also a large island of Arctic America, in the Parry Archipelago, called Bathurst. It was discovered by Sir E. Parry, and here Sherard Osborn found the bones of an ichthyosaurus.

BATHURST, EARL. British title borne since 1772 by the family of Bathurst. In 1705 Allen Bathurst became M.P. for Cirencester, with which town his family have since been connected; he was made Baron Bathurst in 1711 and in 1772 an earl. He was a Tory and an opponent of Walpole, and is also known for his friendship with Pope, Swift, Congreve, Sterne, and other men of letters. He was succeeded by his son Henry (1714-94), who was lord chancellor 1771-78.

Henry the 3rd earl (1762-1834) was in



Seymour H. Bathurst
7th Earl Bathurst
Elliott & Fry

office throughout Pitt's long premiership, which ended in 1802. He was in the ministries of Portland and Perceval, and from 1812-27 was secretary for the colonies and for war. From 1828-30 he was lord president of the council. He died July 29, 1834.

The 6th earl married Lillias, daughter of Baron Glenesk, who, on her father's death, became the chief proprietor of The Morning Post. The earl's eldest son is known as Baron Apsley. Cirencester House is the family seat, and around it are the family estates. The family tombs are in Cirencester church.

BATHYMETRY (Gr. bathys, deep; metron, measure) Art of taking soundings of lakes, seas, and oceans. For small depths a plummet attached to a marked hand-line is used. For dealing with great depths recourse is had to the sounding machine, which has a drum, geared to a recording dial and carrying a coil of steel wire with a plummet on the end.

A sounding tube is of glass, closed at the upper end and coated inside with a chemical mixture. The water rises inside the tube as the pressure increases, and the extent of discoloration shows the depth attained. A depth recorder is a cylinder into which a piston is driven against a spring by the water pressure thus moving a non-returning marker along a scale.

BATIK or **BATTIK.** Method used by the natives of the Dutch East Indies to produce curious marbled effects on fabrics. In producing patterns by the batik method those parts of the fabric which are not to be dyed are coated with hot wax. The process has been adopted in other countries for velvets and other materials.

BATISTE. Fine linen or cotton cambric. It is so called either from its alleged inventor, Baptiste, a Cambrai linen weaver, or from its being used for wiping the heads of infants after baptism. It is sometimes dyed and printed.

BATLEY. Borough and market town in Yorkshire (W.R.). It is 12 m. N. of Dewsbury, on the L.M.S. and L.N.E. Rlys. All Saints' church, founded 1482, is chiefly a Perpendicular structure. Batley is an im-

portant centre of the heavy woollen trade, army cloths, shoddy, and druggets being largely manufactured. It has also iron foundries, and in the locality coal mining and stone quarrying are extensively carried on. With Morley it unites to return one M.P. Market day, Wed. Pop. 36,151.

Batley Carr is a district in Yorkshire (W.R.). It lies a little S. of Batley, and has stations on the L.M.S. and L.N.E. Rlys.

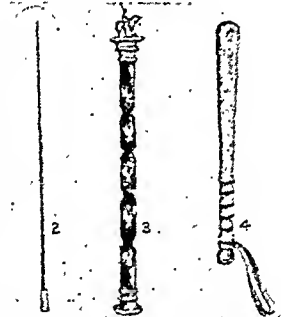
BATMAN (Fr. bât, pack-saddle) Originally a man wearing the king's livery hired to take charge of draught and baggage horses during a campaign. The term was afterwards applied to soldiers employed as grooms, and is now used for officers' servants.

BATMAN, JOHN (1800-40). Australian pioneer. Born at Paramatta, New South Wales, Batman went to Tasmania, where he became a prosperous farmer. In 1835 a company was formed and Batman went over to Australia and obtained from some of the native chiefs a grant of about 600,000 acres in what is now the state of Victoria. This arrangement was not recognized by the authorities at Sydney, but some English families settled there.



BATON

(Fr. bâton, stick). Term applied to a field-marshal's staff of authority, to the staff carried by a drum-major, to a policeman's truncheon, and to the wand with which a conductor of an orchestra beats time. The word is used in heraldry for a truncated bend, usually in the old French form, baston.



Baton. 1. Drum-major's baton. 2. Orchestra conductor's baton. 3. Field-marshal's baton. 4. Policeman's baton or truncheon

BATON ROUGE (Fr. red stick). Capital of Louisiana, U.S.A. On the Mississippi, it is 79 m. by rly. and 120 m. by river N.W. of New Orleans. It is the site of the state university. A port of entry, it has a fine harbour, and trades in sugar, cotton, and lumber. The town has a refinery of the Standard Oil Co., sugar refineries, cotton-seed oil mills, brick works, and an ice factory. It was the state capital from 1849 until 1862, when the seat of government was removed by the Confederates to Shreveport. In 1864 the capital was established at New Orleans by the Federals, but in 1882 again transferred to Baton Rouge. Here, in 1862, the Federal troops defeated the Confederates in the American Civil War. Pop. 21,782.

Batrachia (Gr. batrachos, frog). Name applied to the group of amphibian animals including the frog and toad.

BATTALION (Lat. battuere, to strike or beat). Name given to a unit of infantry. In the British army it consists of a headquarters and four companies and is commanded by a lieutenant-colonel. Its nominal strength is 1,021, but its real strength is usually less than this. In the United Kingdom the infantry regiments are divided into battalions, either regular, special reserve, or

territorials. Each battalion is numbered 1, 2, 3, etc., the regulars first, then the others. During the Great War the regiments had also service battalions. The linked battalion system is that under which two battalions of regulars are united in one regiment, of which one serves abroad, the other remaining at home to feed it with recruits. See Army.

BATTAM OR BATANG. Island of the Dutch E. Indies. It is 20 m. S.E. of Singapore, and covers an area of 165 sq. m. It has a small harbour, Bulang Bay.

BATTELS. Word used in the Oxford colleges for the charges made to the undergraduates for board and lodging in college. Battels, therefore, amounts in practice to a bill, and is rendered usually every week. The word meant originally to feed, being connected with batten.

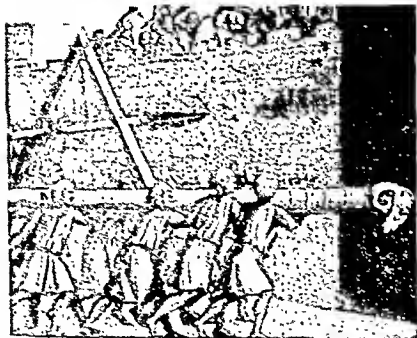
BATTENBERG. Name of a family of German extraction known now as Mountbatten. Alexander (1823-88), a son of Louis



Prince Henry of Battenberg
Dorothy

II, grand duke of Hesse, made a morganatic marriage, and his wife in 1858 was given the title of princess of Battenberg, a small place in Hesse. Alexander's family consisted of four sons and a daughter. Of these Louis (1854-1921) became an admiral in the British navy, was for a time in 1914 First Sea Lord, and in 1917 was created a peer as marquess of Milford Haven. Henry (1858-98) married, in 1885, Beatrice, youngest daughter of Queen Victoria, and died on active service, Jan. 21, 1896. Alexander (d. 1893) was prince of Bulgaria from 1879 to 1886. The fourth son, Francis Joseph (b. 1861), married a daughter of Nichoas I, king of Montenegro. In 1917 the children of Princess Louis and Henry took the name of Mountbatten (q.v.).

BATTERING RAM. Engine of war that preceded artillery for breaching the walls of a castle or other fortress. It consisted of a



Battering Ram. Old picture showing two rams in action, one being pointed for piercing walls

huge beam suspended from horizontals, which were supported by trestles, and the motion given was that of a pendulum. It was called aries (ram) by the Romans from the heavy mass of iron at one end, sometimes shaped like a ram's head.

BATTERSEA. Metropolitan borough of London on the S. side of the Thames, here spanned by the Grosvenor Road, Victoria, or Chelsea, Albert, and Battersea bridges, its area about 3½ sq. m. Chiefly a residential district for the artisan class, it has engineering works, the Morgan crucible works, foundries, and starch, flour, and candle factories, and conducts a considerable river trade. The parish church of S. Mary contains old stained glass and several monuments, including

one to Viscount Bolingbroke. Educational establishments include the Polytechnic. Price's candle factory, now part of the Lever combine, occupies the site of York House, a former residence of the archbishop of York. The open spaces include Battersea Park (200 acres). It is governed by a mayor and council and sends two members to Parliament. Pop. 167,739. See London.

The title of Baron Battersea was given in 1892 to Cyril Flower (1843-1907), who was a Liberal M.P. from 1880 to 1892.

BATTERY. Administrative unit of horse and field artillery. In the British army the battery normally consists of six guns or howitzers. Heavy artillery batteries comprised four 60-pr. breech-loading guns. Machine gun batteries were formed during the Great War, and also trench mortar batteries and siege batteries. A mountain battery consists of light guns transported on backs of mules or horses in rough and mountainous country. See Artillery; Gun.

BATTERY. Group or assemblage of units of machines or appliances. The word is used in electricity, metallurgy, mining, engineering, optics, manufacturing chemistry, and in other connexions. In metallurgy it is particularly applied to a group of stamping mills used to crush ores. One of these mills, a machine consisting of a number of stamping heads in one frame, is loosely called a battery. An electric battery is an assemblage of primary or secondary cells. See Accumulator; Cell.

BATTERY (Lat. battuere, to beat). English legal term for the application of force to the person of another without his consent. If wilful and intentional it is a criminal offence; but even if merely careless it may be a trespass to the person and answerable in damages. A battery is excusable if it is committed in defence of self, wife, husband, child, parent, master, servant, or guest: in defence of one's property, or to retake personal property from a wrongdoer.

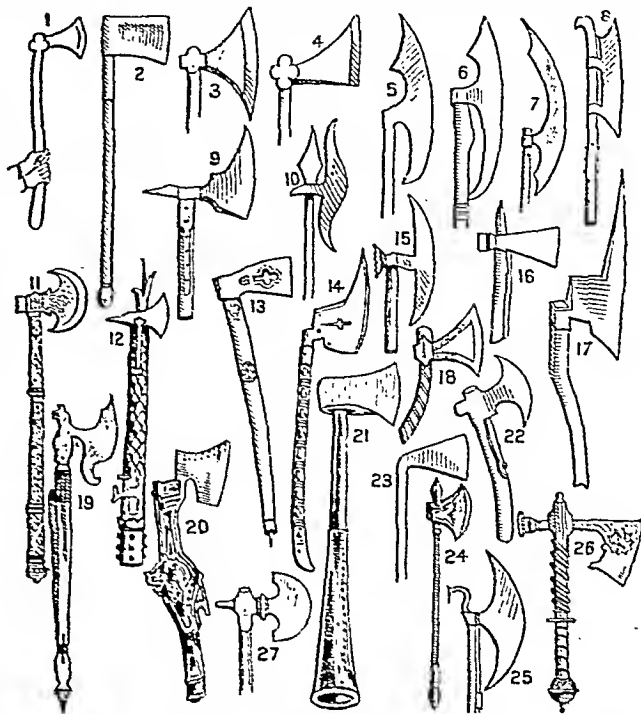
BATTLE. Urban district and market town of Sussex. It is 7 m. N.W. of Hastings, by the Southern Rly. Market day, alternate Mon. Pop. 2,891.

Battle Abbey, founded 1067, by William the Conqueror to celebrate his victory at Hastings, was consecrated in 1094. In 1538, at the dissolution of the monasteries, it



Battle. Fourteenth century gatehouse (restored) of the Abbey

was given to Sir Anthony Browne, who pulled down the church and some of the monastic buildings and turned others into a residence.



Battle-axes. 1. Short-handed (11th cent.). 2, 3, and 4. Long-handed (11th and 12th cent.). 5, 6, and 7. Half-moon bladed (15th cent.). 8. Lochaber (Scottish). 9 and 10. German bill-axes (14th cent.). 11. Indian half-moon. 12. Pistol axe (12th cent.). 13. Austrian (17th cent.). 14. Ceremonial (Saxon). 15 and 16. Hammer-headed (Swiss). 17. Cavalry axe (15th cent.). 18. Polish. 19. Bayonet axe (German). 20. Pistol axe (Russian). 21. Axe fitted to trumpet (German 15th cent.). 22. Slavonic half-moon. 23. English (17th cent.). 24. Old Chinese. 25. Half-moon and hook (English). 26. Ceremonial (Polish 17th cent.). 27. English Foot-soldier's, Jedburgh (16th cent.).

The refectory is an isolated ruin, but the modern abbey includes portions of the abbot's house and other remains of the original monastery. Long the seat of the Webster family, it is now a school for girls.

BATTLE AXE. Ancient weapon. It is shaped like a cheese cutter, and fixed to a long handle, which is sometimes of steel. Many examples are in the Tower of London. Among other varieties are the Lochaber axe as used at Prestonpans in 1745, the bardèche, or long-bladed axe, and the Jedburgh axe. Some battle axes from Lahore are chased in gold and silver, and have handles of carved wood mounted with ivory.

BATTLE CREEK. City of Michigan, U.S.A., in Calhoun co. On the Kalamazoo river, at its confluence with Battle Creek, it is 120 m. W. of Detroit, and is served by the Michigan Central and other rlys. In an agricultural region, it enjoys a reputation for cereal foods. Manufactures include agricultural implements, pumps, printing presses, and flour, and there are also rly. repair works. Settled about 1835, Battle Creek was incorporated in 1850 and received a city charter in 1859. During the Great War it was the site of a National Army camp. Pop. 47,200.

BATTLE-CRUISER. Class of warship developed from the old armoured cruisers. The first to be completed for the British navy was the Indomitable, in June, 1908. She and her sisters, the Inflexible and Invincible, were contemporary with the German armoured cruiser Blücher. The ships proved their value on many occasions in the Great War, especially in the battle of the Falkland Islands. The difference between a battleship and a battle-cruiser consists in the lesser protection possessed by the cruiser.

The most famous battle-cruisers were the *Lion*, *Tiger*, and others of that class that fought at Jutland. They carried eight 13.5-in. guns, had a speed of 29 knots and armour 11 ins. thick. Their successors, the *Renown* and the *Repulse*, were a little smaller, 26,500 tons against 28,500, and their armour was only 9 ins. thick. They carried six 15-in. guns and had a speed of 32 knots. The most powerful battle-cruiser in the British fleet is the *Hood*. See *Australia*; *Hood*; illus. p. 210.

BATTLEDORE. Small long-handled racket which is used with a shuttlecock crowned with feathers. The object of the player is to hit the shuttle into the air as many times as possible without letting it drop upon the ground. The game can also be played by two persons hitting the shuttle backwards and forwards to each other.

BATTLEFORD. Town of Saskatchewan, Canada. At the junction of the Battle and Saskatchewan rivers, it is about 254 m. E. of Edmonton, and is served by the C.N.R. It lies in a fertile farming district and is a distributing centre. It was the chief town of the North West Territories, 1876-83. Pop. 1,229.

BATTLEMENT (old Fr. *bastillon*, to fortify). Parapet, about six feet high, above the level of the rampart, with higher and lower parts alternating. The defender of a fortress thus battlemented, while taking shelter behind the higher part, could discharge his missiles over the lower part. The lower part is called the embrasure, formerly the crenelle, the higher part the merlon or cop. See *Castle*; *Fortress*.



Battlement or defensive parapet

BATTLESHIP. Most powerful type of warship. The arrangements of a fleet for battle centre round the battleships, arranged in squadrons, which are its striking force. The modern battleship has developed from the ship of the line, of which *Nelson's Victory* is the outstanding example.

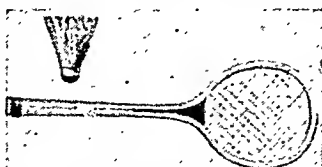
The development of the battleship was greatly influenced by the introduction of iron and steel for shipbuilding and by the use of steam as a substitute for wind power. Another great change was the introduction of the turret, which appeared in a British warship in 1868. The big guns were placed in turrets instead of being arranged on broadsides. This development was followed by an increase in the weight and calibre of the guns, and hence in the armour intended to resist them.

After many trials a type of battleship which remained for many years the standard was introduced. This type had four 12-in. guns mounted in two turrets, one at each end, and a secondary armament of 6-in. guns arranged on broadsides. Examples are the ships of the old Royal Sovereign class, improved in the *Magnificent*, *Formidable*, *Duncan* and *King Edward* classes. Their successors, the *Lord Nelson* and the *Agamemnon*, completed in 1908, carried four 12-in. guns, but instead of having the 6-in. guns mounted on broadsides, they had ten 9.2-in. guns, five on each side, mounted in turrets. These ships were the precursors of the battleship *Dreadnought*, launched in 1906.

With the *King George V* class all ten big guns were increased to a calibre of 13.5-in. and were mounted in double turrets on the middle line, so that all could fire on either side. In the *Queen Elizabeth* and other ships, including the new *Royal Sovereign* and the battle-cruiser *Hood*, guns were increased to

15-in. calibre, but reduced in number to eight. The *Rodney* and the *Nelson*, completed in 1927, had each nine 16-in. guns. (See p. 210.)

Simultaneous developments concerned the speed, the armour and the tonnage of the battleship. The *Hood's* armour is 15 in. thick, the same as the *Queen Elizabeth*. Her tonnage displacement is 41,260, however, against the 27,500 of the *Queen Elizabeth*. The *Nelson* and the *Rodney* have 14-in. armour and a tonnage of 35,000. In 1929 the Germans evolved a new kind of battleship, the *Ersatz Preussen*. Although its tonnage is only 10,000, it is as powerful as vessels three or four times its size. See *Audacious*; *Barham*; *Nelson*; etc.



Battledore and Shuttlecock

BATUM OR BATOUM. Town of the Soviet republic of Georgia. It stands on the S.E. coast of the Black Sea, and is connected with Baku, 600 m. E., by the Transcaucasian rly. It has a good harbour and a wireless station, and exports naphtha products, manganese, maize, salt, and liquorice. It owes its importance to the transport of petroleum and other naphtha products from Baku. In ancient times Batum was called Batis and Petra, and in the Middle Ages Vati. At the Berlin congress it was handed over to Russia.

During the Great War the town, together with Kars, was abandoned by the Bolsheviks, and the Turks occupied it after opposition from Armenian and Georgian bands. The Allies, in Nov., 1918, occupied the port, which in March, 1921, was ceded to Georgia by a treaty between Russia and Turkish Nationalists. Pop. 32,000.

BAUCHI. Prov. of Nigeria. Its area is about 23,700 sq. m. Mountainous in the S.W., the rest of the country is hilly and marked by plateaux forming the principal watersheds of the Northern Provinces. The country is rich in minerals, particularly tin, most of the tin mines of Nigeria being situated in the western portion of the province. These are reached by a narrow gauge line running from the main Iddo-Kano line at Zaria to Bukuru. The chief centres are Bauchi, the capital, founded in 1809, Ngaraguta, Bukuru, Leri, Pan-yam, Ako, Fali, and Yuli. See *Nigeria*.

BAUCIS. In Greek legend, wife of the Phrygian Philemon. He hospitably received Zeus and Hermes when they visited earth in the form of mortals, after others had driven them from the door. See *Philemon*.

BAUDELAIRE, CHARLES PIERRE (1821-67). French poet. The son of a civil servant, he was born in Paris, April 9, 1821. About 1846 he attracted attention by the boldness and

heterodoxy of his literary opinions, and in 1857 he challenged criticism and conventional morality by his *Fleurs du Mal*. His exquisite feeling for phrase and form, and a certain perverse interest in the morbid, led Baudelaire to an ultimate study of the poems and stories of Edgar Allan Poe, on whom he wrote two essays, and some of whose tales he translated. He also wrote *Petits Poèmes en prose*, a volume of art criticisms. He died Aug. 31, 1867.



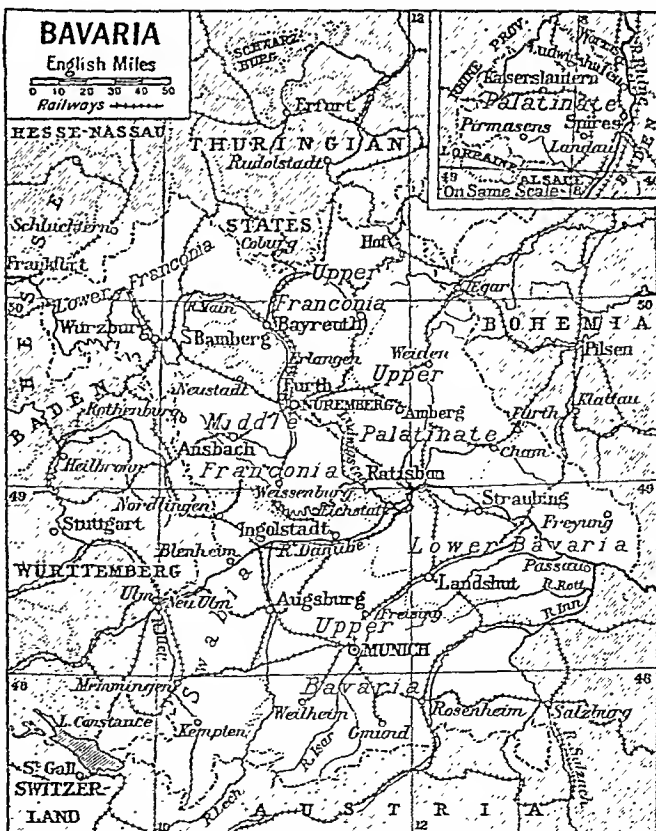
Charles Baudelaire, French poet

BAUTZEN. City of Saxony. On high ground above the Spree, about 35 m. by rly. E.N.E. of Dresden, it has many manufactures, among them being woollens and machinery. Its walls and ramparts are used as promenades. Its cathedral dates from the 15th century. The suburbs extend to the left bank of the Spree. It became part of Saxony in 1635. Pop. 40,335.

The battle of Bautzen was fought May 20-21, 1813, between the French under Napoleon and the allied Russians and Prussians under Blücher and Barclay de Tolly. The result was indecisive.

BAUXITE. Clayey, earthy mineral, chemically a hydrate of alumina. It nearly always contains iron and silica and other elements. Bauxite is the principal ore of aluminium. France is the chief source of supply, the U.S.A., Hungary, and British and Dutch Guiana coming next in order. In 1927 the world's output was 1,650,000 tons. It derives its name from Les Baux, a township in the S. of France. See *Aluminium*.

BAVARIA. Republic in federal union with the other states of Germany. The second largest of the German states, its area is



Bavaria, the second largest state of Germany. Inset, the detached Palatinate which lies on the left bank of the Rhine

BATTLESHIP: THE BATTLESHIP NELSON (ABOVE) AND THE BATTLE-CRUISER HOOD (BELOW)

In four diagrams, approximately of relative scale, are shown guns, armour and other details of two of the most powerful units of the British fleet. The upper drawing in each case shows the side elevation; the lower one the plan of the ship. The calibre and class of guns, position of torpedo tubes, and other features are indicated by letters and figures to which there is a key. The thickness of armour is shown by varying degrees of shading, to which also there is a key. The arcs round the big guns of Hood (shown on the plan) indicate the distance within which they can be traversed; the thickness of her deck armour is seen on the elevation. The numbers along the sides are those of the watertight compartments into which the vessels are divided.

(Reproduced by permission of "Jane's Fighting Ships, 1929.")

A.A. = Anti-aircraft Gun

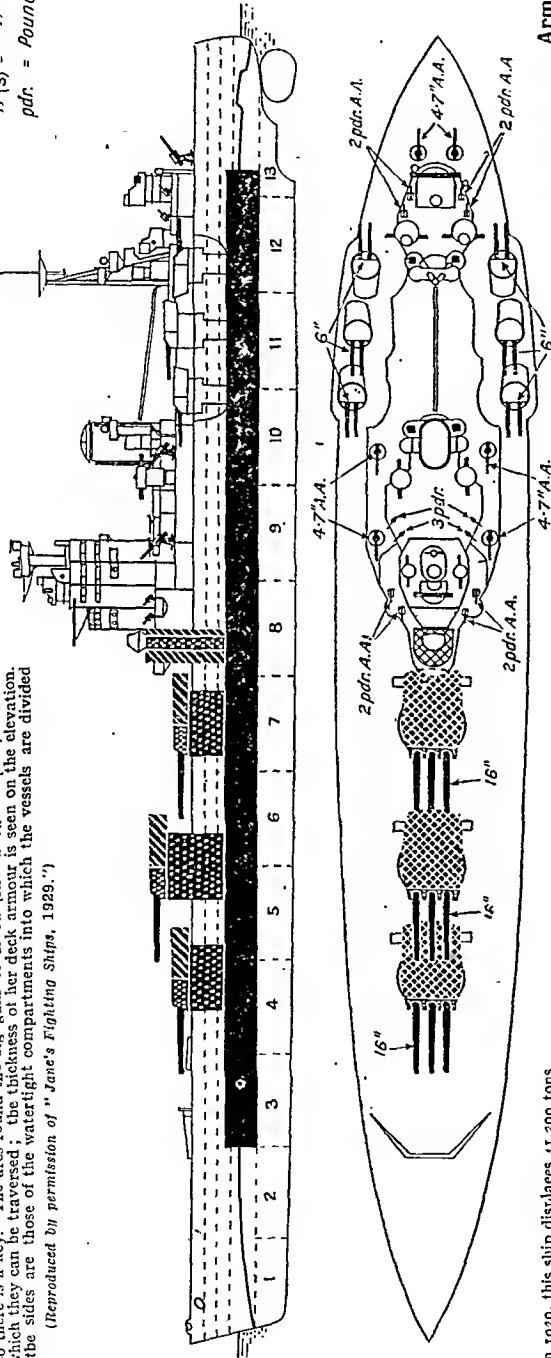
B.H. = Bulkhead

O.Q.H. = Officers of Quarter's Hood

T.T.(p) = Torpedo Tube (port)

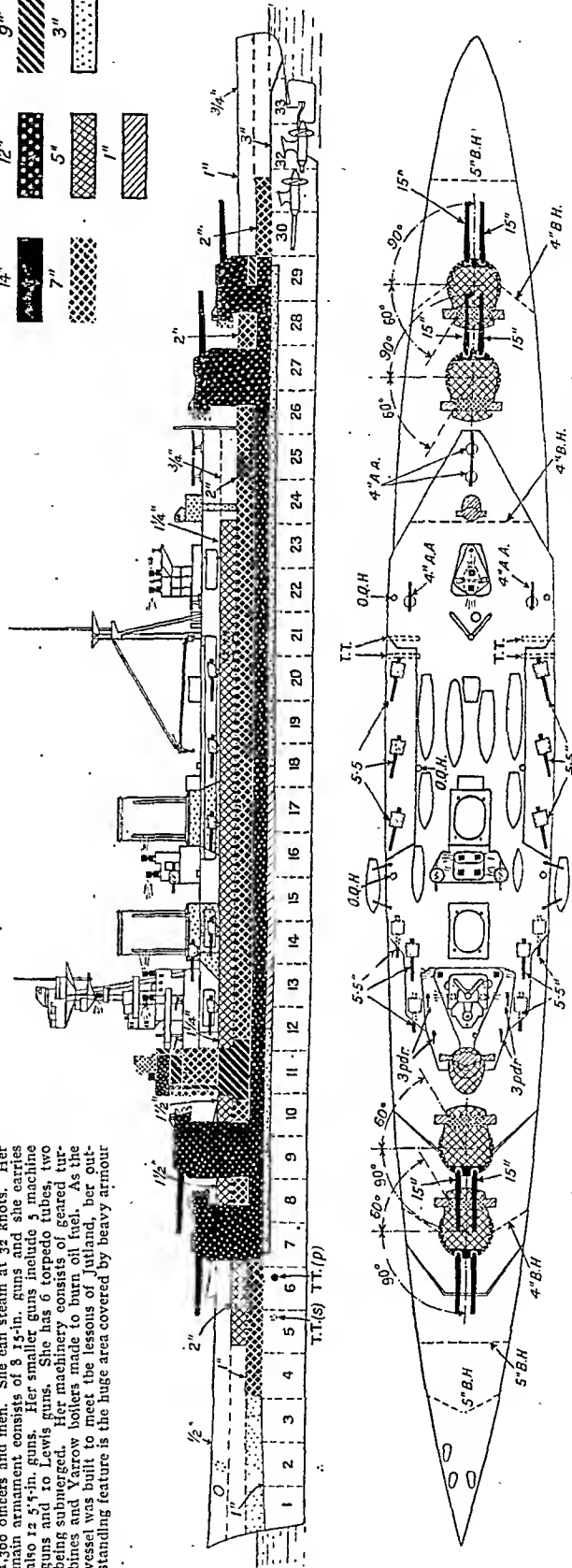
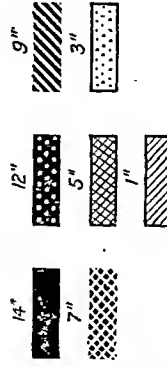
" (s) = " " (starboard)

pdr. = Pounder



Hood. Completed in 1920, this ship displaces 41,200 tons, has an overall length of 360 ft. and carries a crew of over 1,300 officers and men. She can steam at 32 knots. Her main armament consists of 8 15-in. guns and she carries also 12 5.5-in. guns. Her smaller guns include six 4-in. guns and 10 Lewis gun turrets. She has 6 torpedo tubes, two being submerged. Her machinery consists of geared turbines and Varrow boilers made to burn oil fuel. As the vessel was built to meet the lessons of Jutland, her outstanding feature is the huge area covered by heavy armour.

Armour



29,334 sq. m. and its pop. 7,379,594. Since 1920 the former free state of Coburg has been part of Bavaria. The capital is Munich and the Germans call the state Bayern.

Bavaria proper is bounded N. by Prussia, Thuringia, and Saxony, E. and S. by Czechoslovakia and Austria, W. by Württemberg, Baden, and Hesse. The Rhenish Palatinate is on the W. side of the Rhine, between Hesse, Alsace, and the Rhine Province. The rivers include the Danube and Main, connected by the Ludwig's Canal, the Inn, Isar, and Lech.

The crops comprise oats, rye, barley, wheat, fruit, hops, vines, sugar-beet, and tobacco. Industries include brewing and the manufacture of textiles, machinery, dyes, and colours, and, at Nuremberg, toys. Coal and iron are found. There are universities at Munich, Würzburg, and Erlangen.

Bavaria was long a duchy of the German kingdom. Split into Upper and Lower Bavaria in the 13th century, in 1314 it was united under the Emperor Louis the Bavarian. The Elector Maximilian Joseph was raised to the rank of king by Napoleon in 1806. In 1871 Bavaria joined the new German empire. In 1917 a chancellor for Germany was found in the Bavarian premier, Count Hertling, who, however, resigned in 1918. In Nov. Bavaria was declared a republic. The government was taken over by a cabinet under Kurt Eisner, an independent socialist, who was assassinated the following Feb. The extremists endeavoured to obtain control, but in April, 1919, a moderate government came into existence, and was in office for the next ten years. See Germany.

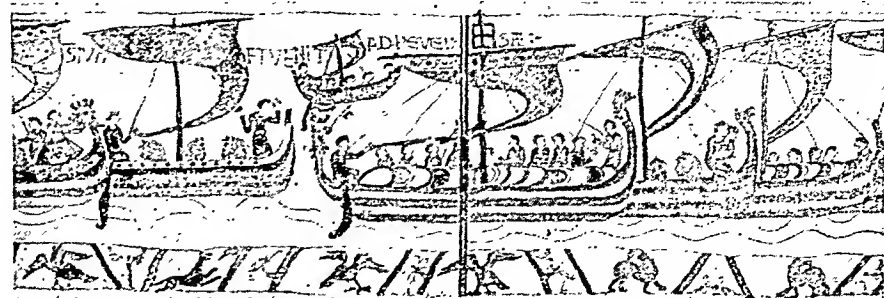
BAWIAN or **BAWEAN**. Island of the Dutch E. Indies, in the Java Sea, N. of the island of Java. It has hot springs, and produces rice and indigo. Sangapura is the capital. Pop. about 42,000.

BAX, ERNEST BELFORT (1854-1926). British author. Born at Leamington, July 23, 1854, and educated in Germany, he was associated with William Morris in the Socialist League, and later with the Social Democratic Federation. He was the author of important works on philosophy, notably *The Problem of Reality*, 1893; *The Roots of Reality*, 1907; and of *German Society at the Close of the Middle Ages*, 1894; *The Peasants' War in Germany*, 1899. He wrote in addition several books on socialism, and died Nov. 26, 1926.

BAXTER, GEORGE (1805-67). British engraver. He was the second son of John Baxter, of Lewes (1781-1858), publisher of the pictorial Baxter's Bible. In 1836 he invented a method of printing from the wood in oil colours. As many as 20 separate blocks were needed in the production of some of the illustrations for his *Pictorial Album*.

BAXTER, RICHARD (1615-91). English divine. Born of yeoman stock at Rowton, Shropshire, Nov. 12, 1615, he was ordained and became a teacher. In 1640, after a short curacy at Bridgnorth, he settled in Kidderminster, where he developed into a strong puritan. During the Civil War he was with the troops as a chaplain, afterwards returning to Kidderminster, where he exercised an extraordinary influence and his work is still remembered. In 1660 he moved to London and was made chaplain to Charles II. The Act of Uniformity (1662) drove him from the Church of England and he

lived for some years in retirement. In 1672 he was allowed to return to London, and in 1685 he was imprisoned for over a year by



Bayeux Tapestry. Duke William, with a large fleet of transports conveying horses and fighting men, crosses the Channel to Pevensey, on the Sussex coast between Hastings and Eastbourne

Jeffreys for sedition. He died in London, Dec. 8, 1691. Of his writings the best known is *The Saints' Everlasting Rest*. His followers were called Baxterians. His *Autobiography* was edited by J. M. Lloyd Thomas. Consult also *Life*, F. J. Powiekie, 1927.

BAY (late Lat. *baia*). Geographical term for an indentation of the coast or of the shore of a lake. Coastal bays are generally formed by the submergence of the land, and narrow as they advance into the mainland. They are often found between two headlands, the rock waste produced by coastal erosion being deposited between the two prominent points. Bays in lakes occupying river valleys are formed where streams enter the lakes.

A bay window is one, rectangular in plan, placed in or forming a bay. It dates from the Middle Pointed Period and in its earliest form was a projecting window constructed between two buttresses. It is prominent in Tudor architecture.

BAYADERE. Indian dancing girl. The term is applied especially to the temple courtesans of southern India known officially as *devadasis* (slave-girls of the gods), the Indian counterpart of the hierodules or temple servants connected with the shrine of Aphrodite at ancient Corinth.

BAYARD, PIERRE TERRAIL, SEIGNEURDE (c. 1476-1524). French soldier, known as "the knight without fear and without reproach." He was born in Dauphiné, and after being page to the duke of Savoy entered the service of Charles VIII of France in 1487. He was knighted in 1495 after the battle of Fornovo. In 1503, at the battle of the Garigliano, he is said to have defended the bridge single-handed against 200 Spanish troops, and he fought at Ravenna in 1512, and at Marignano in 1515. In 1521 he successfully defended the town of Mézières. He was mortally wounded at the battle of the Sesia, April 30, 1524, and was buried in the Franciscan priory near Grenoble.

BAYARD, THOMAS FRANCIS (1828-98). American statesman and diplomatist. Born at Wilmington, Delaware, Oct. 9, 1828, Bayard became a lawyer, practising in his native town. Chosen in 1869 as senator for Delaware, he was the fifth member of his family to serve in this capacity, one being his grandfather, James Asheton Bayard (1767-1815), who helped to arrange the treaty that ended the war of 1812. He belonged to the Democratic party, and was four times its candidate for the presidency. President of the senate in 1881, in 1893 Bayard went to London as ambassador. He died Sept. 28, 1898.

BAYAZID. Name of two sultans of Turkey. Bayazid I (1347-1403) became ruler on the murder of his father Murad I in 1389. Distinguished as a soldier and the first Turkish ruler to be called sultan, his greatest victory was over the emperor Sigismund and the Christians in 1396 at Nicopolis: this was

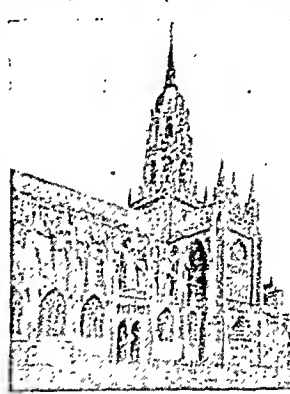
followed by the submission to him of the East Roman emperor, Michael Palaeologus. In 1402 Tamerlane defeated him, and, according to the

tradition, perpetuated by Marlowe, kept him prisoner in a cage until his death.

Bayazid II (1447-1512), son of Mohammed II, came to the throne in 1481. During his reign the westward progress of the Turks was largely stopped, although his war with Venice added to his territories. He abdicated in 1512.

BAYBERRY (*Myrica carolinensis*). N. American shrub of the order Myricaceae. It is from 3 ft. to 6 ft. high, with oblong leaves dotted with fragrant resin glands. The flowers are in short sealy catkins and the nuts are encrusted with white wax.

BAYEUX (anc. Augustodurum, later Baiocas, city of the Baiocasses). City of France, in the dept. of Calvados. It stands on



Bayeux. South doorway of the splendid 13th century cathedral

The Bayeux Tapestry is a linen band bearing panoramic scenes in worsted needlework, over 200 ft. long and 19 ins. high. It formerly hung round the cathedral nave. The 72 scenes, with Latin inscriptions, depict English history from Harold's departure for Normandy to his death at Hastings. The borders bear scenes from Aesop's Fables and fabulous figures.

BAYLE, PIERRE (1647-1706). French philosopher and critic. Born at Carlat in Languedoc, Nov. 18, 1647, son of a Calvinist minister, he became professor of philosophy at the university of Sedan, and afterwards at Rotterdam. In 1697 he published his *Historical and Critical Dictionary*, the work by which he is best known. As the result of religious controversy Bayle was deprived of his professorship in 1693. He died at Rotterdam, Dec. 28, 1706.

A follower of Descartes and afterwards a sceptic, by his influence on Voltaire, whose *Candide* was inspired by him, on Helvétius, and others, Bayle was the forerunner of the French materialists of the 18th century.



Richard Baxter, English divine



E. Belfort Bax, British author Russell



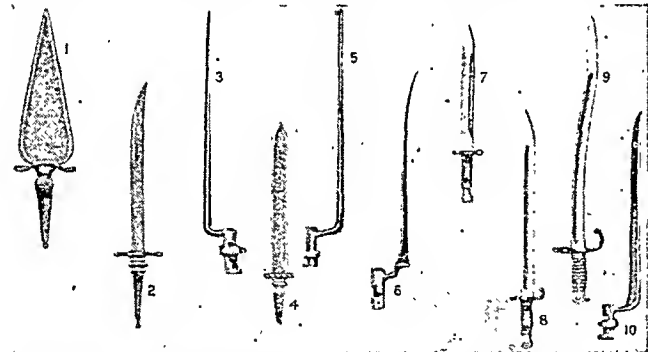
Pierre Bayle, French philosopher

BAYLIS, LILIAN MARY. Theatrical manager. A daughter of Edward W. Baylis, a musician, she appeared in public as a violinist when a child. Her aunt, Emma Conn. was responsible for converting the London music hall called the Old Vic into a theatre where good plays were produced and Miss Baylis became associated with this undertaking. In 1898 she became its manager, and her services in keeping the theatre going through some difficult years, including raising money for extensive repairs, were rewarded when in 1929 she was made a Companion of Honour. She was also interested in the reopening of Sadler's Wells (q.v.) theatre.

BAY OF ISLANDS. Harbour of New Zealand. On the N.E. coast of North Island, 112 m. N. of Auckland, the harbour is large, deep, and sheltered. Russell, on the S. side, is the chief port of the N. district. Opua is an emergency coaling harbour. Another bay of the same name indents the W. coast of Newfoundland. It has valuable fisheries.

BAYONET. Stabbing weapon fixed to a rifle for shock action by infantry. Its name is said to be taken from Bayonne, where it was manufactured at the end of the 17th century. In its original form it was a plug bayonet, which fitted into the barrel of the musket and had a guard. Then came the ring and socket bayonet, to slip on outside the barrel.

In length and strength the bayonet has been continually altered to suit various



Bayonets. 1 and 2. English examples of 17th century. 3. Bayonet with ring and socket. 4. Spanish knife bayonet. 5. Four-edged bayonet. 6. Triangular bayonet. 7 and 8. Sword bayonets used in the British army. 9. Long French bayonet. 10. Russian bayonet

patterns of firearm. The British bayonet in 1914 was a sword bayonet; it weighed about 1 lb. and added from 12 ins. to 18 ins. to the length of the infantry weapon, according to the pattern of the rifle in use. The bayonet of the French infantryman was longer and more particularly intended for thrusting. The Russian bayonet, triangular, with no cutting edge, was solely for thrusting.

BAYONNE. City and seaport of France, in the dept. of Basses-Pyrénées. It stands at the junction of the Nive and Adour. 3½ m. from the Bay of Biscay and 124 m. by rly. S. by W. of Bordeaux on the main line from Paris to Madrid. The rivers divide the city into three parts. Great Bayonne, Little Bayonne, and St. Esprit. The Gothic cathedral was restored in the 19th century. The citadel was designed by Vauban. A large trade in local produce passes through the port. Vessels drawing from 18 ft. to 25 ft.

can enter the harbour, but access is rendered difficult by the bar. Shipbuilding, distilling, and the manufacture of leather, sugar, and linen are among the industries. Pop. 28,215.

The Bayonne Decree was an order, issued by Napoleon, April 17, 1808, by which all vessels flying the American flag that entered the ports of France and her allies were to be seized.

BAYONNE. City of New Jersey, U.S.A., in Hudson co. It stands on a peninsula separating New York harbour from Newark Bay, and is served by the Lehigh Valley and the Central of New Jersey rlys. and by the Morris Canal, which separates it from Jersey City. It contains oil refineries, radiator, smelting, and insulated wire works, chemical and silk factories, and extensive docks for the shipment of coal. Part of Bergen until 1861, it was chartered as a city in 1869 and reincorporated in 1872. Pop. 88,767.

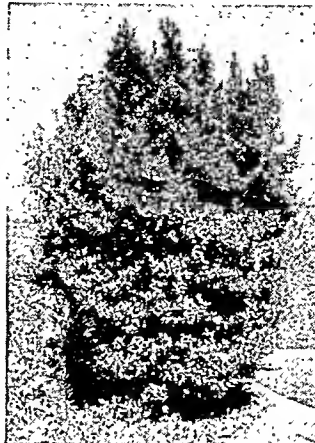
BAYOU. Distributary of the Mississippi. In its lower course the Mississippi has made natural embankments called levees, which it may break during floods. Through the gaps a stream may leave the main river and flow across the country, sometimes reaching the sea independently. Such a watercourse is a bayou, a term now also used for other channels. The state of Mississippi is frequently called the bayou state.

BAY RUM. Aromatic liquid used as a toilet article and also to relieve headache. It may be prepared from rum and the leaves of the bayberry, or from the oil from bayberry leaves mixed with alcohol and water and a small proportion of oil of pimento and oil of orange peel.

BAYSWATER. Western residential district of London. It lies N. of Kensington Gardens, its chief thoroughfare being the Bayswater Road, and is part of the metropolitan borough of Paddington. In the Bayswater Road is the Chapel of the Ascension, opened in 1897 for private prayer and decorated with Bible scenes and figures by Frederic Shields (d. 1911), and in the adjacent cemetery is the grave of Laurence Sterne. In Moscow Road there is a Greek church. The name is said to be a corruption of Baynard's Water.

BAY TREE (*Laurus nobilis*). Small evergreen tree of the order Lauraceae. It is a native of S. Europe, attains a height of 30 ft.-40 ft., but always retains a shrub-like appearance. Its lance-

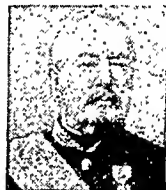
shaped aromatic leaves are used in cookery. The tiny yellowish flowers dark purple berries, which yield the butter-like substance known as oil of bays, used by veterinary surgeons. The sweet bay or beaver tree of the U.S.A. is *Magnolia virginiana*.



Bay tree, from the leaves of which the victor's wreath of laurel was made

BAZAAR OR BAZAR. Persian word for a market, a collection of stalls, or shops. The word spread to India, Ceylon and other Oriental countries, being sometimes used in its original sense and at others for a single selling establishment. In Britain it is used mainly for a sale of goods for some religious or charitable purpose. It is also used for shops wherein fancy goods, toys, and small utensils are sold.

BAZAINE, FRANÇOIS ACHILLE (1811-88). French soldier. He was born at Versailles, Feb. 13, 1811, and as an army officer saw much active service between 1854 and 1863. On the outbreak of the Franco-Prussian War, 1870, he was appointed to the command of the 3rd army corps. After defeats culminating at Gravelotte, he withdrew his army within Metz on Aug. 19. The city was invested by the Prussians, and on Oct. 27 Bazaine surrendered with 173,000 men. In 1873 Bazaine was tried by court-martial and sentenced to death, but the sentence was commuted. In 1874 he escaped from captivity near Cannes and went to Madrid, where he died Sept. 23, 1888.



François A. Bazaine, French soldier

BAZALGETTE, SIR JOSEPH WILLIAM (1819-91). British engineer. Born at Enfield, of French descent, March 28, 1819, he was appointed chief engineer to the Metropolitan Board of Works in 1855. The question of main drainage for London was then under consideration, and Bazalgette began work on the system in 1858, and completed it in 1875. He then worked upon the Thames embankments, his other great undertaking, and greatly improved the bridges across the river. He retired in 1889, and died March 15, 1891.

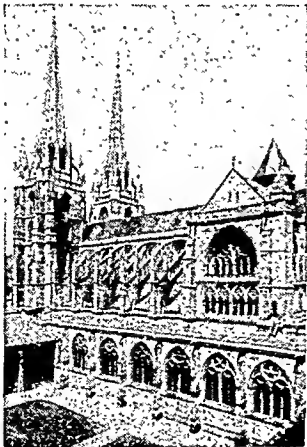


Sir J. Bazalgette, British engineer

BAZIN, RENÉ FRANÇOIS (b. 1853). French novelist. Born Dec. 26, 1853, he became professor of law in the Roman Catholic university of his native city of Angers. His reputation was established by *Une Tache d'Encre*, 1888. His later novels, e.g. *De toute son Ame*, 1897; *La Terre qui meurt*, 1899; *Les Oberlé*, 1901, emphasise strongly the sanctities of domestic life. Bazin was elected to the Academy in 1903.

BAZZI, GIOVANNI ANTONIO (147-1549). Italian painter. Known as Il Sodoma and also as Razzi, he was employed to assist in the decoration of the Vatican, and was responsible for the ceiling of the Camera della Segnatura. His greatest achievements were the frescoes illustrating the Life of S. Catherine of Siena, 1526, in S. Domenico, and two paintings in S. Francesco, at Siena.

BDELLIUM (Gr. bdellion). Name given to various myrrh-like gum resins obtained from species of *Balsamodendron* or balsam-tree.



Bayonne. Modern towers at the W. end of the imposing medieval cathedral

African bdellium is very acrid, but has little odour; Indian bdellium, also acrid, smells like cedar wood. The ancients credited bdellium with valuable medicinal properties. The bdellium mentioned in Gen. 2 as occurring with onyx in the gold-bearing land of Havilah may be a precious or ornamental stone

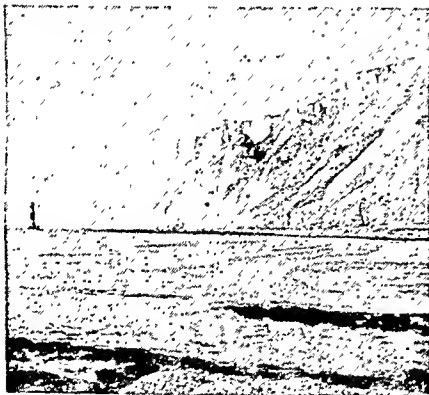
BEACH. Coastal formation due to wave action. The sea is constantly attacking a cliff coast, boulders are broken away, and these are broken into fragments. The set of the currents moves these, which gradually become smaller, along the shore. Wherever an indentation tends to reduce the speed of the water, part of the rock-load is dropped and makes a deposit, which becomes a beach.

Raised beaches, formed by the ancient uplifting of the land, occur especially in the W. of Scotland, S. of Ireland, S. Wales, Normandy, and Brittany. Lake beaches are due to the lowering of the water level. Horizontal notches on the hillsides marking old lake beaches are not uncommon. Notable examples are the Parallel Roads of Glen Roy in Scotland, the Great Lake region in N. America and the Salt Lake district of Utah.

The term beachcomber is applied to a long, curling wave rolling in from the ocean, and also to a person who lives by plunder along the coast, as in the islands of the Pacific. Beachcomber, the writer in *The Daily Express*, is J. B. Morton.

BEACHLEY. Village of Gloucestershire. Between the Severn and Wye, close to extensive coal and iron fields and deep-water channels, Beachley was selected in 1917 as the site of a naval dry dock—part of a scheme for three national shipyards.

BEACHY HEAD. Promontory of the Sussex coast. About 3 m. S.W. of Eastbourne, at the E. extremity of the South Downs, it is a steep chalk cliff, 533 ft. high, with a lighthouse off the base, which replaced the Belle Tout lighthouse on the cliff to the W.



Beachy Head, Sussex, England. A splendid white chalk cliff, it rises 533 feet sheer from the sea

The battle of Beachy Head was a naval engagement between the English and the French, June 30, 1690. Louis XIV, supporting James II, was preparing a great naval armament to threaten London, foment a Jacobite rising, and invade England. The main English fleet under the earl of Torrington was in a position of hopeless inferiority, but his instructions obliged him to seek battle. His plan was to hold the French van while he concentrated an attack on their rear, but his Dutch ships in the van were overpowered. A few were set on fire to escape capture, and the main fleet retired to the Thames.

BEACON (A.S. beacen, signal). Term especially applied to the fires formerly lighted on heights to spread news, as at the time of the Spanish Armada. The beacon-bills came to be known as beacons, e.g. Dunkery

Beacon, on Exmoor, and the Brecknockshire Beacons, often called simply the Beacons.

The word is also used for an artificial seamount. Wireless beacons for the guidance of ships have been erected at various places round the coast. These can direct ships in all kinds of weather over a range of 50 miles.

BEACONSFIELD. Urban district and market town of Buckinghamshire. It is 21 m. by rly. W.N.W. of London (Paddington), on the G.W. and L.N.E. Rlys. It was the home and burial place of Waller and Burke, to whom there are monuments in the church. Market day, Sat. Pop. 3,642.

There is a town called Beaconsfield in Tasmania, in the chief goldfield on the island. The town of Beaconsfield in Griqualand West, S. Africa, is built round the diamond mines.

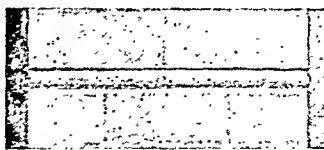
BEACONSFIELD, BENJAMIN DISRAELI, 1ST EARL OF (1804-81). British statesman. Born December 21, 1804, at 6, King's Road,

now 22, Theobald's Road, Bedford Row, London, he was the second child and eldest son of Isaac Disraeli and his wife Maria Basevi. In 1817 his parents severed themselves formally from the Jewish faith, and all their children were baptized at the church of St. Andrew, Holborn. In 1821 he was articled to a firm of London solicitors. His early literary efforts were unsuccessful, but in 1826 he suddenly burst on the world with his *Vivian Grey*. In 1829 he toured in the east. On his return to England Disraeli became a figure in society, wrote a good deal and tried to enter Parliament, first as a radical and then as a tory. Five times he failed, but in 1837 he was elected M.P. for Maidstone. His colleague was Wyndham Lewis, whose widow he married in 1839. His political writings attracted attention, and he began to preach the gospel of Young England which animates his romance *Sybil*, the second of a trilogy beginning with *Coningsby* and ending with *Tancred*. In 1846 his career as politician really began, and as M.P. for Shrewsbury he led the protectionists in their struggle with Peel. In 1852 he took office for the first time, being chancellor of the exchequer under Lord Derby. This ministry, however, only lasted a few months, as did the one which the two formed in 1858, but in the intervening years Disraeli had proved himself much the greatest figure on the tory side.

His early literary efforts were unsuccessful, but in 1826 he suddenly burst on the world with his *Vivian Grey*. In 1829 he toured in the east. On his return to England Disraeli became a figure in society, wrote a good deal and tried to enter Parliament, first as a radical and then as a tory. Five times he failed, but in 1837 he was elected M.P. for Maidstone. His colleague was Wyndham Lewis, whose widow he married in 1839. His political writings attracted attention, and he began to preach the gospel of Young England which animates his romance *Sybil*, the second of a trilogy beginning with *Coningsby* and ending with *Tancred*. In 1846 his career as politician really began, and as M.P. for Shrewsbury he led the protectionists in their struggle with Peel. In 1852 he took office for the first time, being chancellor of the exchequer under Lord Derby. This ministry, however, only lasted a few months, as did the one which the two formed in 1858, but in the intervening years Disraeli had proved himself much the greatest figure on the tory side.



Beaconsfield. Hughenden Manor, Bucks., the house bought by Disraeli from the duke of Portland



Beading. An example of flush beading of semicircular section. See below

In 1866 Derby formed his third ministry, again with Disraeli as chancellor of the exchequer and leader of the House of Commons. The Reform Act was passed, and in 1868 Disraeli became prime minister; but he was soon out of office again. For nearly six

years he led the opposition, the period being also marked by the appearance of his greatest work, *Lothair*, in 1870 and the death of his wife in 1872. In 1874 the tory party won a great victory at the general election and Disraeli again became prime minister, being returned for Buckinghamshire, which he had represented since 1847. In 1876 he accepted an earldom, but he remained premier until 1880, his term of office being notable for the Congress of Berlin.

The general election in the spring of 1880 resulted in a large Liberal majority, and Beaconsfield at once resigned his office. In the ensuing years he appeared from time to time in the House of Lords and in society but most of his time was passed at Hughenden. At this time, too, he published *Endymion*, a book of memories, which brought him in £10,000. In March, 1880, he became seriously ill, and he died on April 19, 1881. He was buried in the churchyard at Hughenden, beside his wife. Consult *Life*, W. F. Monypenny and G. E. Buckle, 1910-24; *Letters to Lady Bradford and Lady Chesterfield*, ed. Lord Zetland, 1929.

BEAD. Generally, an ornament for personal wear. Beads are made in a variety of forms from glass, metal, jet, coral, and other materials, and perforated so that they may be strung on a thread or its equivalent.

The old English word *bede* (prayer) came to be used for the small pierced balls with which the prayers repeated by an individual were counted. Such beads, when strung together, form a rosary. The telling of beads is the recitation of an allotted number of prayers, which are checked off by counting the beads. See *Rosary*.

BEADING. In architecture, beading is a moulding, generally of semicircular section. Many varieties are used. An angle bead is often applied as a finish to the corner of a structure; a cock bead is one that projects beyond the surface, and a flush bead one whose outside surface is flush with the general surface; a double bead is two beads side by side, without any other surface or moulding between them. See *Moulding*; also *illus. above*.

BEADLE (A.S. bydel, herald). English parish officer, now almost obsolete. He was chosen by the vestry and acted as parish messenger and servant. Doorkeepers and other attendants in institutions, and, in Scotland, the church officers are often called beadle.

BEAGLE. Small sporting dog of the foxhound type. It is almost exclusively used for hunting hares and rabbits. Smallness is a strong point in its favour, and a specimen that only tops the measure at eleven or twelve inches is esteemed. The legs should possess ample bone, and in the foreleg absolute straightness. Packs of beagles are kept at several places in England. They meet regularly, and are followed on foot.



Beagle. Prize-winning specimen of this breed of sporting dog

BEAK. Horny sheath covering the elongated jaw processes of the skull in birds. The beak serves the purpose of seizing, and sometimes dividing, the food.

In birds of prey it is usually sharp and hooked at the tip; in some insectivorous birds broad and fringed with hairs; in many aquatic birds flattened and specially designed for sifting particles of food from the water. It is long and slender in birds which probe in the mud for worms and stout and strong in those that feed on seeds and berries. The word is from late Lat. *beccus*, of Celtic origin.

BEAKER (late Lat. *bicarium*, wine cup). Glass vessel resembling a tumbler, larger at the top than at the base. It is now used chiefly in chemical laboratories.



Beaker of Worcester-shire ware painted by T. Baxter

BEALE, DOROTHEA (1831-1906). British educationist. Born in London, March 21, 1831, she became in 1849 mathematical tutor at Queen's College, London, and in 1857 head of the Clergy Daughters' School, Casterton, Westmorland. In 1858 Miss Beale was chosen principal of the Ladies' College, Cheltenham, and under her it was most successful. She supported women's suffrage, and wrote books on education. She died at Cheltenham, Nov. 9, 1906. Consult *Life*, E. Raikes, 1908.

BEAM (A.S. tree). In building, a piece of wood, stone, or metal of which the transverse dimensions are small relatively to its length. A beam is commonly supported, more or less horizontally, at two or more points, and itself serves as a support for some superstructure, such as a roof or a ceiling.

In engineering, a beam is any structure subject to a load causing bending stress.

In naval architecture, a beam is part of the transverse structure of a ship. The beam as a dimension of a ship is her greatest breadth on the water-line. The word is also used for a collection of parallel rays, such as those of heat or light. See *Architecture*; *Light*.

BEAMISH. District of Durham. It is 11 m. S.W. of Newcastle on the L.N.E.R. and is a coal mining centre. The Gothic church of S. Andrew was built in 1876. Pop. 17,646.

BEAM SYSTEM. System of directional wireless telegraphy in which the waves sent out are concentrated in the form of a beam on to the distant station. The transmitting aerial is composed of a line of vertical wires set at right angles to a great-circle line connecting the two stations, and is suitably placed with regard to a reflector formed of other vertical wires so that the majority of the waves travel forward in the desired direction, instead of spreading out in all directions. At the receiving end another reflector focuses incoming waves on to the receiving aerial, only those waves falling within a given angle being capable of reception.

Among the advantages of the beam system are low working cost and capital cost, greater

speed of working, less interference by other stations, and a greater measure of secrecy.

Short wave-lengths are used, and the power needed for transmission is only a small fraction of that required in other systems.

Beam services to Canada, etc., are operated by the British Post Office. See *Wireless*.

BEAN. Seed of plants of the order Leguminosae. French and runner beans belong to the genus *Phaseolus*, and broad beans to the genus *Faba*. They are grown as annuals

and have been introduced from various tropical countries. The broad bean (*Faba vulgaris*) was probably a native of Egypt.

French or kidney beans (*Phaseolus vulgaris*) were introduced into Europe from S. America in 1597, but their culture was first popularised in France; the name kidney bean alludes to the shape of the seeds. Runner beans (*Phaseolus multiflorus*) are among the most easy and economical of vegetables to grow. The unripe seeds of the bean are cooked and eaten, or the entire young pod is sliced and boiled. Beans that are sliced and thrown into water for some time previous to cooking lose much of their nutriment and flavour. Ripened and dried beans are largely used as cattle food.

The carob or locust

bean is sometimes called the bean tree. See *Carob*.

BEAR. Animal of the genus *Ursus*, belonging to a small group of omnivorous mammals. Various species are found in nearly every part of the world. Most of them are heavy,

tinguished by its shape; the neck is long in proportion to the body and the head small.

All bears possess long, sharp talons, and, being able to stand upright, they are able to come to grips and crush their enemies by sheer pressure. They hibernate, and are able to remain throughout the entire winter in a lethargic state without losing condition.

The brown bear grows to a great size, frequently weighing 700 lb. to 800 lb. It is found throughout most parts of Europe and ranges into Siberia. America has several species, including the grizzly and the black bear.

The fur of the Syrian bear is valued for its warmth and beauty, and its fat and gall are in demand for medicinal purposes. The small Malayan bear, often called the honey bear, has a very short coat and is usually of an inoffensive disposition. The sloth bear of India belongs to a different genus. It is of uncouth appearance, having very long hair and a prolonged muzzle resembling a snout.

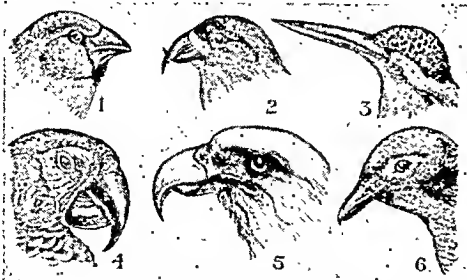
BEAR BAITING. In England, though mentioned as early as

Henry II's time, the baiting of bears by dogs did not become generally popular until about 1550. Sir Walter Raleigh calls the Bear Gardens in Southwark and Westminster Abbey two of the principal sights of London. It is recorded that Queen Elizabeth in 1575 witnessed a grand display of bear baiting in which a dozen boars took part. The pastime received a check during the Commonwealth, but on the return of Charles II was again in favour, and it is mentioned by Pepys and Evelyn. Paris Garden in Southwark, and afterwards the New Bear Garden in Clerkenwell, were two famous London resorts. Bear baiting

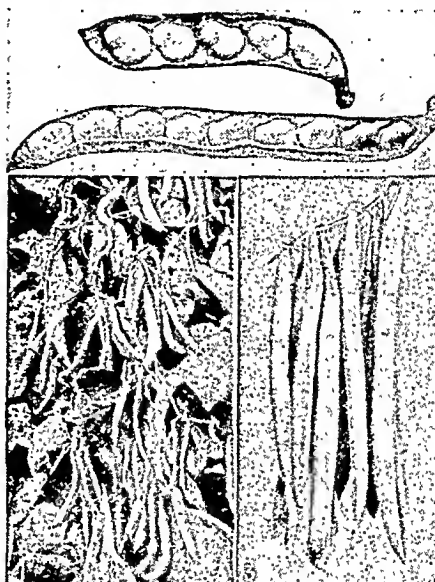
and bull baiting were not actually forbidden by Parliament until 1835.

BEAR or **BJORNGE.** Island of the Arctic Ocean, in Barents Sea. Midway between North Cape, Spitzbergen, and North Cape, Norway, it is said to have been visited by the Scandinavian explorer Thorfinn in the 11th century, and was sighted by the Dutch explorer Willem Barents in 1595. The sovereignty of Norway over the archipelago to which it belongs was recognized in 1920. The extensive coal deposits, discovered in 1916, are worked by a Norwegian company.

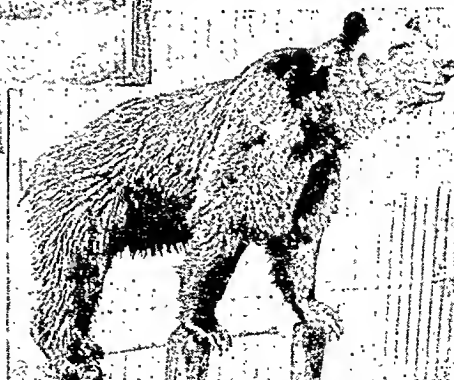
BEARBERRY (*Arctostaphylos uva-ursi*). Evergreen shrub of the order Ericaceae, a native of Europe and N. America. The leaves are thick and leathery; the flowers are pink, in few-flowered racemes at the end of the trailing branches, and are followed by small red berries. The Alpine bearberry, which loses its thin, toothed leaves at the end of summer, has white flowers and black berries



Beaks of various birds: 1. Grosbeak. 2. Crossbill. 3. Kingfisher. 4. Macaw. 5. Sea eagle. 6. Pheasant



Bean. Varieties successfully acclimatised in the British Isles. 1. French bean. 2. Broad bean. 3. Scarlet runner



Bear. 1. Polar bear. 2. Grizzly bear, a native of America, which is mainly carnivorous and highly dangerous to man
J. Hayward and Gambler Bolton

cumbersome animals of slow gait, and in general appearance much alike. An exception is the Polar or white bear (*U maritimus*) almost exclusively carnivorous, and dis-

BEARD. Specific term for the hair on a man's chin and cheeks. It is also applied to similar appendages, e.g. the tail of a comet, a part of a printing type, etc.

Among Orientals generally the removal of the beard is considered highly degrading, and the practice common among the giants of medieval European romance of cutting off the beards of captive princes may perhaps be traceable to an eastern source. In England the beard, which for a time was taxed, attained its greatest glory during the 16th and 17th centuries, when it was clipped in fantastic shapes, e.g. the spade, the fork, the stiletto, and the tile or cathedral beard.

BEARD MOSS (*Usnea dasypoga*). Lichen of grey-green colour that hangs from old forest trees in many parts of the world, including Britain. Its threads are a foot or more in length. It has been used to make an orange dye.



Beard moss. Lichen on an old tree

BEARDSLEY, AUBREY (1872-98). British artist. Born at Brighton, Aug. 21, 1872, and self-trained except for a brief apprenticeship

in Fred Brown's school in Westminster, he illustrated Malory's *Morte d'Arthur* at the age of nineteen, and afterwards became the most prominent of the draughtsmen employed on *The Yellow Book*, 1894-96, and *The Savoy Magazine*. Mastery of line and rare decorative sense were the main characteristics of his work. No English artist



Aubrey Beardsley, English artist

has better understood the possibilities of line work. He died at Mentone, March 16, 1898. Consult *Life*, R. B. Ross, 1909; *An Aubrey Beardsley Scrap-book*, G. Derry, 1919; *The Beardsley Period*, O. Burdett, 1925.

Beard tongue. Common name for the pentstemon (q.v.).

BEARING (A.S. *beran*). Nautical term denoting the position of a vessel at sea. To take bearings means to find out that position. Bearing away is changing the course by sailing away, and bearing down upon is sailing with the wind towards anything. See *Navigation*.

BEARINGS. The parts of a machine at which revolving parts make contact with, and support, or are supported by, non-revolving parts. Bearings are of two main classes: (1) plain, in which large surfaces are in contact; (2) those in which balls and rollers are interposed, contact being limited to points or lines.

Cast iron, gun-metal, and brass are used for plain bearings, but for those subject to heavy stresses soft so-called anti-friction alloys, containing tin, lead, zinc, antimony, copper, and bismuth in various proportions, are preferred. A plain bearing is usually made in two halves, with a cap bolted down on top to hold them firmly in their housing. Plain bearings depend for efficiency on good lubrication. Ball and roller bearings offer only about one-fifth of the frictional resistance of plain bearings. The balls or rollers are mounted in cages to separate them and prevent rubbing, and run round with the shaft as well as revolving on their own centres. Roller bearings are used for loads which would be too heavy for balls, and are favoured for the small rolling-stock of mines and quarries.

BEARN. One of the provinces of France before the Revolution. On the S., bordered by the Pyrenees and Navarre, it is now covered by the department of Basses-Pyrénées. It

was at one time part of Gascony and under English rule. After being governed by viscounts, it passed to the family of Foix and then to that of Albret. By marriage it was united to Navarre, then under the Bourbons. Orthez and later Pau was the capital.

Bear's-foot. Variant name of the green hellebore. See *Hellebore*.

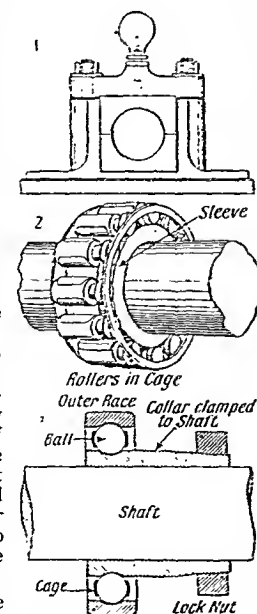
BEARSTED, MARCUS SAMUEL, 1st Viscount (1853-1927). British merchant. Born Nov. 5, 1853, he became connected with the oil industry in the East. He obtained control of oilfields, and was the founder of the Shell Transport and Trading Co., of which he remained chairman until 1920. In 1894-95 he was sheriff of London, and in 1902-3 lord mayor. In 1903 he was made a baronet, in 1921 a baron, and in 1925 a viscount. He died Jan. 17, 1927, when his son became the 2nd viscount.

BEARWOOD. Estate at Wokingham, Berkshire. On the outskirts of Windsor Forest, it was bought by John Walter early in the 19th century. The Tudor house was built by his son, John. Mansion and grounds were sold in 1919, and in 1920 were presented by Sir T. L. Devitt and Sir A. Yarrow to the Royal Merchant Seamen's Orphanage.

BEAT. Musical term indicating: (1) the main subdivision of a bar or measure, e.g. 3-4 time has three beats in the bar; (2) the movement of the conductor's baton to indicate the pace of (1); (3) the throbbing or waving effect of two sounds which are not tuned in perfect consonance with each other. In acoustics a beat is produced by combinations of sound waves or simple harmonic motions.

In wireless telegraphy and telephony and in broadcast reception beat denotes a set of oscillations produced by imposing oscillations of one frequency on those of another frequency. Thus in the heat or heterodyne method of receiving continuous wave transmission the incoming waves are imposed upon a set of oscillations produced by a local oscillator, there being a small difference in frequency between the two series. The resultant beats, which are of audible frequency, are rectified and then caused to actuate a telephone or other receiving apparatus.

BEATIFICATION (Lat. *beatus*, blessed; *faccere*, to make). In the Roman Catholic Church, term for an act of the Holy See declaring a person or persons to be venerated as blessed after death. It precedes canonisation and involves a procedure extending over many years. A modern example was the beatification of Joan of Arc, who was beatified in S. Peter's, Rome, April 18, 1909, about 30 years after the formal inquiry had been opened. See *Canonisation*.



Bearings of various kinds. 1. Plain bearing. 2. Roller bearing. 3. Radial ball bearing

to the virtues that qualify their possessors for admission to the kingdom of heaven. The Beatitudes are given at greater length in Matthew than in Luke.

BEATON OR BETHUNE, DAVID (c. 1494-1546). Scottish cardinal. The third son of John Beaton of Balfour, Fife, he was educated at St. Andrews and Glasgow and also in Paris, and was appointed bishop of Mirepoix, France, in 1537. In 1538 he was made a cardinal, and he succeeded his uncle as archbishop of St. Andrews in 1539. As a statesman his policy was to defeat the plans of Henry VIII for bringing Scotland under the English crown, and this involved hostility to the Protestants. George Wishart entered into a plot for the murder of Beaton, and was executed, and in revenge, Wishart's friends murdered the cardinal in his castle at St. Andrews, May 29, 1546.



David Beaton, Scottish cardinal

Beaton's uncle, James Beaton (d. 1539), was archbishop of Glasgow, 1509-22, and archbishop of St. Andrews, 1522-39. From 1513-26 he was chancellor of Scotland and for a time its regent. Like his nephew, he favoured a French and opposed an English alliance. He also tried to check the beginnings of the Protestant movement in his country.

Another James Beaton, the cardinal's nephew, became archbishop of Glasgow in 1522 and died in Paris, April 30, 1603.

BEATRICE. The glorious lady of his mind, of whom Dante wrote in both the *Vita Nuova* and the *Divina Commedia*. Her original was said by Boccaccio to have been a Florentine, Beatrice Portinari. When Dante first saw her, he was a boy of nine and she a child of eight. She was married at an early age to one Simone de Bardi and died in 1290, aged 24.



Beatrice. The painting by D. G. Rossetti, called Beata Beatrix. Tate Gallery

daughter of Queen Victoria, she was her mother's constant companion both before and after her marriage in 1885 to Henry, prince of Battenberg. She succeeded her husband as governor of the Isle of Wight on his death in 1896. When, in 1917, the royal family took fresh names, Princess Henry's sons took the name of Mountbatten instead of Battenberg.

Her four children were Victoria Eugenie (Ena), who married Alphonso King of Spain in 1906 and has three sons. Alexander was made marquess of Carisbrooke: Leopold died April 23, 1922, and Maurice died of wounds, Oct. 27, 1914. See *Battenberg*.

BEATTY, DAVID BEATTY, 1ST EARL (b. 1871). British sailor. Born Jan. 17, 1871, at Howbeck, Cheshire, the son of Capt. D. L. Beatty of Bordale, Wexford, he entered the Navy in Jan., 1884. He served as second in command with the naval brigade on the Nile, and in 1898 was in the expedition to Khartoum.

In the Boxer rebellion in China, 1900, Beatty was with the naval brigade at Tientsin, being

BEATITUDES (Lat. *beatitudo*, blessedness). Word used since the days of S. Ambrose in the 4th century to describe the logia or sayings of Jesus Christ in the opening passages of the Sermon on the Mount (Matt. 5, 3-11; Luke 6, 20-22). The passages refer

twice severely wounded, and for his conduct he was promoted captain. He was promoted rear-admiral in Jan., 1910, attaining flag rank at the age of 39. He became naval adviser to Mr. McKenna, when First Lord of the Admiralty, but, owing to differences of opinion, was placed on half-pay; he was recalled to the Admiralty by Mr. Churchill in 1912, when he became naval secretary to the First Lord, which office he held until March, 1913, when he was appointed to command the battle-cruiser squadron. He was in command of this squadron when the Great War broke out.



Earl Beatty,
Admiral of the Fleet
Russell

Beatty's first action was off Heligoland on Aug. 28, 1914. His ships completed the destruction of two German light cruisers, and covered the withdrawal of four damaged British vessels. On Jan. 24, 1915, Beatty fought the battle of the Dogger Bank, in which he brought to action four German armoured vessels, three of them battle-cruisers, and sank the *Blücher*. His flagship, the *Lion*, at a critical moment was disabled. His great hour came on May 31, 1916, when he sighted Hipper's squadron of five German battle-cruisers and opened the battle of Jutland.

In Nov., 1916, Beatty succeeded Jellicoe in command of the Grand Fleet, and on Nov. 21, 1918, under the armistice terms, he received off Rosyth, Firth of Forth, the surrender of 16 of the best German Dreadnoughts, 8 light cruisers, and 50 destroyers.

In 1919 Beatty was promoted to the rank of Admiral of the Fleet, and for his services during the war granted £100,000 by Parliament and given an earldom, receiving also several other honours. From Oct., 1919, to July, 1927, he was First Sea Lord. In 1901 he married Ethel, daughter of Marshall Field of Chicago, and their family consists of two sons, the older being Viscount Borodale. See Dogger Bank; Jutland.

BEAUCE, LA. District of north-central France. A plateau nearly 3,000 sq. m. in extent, bounded on the S by the Loire, it is almost waterless and treeless, and is noted for wheat and sheep. It covers parts of four departments—Eure-et-Loir, Loir-et-Cher, Loiret, and Seine-et-Oise. Chartres is the chief town.

BEAUCHAMP, EARL. British title held since 1815 by the family of Lygon. Reginald Pyndar, having inherited the estates of his kinsmen the Lygons, took that name. His son William, M.P. for Worcestershire 1776—1806, was made Baron Beauchamp in 1806, and Earl Beauchamp in 1815. William, the 7th earl (b. 1872), was a leading Liberal politician. From 1899–1901 he was governor of New South Wales and from 1907–10 lord steward of the household. Afterwards (1910–15) he was First Commissioner of Works and Lord President of the Council. He was made lord warden of the Cinque Ports in 1913, K.G. in 1914, and chancellor of London University in 1929. The family residence is Madresfield Court, Malvern Link, and his eldest son is called Viscount Elmley. The earls are descended from the family of Beauchamp, earls of Warwick from 1268–1445.



William Lygon,
7th Earl Beauchamp
Russell

BEAUCLERK, TOPHAM (1739–80). Friend of Dr Johnson. Grandson of the first duke of St. Alhans, he was educated at Trinity College, Oxford, and in 1768 he married Lady Diana Spencer. In 1757 he made the acquaintance of Johnson, and the friendship lasted until Beauclerk's death in Great Russell Street, Bloomsbury, March 11, 1780. His library of 30,000 volumes, chiefly relating to the history of England and of the stage, was sold by auction the year after his death.



Topham Beauclerk,
Dr. Johnson's friend

BEAUFORT, DUKE OF. English title held since 1682 by the family of Somerset. Charles Somerset, a natural son of Henry Somerset, a natural son of Henry Beaufort, 3rd duke of Somerset, who was a descendant of John of Gaunt, was created Baron Herbert of Raglan in 1506, his wife being a Herbert, and in 1513 earl of Worcester. Henry, the 5th earl, a supporter of Charles I, was made marquess of Worcester in 1642.

Henry Somerset, 3rd marquess of Worcester, was prominent in the reign of Charles II, who in 1682 made him duke of Beaufort. Most of the dukes of Beaufort, especially Henry, the 7th (1792–1853), and his son, Henry, the 8th (1824–99), have been famous sportsmen, while other members of the family, notably Lord Raglan, have won distinction as soldiers. Badminton House, Gloucestershire, is the chief seat of the family; formerly it was Raglan Castle, Mon. The duke's eldest son bears the title of marquess of Worcester.

BEAUFORT, FRANÇOIS DE VENDÔME, DUKE OF (1616–69). French courtier. Son of César de Vendôme, he was a grandson, through Gabrielle d'Estrees, of Henry IV. For his plots he had been exiled and then imprisoned before he became a leader of the Fronde, when, as king of the markets, he was for a brief time the hero of Paris. This led to another exile, from which he returned in 1654. He led the French fleet against the pirates of Algiers in 1664, and was killed when fighting the Turks, June 25, 1669.

BEAUFORT, HENRY (d. 1447). An English cardinal. He was the natural son of John of Gaunt by Catherine Swynford, and half-brother of King Henry IV. Made bishop of Lincoln in 1398 and chancellor in 1403, in 1404 he succeeded William of Wykeham as bishop of Winchester. In 1430 he accompanied Henry VI to France, and in 1431 crowned him king of France in Paris. He died April 11, 1447, at Winchester, where he had completed the cathedral and re-established the hospital of S. Cross.

BEAUFORT SCALE. Device for recording the strength of the wind at sea. It was invented in 1805 by Sir Francis Beaufort. The scale consists of the numbers from 0 to 12, to each of which are assigned a wind designation and the appropriate wind velocity in miles per hour. See Anemometer.

Beaufort Number	Wind	Velocity in m.p.h.
0	Calm	0
1	Light air	1–3
2	Slight breeze	4–7
3	Gentle breeze	8–12
4	Moderate breeze	13–18
5	Fresh breeze	19–24
6	Strong breeze	25–31
7	High wind	32–38
8	Gale	39–46
9	Strong gale	47–54
10	Whole gale	55–63
11	Storm	64–75
12	Hurricane	Above 75

BEAUFORT WEST. Town of Cape Province, S. Africa. Capital of Beaufort

West division, it lies at an alt. of 2,792 ft. on the Great Karoo, at the base of the Nieuwveld Mts. It is 339 m. by rly. N.E. of Cape Town on the rly. to Kimberley, and is a centre of the wool trade. Pop. 6,140.

BEAUHARNAIS. French family famous for its connexion with Napoleon. Alexander de Beauharnais (1760–94), a member of an old family of landowners, fought in America against Great Britain and was guillotined June 23, 1794. His widow Josephine married Napoleon and his daughter Hortense became the wife of Louis Bonaparte and the mother of Napoleon III.

Alexander's son, Eugène (1781–1824), was born in Paris Sept. 3, 1781, and was soon on campaign with his stepfather, who adopted him as a son, and declared him heir to the Italian kingdom. Eugène ruled Italy well, and showed military skill when leading an army against Austria in 1809, in the retreat from Moscow, and especially at Wagram and at Lützen. Compensated in 1814 for his Italian lands, he bought the Bavarian duchy of Leuchtenberg, and was succeeded as duke by his elder son on his death, Feb. 22, 1824.

His younger son, Max Eugène (1817–52), who became duke in 1835, married a daughter of Tsar Nicholas I. Their son was domiciled in Russia, and until the fall of the Romanoffs in 1917 the family were Russian nobles.

BEAULIEU OR BEWLEY. Village of Hampshire. It is on the estuary of the Beaulieu, 6 m. N.E. of Lymington, and has ruins of a Cistercian abbey, founded by King John, in which Margaret of Anjou took refuge after the battle of Barnet. Near is the seat of Lord Montagu of Beaulieu. Pop. 1,011.

BEAULIEU. Winter pleasure resort of France. It is on the Riviera, about 4 m. E. of Nice, in the department of Alpes-Maritimes. Electric trams run to Nice and Mentone.

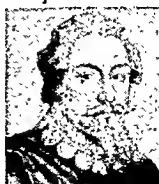
BEAUMARCHAIS, PIERRE AUGUSTIN CARON DE (1732–99). French dramatist. Born in Paris, Jan. 24, 1732, the son of a watchmaker, whose calling he at first followed, his first play, *Eugénie*, 1767, was the outcome of adventures in Spain in 1764. His comedy *The Two Friends*, 1770, was followed by a lawsuit over money which provoked the famous *Mémoires*, 1774–5. The pungent satire of his masterpieces, *The Barber of Seville*, produced in 1775, and *The Marriage of Figaro*, produced in 1784, ensured his fame, a fame extended by the operatic versions by Mozart and Rossini. He died in Paris, May 19, 1799.



Pierre Beaumarchais,
French dramatist

BEAUMARIS. Borough and market town of Wales. The county town of Anglesey, on Beaumaris Bay, near the entrance to Menai Strait, 7 m. N. of Bangor, it has a grammar school, a 13th century church, and golf links. It grew up round the ruined castle, Beaumaris (fine marsh), built by Edward I, 1283. Market day, Sat. Pop. 1,835.

BEAUMONT, FRANCIS (1584–1616). English poet and dramatist. Born at Grace Dieu, Leicestershire, son of Francis Beaumont, a lawyer, he was educated at Oxford, and read for the law. Enjoying the friendship of Michael Drayton and Ben Jonson, he was introduced to the circle of wits and poets who were gathered at the Mermaid



Francis Beaumont,
English dramatist

and Apollo taverns, and thus met John Fletcher, with whom in 1607 or 1608 he began a literary partnership that lasted until two or three years before his death on March 6, 1616.

In the plays commonly known as those of Beaumont and Fletcher, issued in folio form in 1647 and 1679, Massinger and others had a hand. Beaumont's work is found particularly in *The Woman Hater* and *A King and No King*; and he collaborated in *Four Plays in One*, *Philaster*, *The Maid's Tragedy*, *Cupid's Revenge*, and *The Knight of the Burning Pestle*. In addition to providing prologues for several of Jonson's plays, he wrote *The Masque of the Inner Temple and Gray's Inn*, 1612. He is buried in Westminster Abbey, and there is a window to his memory in the cathedral of S. Saviour, Southwark. See Fletcher, John.

BEAUMONTAGUE. Name given to a kind of cement used for filling up holes, cracks, or other defects in wood or iron work. Various ingredients are used, e.g. white lead or grease and lampblack for ironwork; white lead, litharge, and linseed oil for woodwork.

BEAUMONT-HAMEL. Village of France. It is 6 m. N. of Albert, near the river Ancre, and defied capture by the British in the opening stages of the battle of the Somme, July, 1916. When the battle of the Ancre was undertaken later in the year it was stormed Nov. 13, 1916. It was the scene of fierce fighting in the German offensive, March-May, 1918. See Ancre; Somme.

BEAUNE. Town of France, in the department of Côte-d'Or. It is on the Paris-Lyons rly., about 23 m. S. by W. of Dijon. It contains two old churches, one, Notre Dame, dating from the 12th and 13th centuries, and the remains of the old castle and fortifications. The hospital, founded 1443, is still used. Beaune is chiefly noted for its wine, which was in high repute as early as the 4th century. It is a fine, full-flavoured wine of good body, having the properties of Burgundy (q.v.) Pop. 11,681.

BEAU SEANT. War banner of the Knights Templars. It was half black, half white and bore the inscription *Non nobis, Domine, sed nominis tui da gloriam* (Not to us, O Lord, but to Thy name give the glory). It was carried by the balcanifer or standard bearer of the Templars (q.v.).

BEAUVAIS. City of France, capital of the department of Oise. It is 54 m. N.N.W. of Paris on the rly. to Calais, and stands near the union of the rivers Thérain and Avelon. Its chief building is the magnificent Gothic cathedral, begun 1225. Adjacent is a Romanesque building, probably the nave of the earlier cathedral. Of the manufactures, that of tapestry is old and celebrated. In 1472, when Beauvais was besieged by the duke of Burgundy, the women under Jeanne Lainé, or La Hachette (little axe), as she was called, so distinguished themselves that they are commemorated by an annual festival. A banner which Jeanne captured hangs in the town hall, and her statue is in the city. Pop. 19,270.

BEAVER. Genus of large rodents, including two species, the European (*Castor fiber*) and the American (*Castor canadensis*). Both are bulky animals, measuring about 30 ins. in length of body, and weighing about 50 lb. The body is thickly covered with soft brown fur, the legs are short, and the hind feet webbed. The tail is laterally flattened and covered with scaly and hairless skin. The European beaver is found in France about the river Rhône, in Poland, and in Norway; also in N. Asia.

The beaver is nocturnal in its habits, and feeds on the bark of trees and roots of aquatic plants. In Europe it lives in burrows, but in America it constructs lodges of logs of wood

and mud in the streams and lakes. In winter it feeds on food accumulated during the summer, and spends much of its time in sleep. To obtain wood for its lodges the animal gnaws through the trunks of trees and then floats the logs down the river.

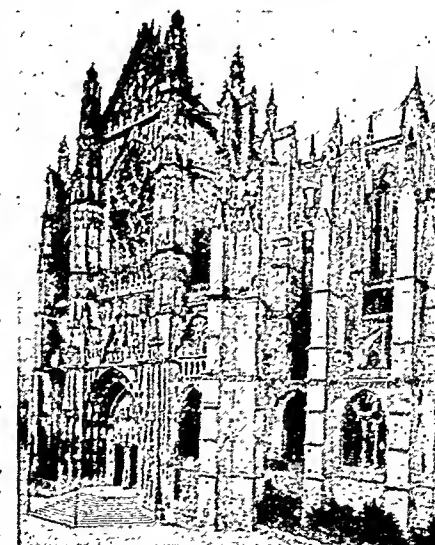
The beaver is hunted for its fur. The castoreum from the scent gland is used in perfumery, and the flesh of the animal is an article of food with the Indians of N. America.

At one time the fur of the beaver was used for covering the tall hats worn by men, and these were sometimes called beavers. A heavy woollen cloth, smooth with a superfine face, used for overcoats is also called beaver.

BEAVERBROOK, WILLIAM MAXWELL AITKEN, BARON (b. 1879). British politician. The son of a Presbyterian minister of New Brunswick, he was born May 25, 1879. Educated at Newcastle, New Brunswick, he had had a successful business career in Canada when he settled in England about 1909. In 1910 he was chosen Unionist M.P. for Ashton-under-Lyne, and retained his seat until 1916 when he was made a peer. A close friend of Bonar Law, he was made minister of information and chancellor of the duchy in 1918, but left politics for journalism. Taking control of *The Daily Express*, he raised its circulation enormously before retiring from it in favour of his elder son in 1929. He also founded *The Sunday Express* and bought a controlling interest in *The Evening Standard*. In 1930 he was prominent in advocating a scheme of free trade within the Empire. He wrote *Politicians and the War*, 1928.



Maxwell Aitken, Lord Beaverbrook



Beauvais. The cathedral, one of the finest in France. It is remarkable as an example of Gothic architecture

BEAVER RAT. Local name of the Australian water rat (*Hydromys chrysogaster*), found in Australia, Tasmania, and New Guinea. The body is about a foot long, and the fur is black on the back and yellow beneath.



Beaver in the act of adjusting logs in order to form a dam

BEAVER TREE (*Magnolia virginiana*). N. American shrub of the order Magnoliaceae. It has thick oval leaves and fragrant flowers, about three ins. across, with broad white petals. It is also known as the laurel magnolia and the sweet bay.

BEBEL, FERDINAND AUGUST (1840-1913). German socialist. He was born at Cologne, Feb. 22, 1840, and worked as a turner at Leipzig and elsewhere. A disciple of Karl Marx he helped to found the German Social Democratic party, and was elected in 1867 to the diet of the North German Confederation. From 1871

until his death he was, save for a short interval, a member of the Reichstag. In 1872, on a charge of contemplated treason, Bebel was sentenced to two years' imprisonment. Gradually, after his release, he rose to the leadership, unofficial but undisputed, of the Social Democratic party in the Reichstag, and kept it to the end. He died Aug. 13, 1913.

BEBINGTON. Part of an urban dist. of Cheshire, comprising the former urban dists. of Higher Bebington, Lower Bebington, and Bromborough. It stands on the river Mersey, 3 m. S. of Birkenhead, on the L.M.S. and G.W. Rlys. Bricks are manufactured and a white free-stone is quarried. See Bromborough

BEC. Benedictine monastery in Normandy, about 26 m. from Evreux. Founded about 1034, it was endowed with extensive lands, some in England. Its founder, Helluin, was its first abbot, but its fame was due to the school opened by Lanfranc, whom S. Anselm succeeded. Its decline set in during the 13th century, but it existed until the Revolution. Talleyrand was its last prior. In its 14th century church is the tomb of Helluin.

BECCAFICO (Italian beccare, to peck; fico, fig). Popular Italian name for the garden warbler, a bird that visits Great Britain in the summer. It is fond of feeding on figs, and is a favourite article of food in the S. of Europe.

BECCAFUMI, DOMENICO (1486-1551). Italian painter and sculptor. Son of a labourer, he was born at La Cartina, near Siena, and was called Beccafumi after his father's employer. His S. Michael in the church of the Carmine at Florence is one of his strongest paintings, but his great work is the designs for the mosaic pavement at Siena cathedral. He worked very successfully in bronze, the six angel lamps in Siena cathedral being by him. He died at Siena, May 18, 1551.

BECCARIA, BONAESA CESARE, MARCHESE DE (1735-94) Italian jurist. He was born in Milan, March 15, 1735, and was educated by the Jesuits at Parma. His fame rests upon his work, *Dei Delitti e delle Pene* (Concerning Crimes and Punishments). Beccaria was the first jurist to advocate that punishment should take into account the person to be punished as well as the crime. He died, Nov. 28, 1794.



Beaver tree, or laurel magnolia

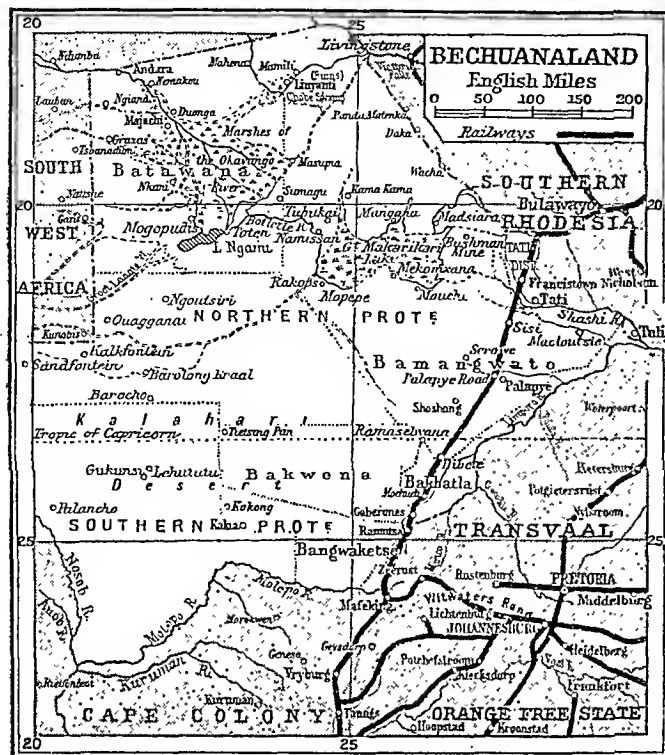


Ferdinand Bebel, German socialist



Beaver Rat, Australian water rat. It feeds on small fish and insects

BECCLES. Borough and market town of Suffolk. It stands on the navigable Waveney, 8 m. W. of Lowestoft by the L.N.E. Rly.



Bechuanaland Protectorate. Map of the country of the Bechuana people. It occupies the centre of a great plateau lying S. of the Zambezi river.

The Perpendicular church of S. Michael has a detached belfry tower. The town possesses a grammar school, founded in 1712 a new town hall, the old one being utilised as a library, a corn exchange, and a court house converted from a gaol. Its industries include printing, corn milling, and malting. Beccles received its charter in 1584. Roos Hall, a 16th century moated manor house, is near Market day. Friday. Pop. 7,077.

BÊCHE DE MER (Fr. sea-spade). Name given by the Portuguese to the sea cucumber or Holothuria, otherwise known as the trepang. See Sea Cucumber.

BECHUANALAND. Country of South Africa inhabited by the Bechuana, a group of Bantu negroid tribes. The Bechuanaland Protectorate is bounded S. and E. by the Union of South Africa, N. by Rhodesia and the Zambezi river, and W. by South-West Africa. Its area is about 275,000 sq. m. and pop. 152,983, of whom 1,743 are Europeans. It is administered by the British Government from Mafeking, Cape Province.

South Bechuanaland, formerly the crown colony of British Bechuanaland, is bordered on the N. by the Molopo river, has an area of 51,524 sq. m. and a pop. of 119,911, including 20,804 Europeans. Annexed to Cape Colony in 1895, it is administered by the S. African Government. The principal towns are Serowe, Francistown, Palapye; and Vryburg and Taung in Cape Province, the last four on the rly. from Cape Town to the Congo. Products include cattle, sheep, goats, and Kaffir corn and maize.



Sir Adam Beck, Canadian politician. Elliott & Fry.

BECK, SIR ADAM (1857-1925). Canadian politician. Born in Ontario, June 20, 1857, he

entered business life at London, Ontario. He became connected with undertakings for developing and distributing electric power from

Niagara Falls. In 1905 he was appointed to the executive council of Ontario, being a member without portfolio of Sir J. P. Whitney's cabinet. In 1906 he was chosen chairman of the commission on hydro-electric power, and in 1914 was knighted. He died Aug. 15, 1925.

BECK CASE. THE. Case of mistaken identity which involved a grave miscarriage of justice. Adolf Beck, a Norwegian financial agent resident in London, was twice convicted at the Central Criminal Court of mean frauds on women, and was sentenced in 1896 to seven years' penal servitude. While awaiting sentence, 1904, on the second conviction, the real delinquent was caught. Beck received two king's pardons and £5,000 compensation.

BECKENHAM.

Urban district of Kent. It is 9 m. S.E. of London on the Southern Rly. and is chiefly a residential district. S. George's church has old bells. Pop. 33,345.

BECKET, THOMAS (c. 1118-1170). Archbishop of Canterbury. Born Dec. 21, probably in 1118, in Cheapside, London, where his father, of Norman family, was a merchant, he studied at Merton Priory, Surrey, and in Paris. About 1142 he became confidential secretary to Theobald, archbishop of Canterbury, by whom he was made archdeacon in 1154. In 1155 Henry II made him chancellor of England and in 1162 archbishop of Canterbury. He at once resigned the chancellorship, and prepared



Thomas Becket, Archbishop of Canterbury. From a scarce print by Hollar.

for strife with the king on the question of the benefit of clergy. Thomas firmly refused to accept the king's demands, and on Nov. 2, 1165, left England to appeal to the pope. He remained abroad until 1170, when peace was made.

The archbishop landed in Kent on Dec. 1, 1170. He excommunicated the De Brocs, who had taken possession of estates in Kent belonging to the archbishopric, and on Dec. 29 four knights arrived at Canterbury. A quarrel ensued and the archbishop was slain, the crown of his head being severed from the skull. Thomas was at once acclaimed a martyr, and Henry II did public penance at the tomb of the murdered archbishop on July 12, 1174. (See illus. p. 167.)

Thomas was canonised in 1173. His shrine was held in the greatest reverence, and the Canterbury pilgrimage was for centuries the most popular in the Western Church. Many churches were dedicated to him, and his name is still commemorated in S. Thomas's Hospital, London. The shrine was destroyed in 1538.

BECKFORD. WILLIAM (1760-1844). British author. He was born at Fonthill, Wiltshire, Oct. 1, 1760, the son of William Beckford, and inherited on his father's death in 1770 an enormous fortune. He spent over £250,000 on rebuilding the house at Fonthill, in Wiltshire, but in 1822 he sold the estate and house and removing to Lansdowne Terrace, Bath, erected a lofty tower on Lansdowne Hill. He also bought Gibbon's library at Lausanne and purchased an estate near Cintra in Portugal. He won fame in 1787 by the publication in French of his romance



William Beckford, British author. After Sir J. Reynolds.

Vathek. Beckford died May 2, 1844.

His father, William Beckford (1709-70), was M.P. for the city of London for some years, and lord mayor in 1762 and 1769. He was famous as a friend of Wilkes and for his immense wealth. On his monument in the Guildhall is a speech he delivered in reply to a message sent by George III. He died at Fonthill, June 21, 1770.

BECKTON. District of Essex. An industrial area, it is near the north bank of the Thames, 9 m. from London, with a station on the L.N.E. Rly. Here are enormous gas works and the northern outfall of the metropolitan drainage system.

BECONTREE. Estate near Ilford, Essex. After the Great War it was bought by the London County Council and was laid out as a housing estate. It was planned to hold 24,000 houses, and by 1930 its estimated population was 80,000. Communication with London is by tramway, omnibus, and the L.M.S. Rly.

BECCQUEREL. Name of a family of French physicists. Antoine César Becquerel (1788-1878) was born March 8, 1788, and was a soldier until 1815. In 1837 he was made professor of physics at the museum of natural history in Paris, and he conducted researches into electricity and magnetism, writing on these subjects. He died Jan. 18, 1878.

His son Alexandre Edmond Becquerel (1820-91) was professor of physics at the Conservatoire of Arts and Crafts, Paris, from 1853 until he succeeded his father at the museum of natural history in 1878. The inventor of the phosphoroscope, he died May 11, 1891. Alexandre's second son, Antoine Henri Becquerel (1852-1908), took a keen interest in the emanations of uranium; and the Becquerel rays, named after him, were the first indication of radio-activity, of which he was the discoverer in 1896. With M. and Mme. Curie he divided the Nobel Prize for physics in 1903. He died in Brittany, Aug. 25, 1908.

BEDALE. Market town of Yorkshire (N.R.). The centre of a rural district, it is 7 m. S.W. of Northallerton, on the L.N.E.R. The Early English church of S. Gregory contains monuments of the Fitz-Alan family. The town gives its name to a hunt. Market day, Tues. Pop. 6,586.

BEDCHAMBER. Term used in royal households. In Great Britain the ladies of the bedchamber attend the queen on ceremonial occasions. They number eight and are usually peeresses. The queen has also six bedchamber women, also ladies of rank. They are in the lord chamberlain's department. See Royal Household.

BEDCHAMBER QUESTION. Name given to a constitutional difficulty that arose in Great Britain in 1839. In May Lord Melbourne's Whig ministry resigned, and Sir Robert Peel formed a Tory one. He intimated that he should expect the Whig ladies of the bedchamber to be replaced by Tories, but to this Victoria objected. She gained her point. Two

years later Peel came into power, and it was then decided that the mistress of the robes and other ladies holding high offices at court must belong to the party in power, or at least be acceptable to its leaders. In the case of a queen consort the difficulty does not arise.

BEDDGELEERT (Grave of Gelert). Village of Carnarvonshire, Wales, 13 m. S.E. of Carnarvon. It lies at the base of Snowdon, is a tourist centre, and has slate quarries and copper mines. The grave of the legendary hound of Llewelyn, king of Wales, is here shown. It is the scene of Robert Southey's *Madoc*. Pop. 1,055.

BEDDINGTON. District of Surrey. It is on the Wandle, 2 m. W. of Croydon, on the Southern Rly. The Perpendicular church of S. Mary is famous for its chancel and the Carew chapel. The Carews lived at Beddington Hall, which had a celebrated orangery. After the extinction of the family, in 1852, the hall was bought for a female orphan asylum, and only the magnificent dining hall remains. The park is a fine one. With Wallington, Beddington forms an urban district. Pop. 21,770.

BEDDOES, THOMAS LOVELL (1803-49). British poet. The son of Thomas Beddoes (1760-1807), a physician, and a nephew of Maria Edgeworth, he attracted attention in 1822 by his play, *The Bride's Tragedy*, inspired by Ford, Webster, and Tourneur. From 1825 onwards Beddoes lived abroad, and, having studied medicine, practised in Germany. He died at Basel, Jan. 26, 1849. His five-act drama, *Death's Jest Book*, was published in 1850, and a volume of his poems in 1851.

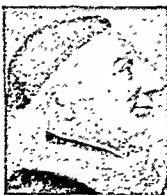
BEDE, VENERABLE (c. 673-735). English historian. Born near Jarrow, Bede passed the whole of his life from the age of seven in the Benedictine monasteries at Wearmouth and Jarrow. There he was educated, admitted deacon and priest, and there at Jarrow he died, May 26, 735. These facts, taken from his own writings, are almost all that is known of his life, although the exquisite story of how he continued his translation of S. John's Gospel in his dying hour is told by one of his pupils. In the 9th century the title Venerable was attached to his name, and May 27 is kept as his festival.

Bede's fame rests upon his *Historia Ecclesiastica*, one of the main authorities for the history of England in early Saxon times down to 731. Simply and at times beautifully written in Latin, it contains much information found nowhere else, and is the source of some of the most popular stories in English histories.

BEDEL or **BEDELL**. University officer. At Oxford there are four bedels, the junior bedel being the vice-chancellor's official attendant and mace-bearer. Cambridge has two bedels, known as esquire bedels, who carry maces before the vice-chancellor.

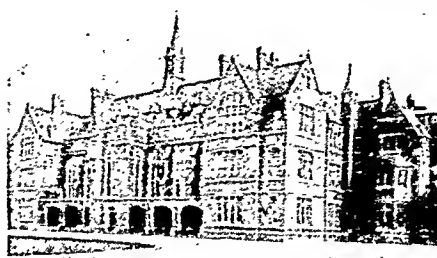
BEDFORD. Mun. bor. and co. town of Bedfordshire. It stands on both banks of the Ouse, 50 m. N.N.W. from London, by the L.M.S. Rly. Its grammar school, founded in 1561 and endowed by Sir William Harper, is a leading public school.

The existing buildings date from 1891. There are several other schools. The Bunyan Meeting House occupies the site of the chapel where Bunyan preached, and contains his chair and other relics. There are statues to Bunyan and John Howard. One of the oldest buildings is the Prioratus, a monastic structure dating from the 13th century. Bedford carries on a brisk agricultural trade; other industries include engineering works. Market day, Sat. Pop. 42,450.



John, Duke of Bedford, 1389-1435
Contemporary portrait

There is a town called Bedford in Cape Province, South Africa, near the foot of the



Bedford Grammar School, one of the leading public schools. The new buildings erected in 1891

Kaga Berg (5,105 ft.), 129 m. W.N.W. of East London. It is the centre of a grazing district.

BEDFORD, EARL AND DUKE OF. English titles borne by the family of Russell, the former since 1550 and the latter since 1694. Before 1550 John, son of Henry IV, and for short periods George Nevill and Jasper Tudor, uncle of Henry VII, had been dukes of Bedford.

John Russell, who obtained valuable lands on the dissolution of the monasteries, was the founder of its family fortunes. He was made a lord in 1536 and earl of Bedford in 1550. Francis, the 4th earl (1593-1641), was a leader of the parliamentary party before the Civil War broke out.

William, the 5th earl, a supporter of the Revolution of 1688, was made a duke in 1694. John, the 4th duke (1710-71), was the leader of the so-called Bloomsbury gang of Whigs. From 1748-51 he was a secretary of state and from 1753-61 lord-lieutenant of Ireland. From 1763-65 he was a prominent member of George Grenville's ministry.

Francis, the 5th duke (1765-1802), was a politician and agriculturist; it was to him that Burke's Letter to a Noble Lord was addressed. Herbrand Arthur (b. 1858), who became the 9th duke in 1893, was an authority on army matters. His wife made some notable flights in the air.

The Russells have always been Whigs. Their estates lie in Bedfordshire and Devonshire, and their chief seats are Woburn Abbey, near Bedford, and Endsleigh, near Tavistock. Their tombs are in the church at Chenies, Bucks. Their valuable London property in Bloomsbury and around Covent Garden was sold in 1913. The duke's eldest son bears the courtesy title of marquess of Tavistock.

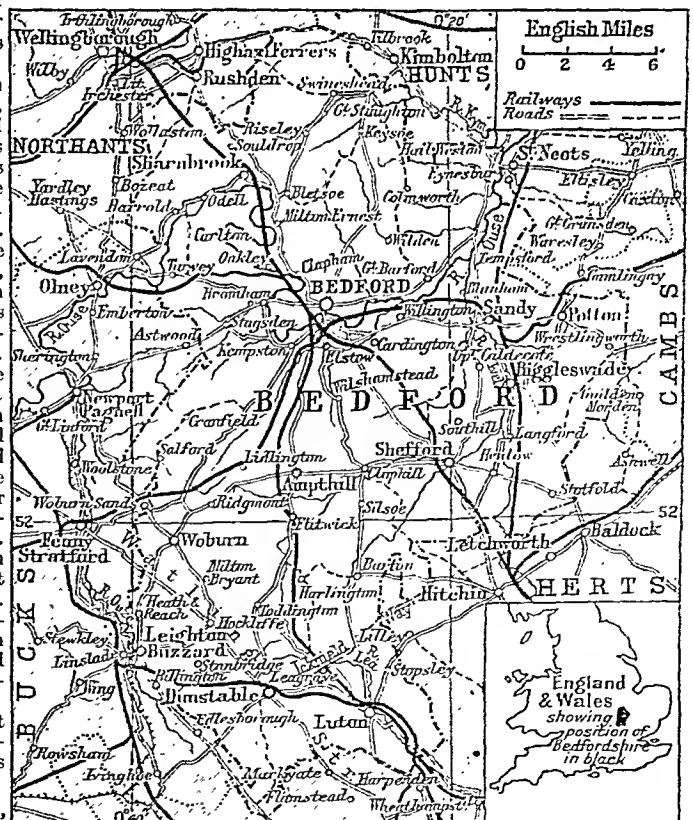
BEDFORD, JONAS, DUKE OF (1389-1435). Third son of Henry IV of England. He was created duke of Bedford in 1414. On the death of Henry V, in 1422, he became regent of

France, and by his marriage in 1423 with Anne, a sister of Philip, duke of Burgundy, he strengthened the alliance against France. He conducted the war against France, at first with considerable success. He died at Rouen, Sept. 19, 1435, and was buried in the cathedral there.

BEDFORD COLLEGE. London institution for the higher education of women. Founded in 1849 by Mrs. Elizabeth Jesser Reid, it took its name from its first home, 47, Bedford Square, London. There it remained until 1874, when buildings in York Place, Baker Street, were bought and adapted. New buildings, erected on a site in York Gate, Regent's Park, were opened by Queen Mary in July, 1913. Incorporated in 1869, it is a school of the university of London and is recognized as a training college for teachers.

BEDFORD LEVEL. Tract of flat land (95,000 acres) in the counties of Cambridge (including the Isle of Ely), Northampton, Huntingdon, Lincoln, Norfolk, and Suffolk. Formerly a morass, it was drained about 1640 by Cornelius Vermuyden at the expense of Francis, 4th earl of Bedford, and thirteen co-adventurers, who obtained a concession on condition that it was properly drained. It is now fertile and productive of grain, flax, etc. It consists of the north, middle, and south levels, and is intersected by the Nene, Cam, Ouse, and Welland rivers, and some artificial channels. Two cuts, the Old and New Bedford rivers, cross the Isle of Ely from the Huntingdon border to the Ouse, and take a parallel course (1 m. apart) 21 m. in length.

BEDFORDSHIRE or **BEDS**. South midland county of England. It has an area of 473 sq. m., mainly flat. The Dunstable Downs, a spur of the Chilterns, are in the S. and chalk hills in the NW. Watered by the navigable



Bedfordshire, England. Map of this agricultural county in the South Midlands. Possessing a very fertile soil, it has been a noted farming district from Roman times

Great Ouse and its tributary the Ivel, it is very fertile, especially in the Vale of Bedford. Wheat, barley, and market garden produce

are grown. For sheep rearing the pasture in the S.E. is unrivalled. Minerals include phosphate of lime, stone, fuller's earth, and silver sand. The L.N.E.R. and L.M.S. Rlys. afford communication. Bedford is the co. town; others are Luton and Dunstable. Three members are returned to Parliament. Pop 206,462.

BEDFORDSHIRE REGIMENT. In full the Bedfordshire and Hertfordshire regiment, the latter, a territorial unit, being now united with it. Constituted in the reign of James II under William III the Bedfordshire regiment fought in Holland against Louis XIV of France, and assisted at the capture of Namur in 1695. At Blenheim it was in the thick of the battle, and at Ramillies, Oudenarde, and Malplaquet helped to win the victory. The Bedfordshires saw service at Dettingen, and later, having taken part in the Maroon War (1795), were in the Isazai expedition (1892), and the Chitral expedition (1895). The regiment had a distinguished record in the S. African War, and fought in the Great War, gaining further battle honours. The depot is at Bedford.



Bedfordshire Regiment badge

BEDIVERE. Last knight of the Round Table. Sir Bedivere took part in many adventures told in Malory's *Morte d'Arthur* (c. 1469). He is best remembered for his part in the closing scenes of Arthur's life, when he threw away the dying king's sword Excalibur and carried him to a barge. See Arthur.

BEDLAM. Corruption of Bethlem or Bethlehem, the first English and second European lunatic asylum. Founded at



Bedlam, Bethlehem Hospital, Lambeth, the grounds of which are now a public park

Bishopsgate, London, in 1247, as a priory, it was a mad-house from 1403. In 1676 it was transferred to Moorfields and in 1815 to St. George's Fields, Lambeth. The grounds were purchased and presented as a public park (Geraldine Mary Harmsworth Park) by Viscount Rothermere in 1926. A site for a hospital to house the inmates was bought at Monk's Orchard, Shirley, Surrey and in 1928 the foundation stone of the new building was laid.

BEDLINGTON. Urban district of Northumberland. It stands on the Blyth. Industries include coal-mining and the manufacture of glass, nails, and chains. It gives its name to a breed of terriers. Pop. 26,417.

BEDLOE'S. Small island in New York Bay, U.S.A., 1½ m. S.W. of the Battery, Manhattan Island. On the site of Fort Wood stands the colossal bronze statue of Liberty Enlightening the World, by Bartholdi, given by France to the U.S.A. in 1886.

BEDSTEAD. Framework in which bedding is held. In Egyptian and Assyrian carvings bedsteads

are in the form of low couches with raised straight or outwardly curving beadboards, and sometimes lower footboards. The Greek and Roman day and night couches were of the same general type, the latter frequently being of solid metal. The Anglo-Saxons used large wooden benches, sometimes placed in curtained recesses. Large four-poster bedsteads became common in the 16th century. Fine specimens of Jacobean and Georgian four-posters, some heavily plumed, are to be seen at the Albert and Victoria Museum, South Kensington, and in Hampton Court Palace.

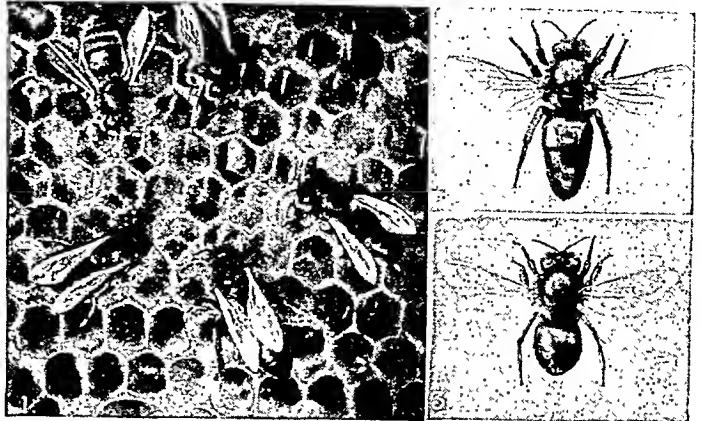
The manufacture of iron and brass bedsteads began on a commercial scale in England about 1840. Many patents have been granted for alarm, collapsible, and adjustable-framed, lattice, spiral spring, and wire spring woven mattresses. Later there was a return to the vogue for wooden bedsteads. See Furniture.

BEDSTRAW (*Galium*). Genus of Rubiaceae, consisting of about 150 species of herbs. They mostly inhabit the temperate regions of the Old and New Worlds. They have four-sided stems, and the leaves are arranged in whorls. The flowers are minute, but often conspicuous by their association in cymes. The calyx is a thickened ring, and the corolla is four-lobed; there are four stamens and two styles. The roots of many species afford a purple dye. Species are crosswort (*Galium cruciata*), lady's bedstraw (*G. verum*), with yellow flowers used to curdle milk, and goosegrass or cleavers (*G. aparine*), with white flowers and with leaves and fruit covered with hooked bristles.

BEDUIN. Name given to the descendants of the Arabs of Arabia, who traditionally claim Ishmael as their ancestor. Bedouin is the French form of the Arabic plural, introduced by the Crusaders, and since used as the singular form.

In very early times the Beduins migrated to Egypt and Syria, and to-day they are found not only in the Arabian, Syrian, and Sinaitic deserts and in the Nile valley, but have spread to the Atlantic edge of the Sahara, the southern Sudan, and the Mesopotamian valley. The typical Beduin is a nomadic herdsman, an occasional plunderer of travellers and caravans, his only tribal authority the sheik: but with the development of Arab nationalism and civic life many of the

tribes are giving up their nomadism, and, with that, their right to the Beduin name. In the kingdom of Hejaz and Nejd the Beduins



Bee. 1. Queen bee wandering over the comb, attended on either side by a worker. 2. Queen bee; she may survive for three years. 3. Worker bee, which normally lives for six weeks. 1. Sedgwick; 2 & 3, Bastin

make a steady income by the annual export of camels to Syria and Egypt. See Arabs.

BEDWELLTY. Urban dist. of Monmouthshire. It is 7 m. W. of Pontypool, on the G.W. Rly., lies in a mining district, and has large ironworks. Its Early English church, S. Nannan, was restored in 1858. Market day, Sat. Pop. 34,000.

BEDWORTH. Town of Warwickshire. It is 3½ m. S. of Nuneaton on the L.M.S. Rly., and is traversed by the Coventry canal. Coal and iron are mined. Pop. 11,548.

BEE. Term applied to several groups of four-winged stinging insects of the order Hymenoptera. Bees fall roughly into two classes, social and solitary. In the first group are the honey-bees and the humble bees; in the second the carpenter-bees, mason-bees, mining-bees, etc.

The social bees form colonies in which a highly developed organization exists for building the home, collecting and storing food, and rearing the next generation. The hive bee has been kept in a state of semi-domestication for many centuries. The inmates of the hive consist of three classes, the queen, drones, and workers. The queen bee is the only fertile female. When the comb has been built by the workers she proceeds to lay eggs in some of its cells. Other cells are used by the workers, for storing the honey and pollen needed as food.

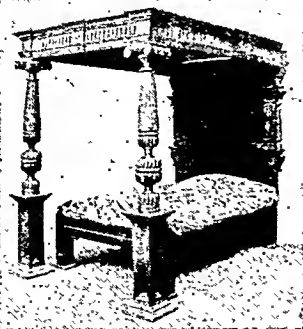
Drones are larger in size than the workers. Their function is to fertilise the queen on her nuptial flight. Drones do no work, and are killed or driven out by the workers in the autumn. The workers, who constitute the bulk of the community, are sterile females. Except in the case of some that remain dormant throughout the winter, they live only for six weeks, whereas the queen bee may survive three seasons.

The life history of a worker may be briefly summed up. The egg hatches in about three days, and a white, worm-like grub emerges. This is fed by the workers, and after some days the cell is sealed up and the larva passes into the pupa stage. In rather less than three weeks from its first hatching the fully developed worker emerges, and after a rest of one or two days begins its daily work of gathering nectar and pollen. As a rule the older bees devote themselves to the work of the hive.

BEEKEEPING. Bees were formerly kept in dome-shaped straw hives known as skeps, and destroyed before their combs were taken. Now it is usual to employ standard wooden



Bedstraw. The crosswort, *Galium cruciata*



Bedstead, English example dated 1593, with wooden canopy and detached posts

hives, containing vertical frames in which the brood combs are made. These are covered by a perforated piece of zinc, on which are placed square sections or supers to contain combs for storage of honey only, the zinc preventing the queen from climbing up to lay eggs in the sections. When filled with honey these sections can be removed and empty ones substituted. See Beehive.

When the population of a hive increases inconveniently part of it, headed by the old queen, issues forth as a swarm, while the rest stay in the hive with a young queen reared for the purpose. Bees require winter-feeding with syrup made from cane sugar, and it is essential to keep them dry and warm.

BEECH. Forest tree of the order Amnataceae and the genus Fagus. The common beech (*F. sylvatica*) is a native of Britain, but other species have been introduced from Asia Minor, Japan, and N. and S. America. In height the beech varies from 60 ft.-100 ft., and the diameter of its trunk from 6 ft.-9 ft. The leaves are oval or oblong, and their edges are fringed with silvery hairs. The male and female flowers are produced in separate tufts, the male flowers on long drooping stalks, the female on shorter, stouter supports. These flowers develop into the hard, bristly case which in autumn provides the nuts or mast for pig food.

Beech-tar is obtained by the destructive distillation of the wood of the beech. It is used as the source of guaiacol and creosote.

BEECHAM, SIR THOMAS, BART. (b. 1879). British conductor and composer. Born April 29, 1879, the eldest son of Sir Joseph Beecham (1848-1916), he was educated at Rossall and Wadham College, Oxford. In 1910 he gave a series of opera performances at Covent Garden, and in 1915 he started and conducted a series of promenade concerts at the Albert Hall. He made The Aldwych Theatre the headquarters of his opera company, but it soon proved far too small, and he obtained a lease of Drury Lane Theatre, where he provided a remarkable programme in 1917. After the War he devoted his time to the production of grand opera in London and elsewhere. In 1916 he was knighted, and succeeded his father in the baronetcy conferred on him in 1916.

Beecham's grandfather, Thomas Beecham, was the founder of the pill-making business at St. Helens.

BEECHER, HENRY WARD (1813-87). American divine. He was born at Litchfield, Connecticut, June 24, 1813, son of Lyman Beecher, and was educated at Amherst College, Massachusetts, and Lane Seminary, Ohio. Becoming a Presbyterian minister, he officiated at Lawrenceburg and Indianapolis for ten years, and in 1847 was called to Plymouth Congregational church at Brooklyn, where he preached for nearly 40 years to immense audiences. An active orator in the anti-

slavery movement, he edited The Independent newspaper of New York, 1861-3, and The Christian Union, 1870-81. Charges against his moral character made in 1870 were disproved after a long trial in the courts and close investigation. Beecher died March 8, 1887.

His father, Lyman Beecher (1775-1863), was also a famous preacher. From 1810-32 he was a minister at Boston, and from 1832 until 1852 was president of a theological seminary in Ohio. His daughter was Harriet Beecher Stowe (q.v.).

BEECHEY, SIR WILLIAM (1753-1839). British painter. Born at Burford, Oxfordshire, Dec. 12, 1753, he came to London in 1772 to be articulated to a solicitor, but became a student in the Academy schools instead. He had considerable vogue as a fashionable portrait painter, and in 1798 he was knighted and elected R.A. His Joseph Nollekens, R.A., in the National Gallery, is one of the best of the 360 portraits he sent to the Academy. He died Jan. 28, 1839.

His eldest son, George D. Beechey, became court painter to the king of Oudh. Another son, Frederick William Beechey (1796-1856), went into the navy, took part in the Arctic expeditions of Franklin and Parry, and made various naval surveys. A third son, Henry William Beechey, a painter, was also engaged in explorations in Africa.

BEE EATER (Meropidae). Member of a family of birds (Meropidae) comprising five genera with some thirty-five species. All are indigenous to the Old World, being found mainly in S. Europe. In size they vary from 14 ins. to about 6½ ins. Bee eaters levy a toll on bee hives, and lying concealed on dead branches of trees, dart out after any flying insect.

BEEF. Meat obtained from the carcasses of bulls and cows, veal being the name of that obtained from their young. Beef has been the chief meat food of the United Kingdom for hundreds of years, and British breeds of cattle for purposes of beef production are the finest in the world, notably the Shorthorn, Aberdeen Angus, Hereford, Sussex, Devon, Redpoll, Galway, Kerry, and Highland cattle. Of these the Shorthorn cattle represent the type most numerous in Great Britain and in America, into which country they were first imported in 1783. The pure-bred cattle are highly valuable, and cattle cross-bred with Shorthorns produce extremely good results for beef and milk.

Until the end of the 19th century the supplies of beef for the British market were principally home-grown, but with the introduction of freezing methods and refrigerating ships there has grown up an increasing trade in frozen and chilled beef from various parts of

the world for the British market. These supplies come mainly from the United States, Canada, and Argentina. In 1929, to help the home producer, a system of marking and grading home-grown beef was introduced.

Beefeater. Popular name for a member of the yeomen of the guard (q.v.).

BEEFWOOD (Casuarina). Genus of trees, chiefly natives of tropical Australia, India, etc. They have very slender, jointed and drooping branches, which are leafless so that the trees present the appearance of gigantic horsetails (*Equisetum*). The timber is extremely hard and durable. In their cannibal days the Fijians are said to have made forks of it for the eating of human flesh.

BEEHIVE. Structure in which bees are kept. For centuries it was a dome-shaped construction made of bands of straw fastened to a framework. The modern frame hive is a two-storied wooden box with a roof above to protect it from the weather. Movable frames in the lower part are used by the bees for brood and for honey storage. A sheet of perforated zinc above this, while it permits the workers to pass into the top storey, where they fill the combs with honey, bars the access of the queen, so that no eggs are laid in the cells. As the frames in the upper part are filled they are replaced by empty ones. The frames contain a sheet of wax (comb-foundation) impressed with the hexagonal pattern of the cells. On this the bees work their combs. See Bee.

BEEHIVE OVEN. This is an old form of retort used for turning coal into coke. In shape it resembles an ordinary beehive. See Coke; Metallurgy.

BEEHIVE STRUCTURE. This is a drystone building roofed with horizontally laid blocks overlapping inwardly, the uppermost course being a single copestone. The plan may be round, oval, or four-sided, the lower courses—and in rectangular structures the end walls throughout—may be vertical.

BEELEBUB OR **BAALZEBUB**. Philistine god of Ekron (2 Kings 1). In the N.T. the name is used as a title of Satan (Matt. 10: Mark 3: Luke 11). See Baal.

Bee Martin. Variant name of the king bird (q.v.).

BEE ORCHIS (*Ophrys apifera*). Species of a genus of terrestrial orchids, restricted to Europe, N. Africa, and W. Asia. The short, oblong leaves and flower stem arise from a pair of ovoid tubers. The flower looks like an orange-spotted, brown-bodied bee with pinkish wings. Others are the spider and fly orchis,

BEER. Beverage which is mainly derived from the extract of malted barley together with that from prepared maize and sugars. The solution, termed wort, is boiled with hops, cooled, and fermented with yeast, the product being beer and ale. Lager beer is a matured beverage produced by decoction and low fermentation processes. British beers are produced by infusion and high fermentation processes and are of lower original gravity than formerly, and in consequence the alcohol content ranges from 2.5 p.e. to 4.5 p.e. for draught produce and from 5.5 p.e. to 6.5 p.e. for bottled varieties.

In Great Britain the duty on beer is £5 on 36 gallons of worts of a specific gravity of 1.055, and less or more in proportion to the gravity. Brewers pay 12s. for every



Sir W. Beechey
British painter
Self-portrait



Beech tree. The Great Beech at Mark Ash, New Forest



Sir J. Beecham,
British manufacturer



Sir T. Beecham,
British musician



Bee-eater,
S. European bird



Bee orchis,
Ophrys apifera



Beehive structure. Examples from the island of Lewis in the Outer Hebrides. See above

50 barrels brewed after the first 100, on which they pay £1. In 1929 the revenue from the duty on beer was £70,846,978.

Beer money, an allowance to soldiers of a penny a day, was given in the British army from 1800 to 1873.

BEERHOUSE. In England a public house in which beer only is sold. From about 1660 there was something in the nature of a tax on places where wines and spirits were sold; then annual licences from the magistrates were required for the sale of intoxicating liquors. In 1830 a law was passed exempting sellers of beer from the duty of applying for a licence. Any householder could obtain one upon payment of the necessary duties and giving surties, and thus many beerhouses came into existence. In 1869 the privilege was abolished, but the rights of those in existence were untouched. See Licensing.

BEERBOHM, MAX (b. 1872). British caricaturist and author. He was born in London, Aug. 24, 1872, a half-brother of Sir Herbert Tree, and was educated at the Charterhouse and Merton College, Oxford. He contributed to *The Yellow Book*, and his books, *The Happy Hypocrite*, 1897, *More*, 1899, *Zulicka Dobson*, 1911, *A Christmas Garland*, 1912, and *Seven Men*, 1919, added further to his reputation as a writer of satire and of



Max Beerbohm,
British caricaturist

fiction. In caricature Beerbohm is perhaps the most subtle of the modern British school. His collections include: *The Poets' Corner*, 1904; *A Book of Caricatures*, 1907; and *Fifty Caricatures*, 1913. As a dramatic critic he was employed for many years on *The Saturday Review*. See Caricature.

BEERSHEBA (Heb. well of the oath). Ancient town of Palestine. About 50 m. S.W. of Jerusalem. It was the scene of the covenant sworn between Abraham and Abimelech (Gen. 21). Of little importance in the past, the Biblical phrase "from Dan to Beersheba" gave it a place in history it hardly deserved. The modern Bir-es-Saba, built near its site, was captured during the Great War from the Turks by the British, Oct. 31, 1917.

BEESTON. Urban dist. of Nottinghamshire. Close to the Trent and 3 m. S.W. of Nottingham on the L.M.S. Rly., it has motor and telephone works and lace and other manufactures. Market day, Sat. Pop. 14,800. There is a suburb of Leeds called Beeston.

BEESSWING. Filmy crust of tartar and other substances deposited by wine kept long in bottle. It is found chiefly in port and is so called from its resembling a bee's wing. Its presence implies age and consequent improvement of the wine.

BEET (Beta vulgaris). A native root of Portugal and South Europe, introduced into Great Britain in 1548. Beet-root is the most nutritious of all root crops except the potato, containing about 12 per cent of sugar. There are two distinct shapes of beet-root, turnip-rooted, i.e. round and long, and tap-rooted. The stalks and the outside leaves of a variety called spinach beet are used in the same way as spinach. The Chilean beet is a species grown for the sake of its ornamental foliage. The beet



Beet. Examples of
the globe variety

fly is a small fly which deposits its eggs among the leaves of the beet.

The sea-beet (*Beta maritima*) grows mostly on muddy sea-shores, and is widely distributed in S. Europe, N. Africa, India and W. Asia. Its leaves are eaten as a spinach. The mangold wurzel is a cultivated variety.

SUGAR BEET. The sugar beet, a large white-fleshed variety of the common beet, is cultivated for the roots are sliced and then treated with tepid



Beet. White-fleshed variety, from
which beet sugar is made

pressure, a process which extracts the sugar contents in the form of a liquid. The raw juice is treated with 2 per cent of lime to get rid of organic impurities and after precipitation and filtering the liquid receives a final treatment with sulphurous acid. The clear liquid resulting is evaporated and the crystals separated out by centrifugal machinery. The refuse from the manufacture is used as a food for stock.

In Great Britain the cultivation of sugar beet has been encouraged by a subsidy from the state. In 1924 factories were in operation at Kelham and Colwick, in Nottinghamshire, and Cantley in Norfolk, and later in other places, making 19 in all by 1930. In 1927 130,000 acres were under cultivation, over 1,100,000 tons of beet were delivered to the factories, and over 3,000,000 cwt. of sugar were produced. In 1930 the acreage under cultivation was 315,000. See Sugar.

BEETHOVEN, Ludwig von (1770-1827). German composer. Born Dec. 16, 1770, at Bonn, where his father was a tenor singer in the service of the elector of Cologne. He studied music and, while a boy, was appointed opera conductor and organist to the elector. After a short visit to Vienna in 1787, when he had a few lessons from Mozart, he returned thither in 1792, and Vienna remained his home till his death, which took place March 26, 1827.



L. von Beethoven,
German composer

Beethoven's compositions may be divided into nine groups: (1) two masses, an oratorio, *Christus am Oelberge* (*The Mount of Olives*), and some smaller choral works; (2) a large quantity of solo vocal music; (3) the opera *Fidelio* (originally entitled *Leonora*), and overtures and incidental music to various stage pieces; (4) nine symphonies, the last of which includes a setting for solo voices and chorus of part of Schiller's *An die Freude*; and one or two other orchestral works of little importance; (5) 5 concertos for pianoforte and orchestra and one for violin, and a few other works for solo instruments with orchestra, one with chorus also; (6) chamber music without pianoforte, including one string quintet, 16 string quartets, 5 string trios, and a good many works (all early) for wind instruments or strings and wind in conjunction; there are also a couple of string fugues, one of them originally intended for one of the last quartets; (7) chamber music with pianoforte, including 10 sonatas for pianoforte and violin and 5 for pianoforte and violoncello, 6 trios

for pianoforte and strings, one for pianoforte, clarinet, and violoncello, and smaller works for these and for one or two other combinations: (8) 32 solo pianoforte sonatas; (9) many sets of variations, bagatelles, rondos, etc., for pianoforte solo and a few slight pieces for pianoforte duets.

BEETLE (A.S. bitan, to bite). Member of the order of insects known as Coleoptera. The wings are covered by a pair of horny sheaths, really a modification of the front pair of wings. Most beetles have a hard, polished appearance, and their limbs are protected by a thick cuticle of chitin. Beetles are found on land and in fresh water, and about 150,000 species have been recorded. The mouth is provided with strong biting jaws, with appendages for helping to thrust in food, and there is a single pair of antennae. In size beetles vary considerably, some being very tiny, while one South American species is 6 ins. long and broad in proportion. They pass through the usual metamorphoses of insects. A small beetle only about one-third of an inch long is the bacon beetle, which lives in bacon and other dry foods. See illus. p. 223.

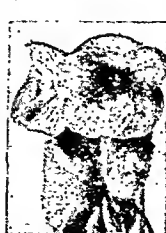
BEFANA. In Italian legend, a misshapen old woman who is held up as a bugbear to naughty children and brings gifts to good ones. Her image, in the form of an ugly doll, is put in the windows on Jan. 5, the eve of the Epiphany, of which her name is a corruption. The story places her in a window because she declined to go out to view the passing of the Magi on their way to Bethlehem, and is still waiting to see them return.

BEGA. Town of Auckland co., New South Wales, Australia. It is situated where the Bega river is crossed by the main coast road from Sydney to Eden on Twofold Bay. The Bega Plains are a dairy-farming district which produces cheese.

BEGAS, REINHOLD (1831-1911). German sculptor. Born in Berlin, July 15, 1831, he was the son of Karl Begas (1794-1854), distinguished as a portrait painter. He was the sculptor of the allegorical statues of Strasbourg and Metz erected in the Potsdamer Platz, Berlin, of a statue of William II, and of numerous effigies of other Hohenzollerns. Oskar Begas (1828-83), the painter, and Karl Begas (1845-1916), the sculptor, whose chief works are in Berlin, were his brothers.

BEGHARDS. Communities of wandering beggars. Men organized on lines similar to those of the beguines (q.v.), or possibly guilds of craftsmen, became known as beghards in Germany. Not long after their foundation, early in the 13th century, they degenerated into associations of travelling beggars.

BEGONIA. Genus of succulent herbs and undershrubs, natives of tropical countries with a moist climate, especially S. America.



Begonia. Flower
and irregularly
shaped leaves

The leaves are asymmetrical, the blade on one side being larger than the other. This has led to the name of elephant's-car being applied to the large ornamental-leaved kinds. The flowers, which have sepals and no petals, are brightly coloured—white, yellow, or red—and many are of large size. Hybridisation has produced an enormous number of beautiful garden begonias.

BEGUINES. Communities of women founded about 1170 at Liège by a priest named Lambert le Bègue (the stammerer), which later spread to Germany and France. There are establishments of the sisterhood in Belgium, notably at Ghent and Bruges. They

do not take monastic vows, but live in partial community in cottages known as a beguinage. They devote themselves to the education of children and the care of the sick and aged.

Begum. Title used in India for Mahomedan ladies of rank. It is apparently a feminine form from Turkish beg, lord.

BEHAIM OR **BEHEM**, MARTIN (c. 1436-1506). German navigator. Born at Nuremberg, he was of Bohemian descent, his surname being probably a corruption of Bohemia. For trading purposes he went to Portugal and there settled, soon turning his attention to the study of navigation. His researches resulted in improved navigation tables, but the exact extent of the voyages made by Behaim himself remains in doubt. He died in Lisbon, July 29, 1506. A globe which he made is still at Nuremberg.

BEHAVIOURISM. Name given to the branch of animal psychology that studies the behaviour of animals and men. It has developed chiefly in the U.S.A., although a British psychologist, C. Lloyd Morgan, is regarded as its founder. The work done by E. L. Thorndike and others has shown that there is a marked similarity between the behaviour of men and that of the lower animals. Consult *Animal Behaviour*, C. L. Morgan, 1900; *Behaviourism*, J. B. Watson, 1914.

BEHEMOTH. Name of a large and powerful animal referred to in the Book of Job (40, 15-24), where the description is suggestive of the hippopotamus, and, in some features, of the elephant. The word is the plural form of Hebrew behemah, beast, used in an augmentative sense, a great beast.

BEHISTUN. Place in Persia famous for its trilingual inscription chiselled upon the precipitous face of a rock 1,700 ft. high. Upon a hewn area 20 ft. high and 60 ft. broad, 200 ft. above the cliff base, the characters, 1 in. high, are associated with sculptured panels depicting Darius I and some vanquished rebels overshadowed by the divine Ahuramazda. The inscriptions are in Babylonian, Susian, and old Persian, and their decipherment in 1846 unlocked the secret of cuneiform. At the cliff base Parthian sculptures portray a mounted king unhorsing a foe, about 50 B.C.

BEHN, AFRA OR **APHRA** (1640-89). English dramatist and novelist. Born July 10, 1640, at Wye, Kent, she was taken when a child to Surinam, where she met the romantic chieftain Oroonoko, the hero of her best novel. After her return to England she married, and on the death of her husband, a Dutch merchant, she went to Holland as a diplomatic agent, but soon abandoned this and supported herself by her pen. She was the first professional woman writer in England.

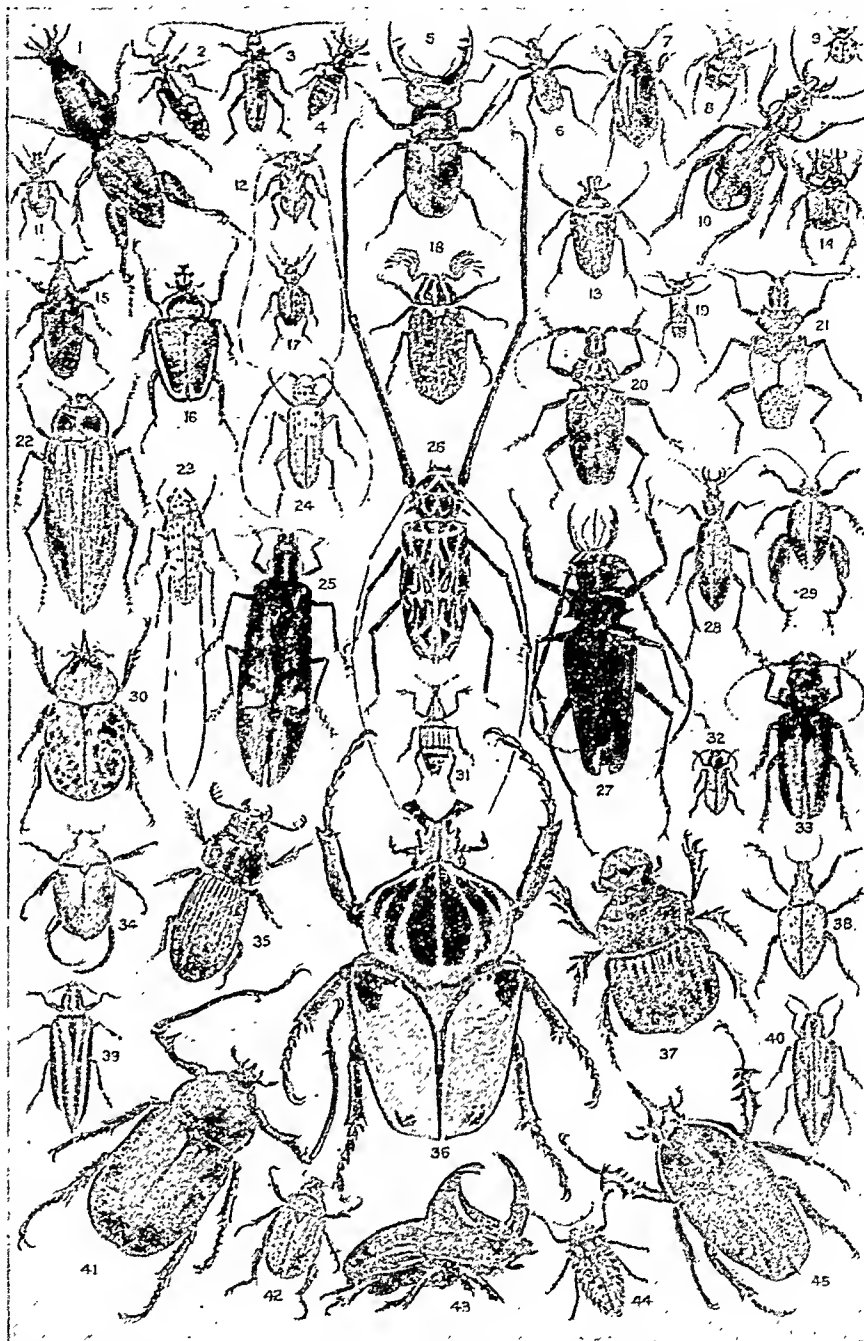


Aphra Behn.
English dramatist
Portrait by Mary Delle

Her plays include *The Forced Marriage*, 1671, *The Amorous Prince*, 1671, and *The Town Pop*, 1677. She died April 16, 1689.

BEIBARS OR **BIBARS** (d. 1277). Egyptian ruler. He lived in the last days of the Saracen dynasty of the sultan Saladin. He helped sultan Kutuz to defeat the Mongols in Syria, 1260, and, having killed Kutuz, was himself made sultan. He reigned from 1260 to 1277 and completed the expulsion of the Mongols from Syria.

BEIJERLAND OR **BEYERLAND.** Island of Holland, in the prov. of S. Holland. It lies between the Hollandsch Diep and the Oude Maas, or Meuse, 6 m. S. of Rotterdam, and is 15 m. long and 8 m. wide. Flax is grown.

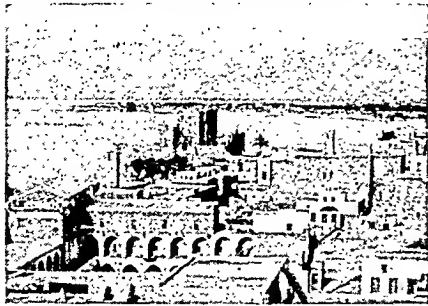


BEETLE. 1. *Hypocephalus armatus*. 2. *Meloe violacea*. 3. *Aromia moschata*. 4. *Crepophilus maxillosus*. 5. *Lucanus cervus*. 6. *Cicindela campestris*. 7. *Dytiscus punctulatus*. 8. *Trichius fasciatus*. 9. *Coccinella septempunctata*. 10. *Anthia sexguttata*. 11. *Carabus nitens*. 12. *Astionomus aedilis*. 13. *Staphylinus gyllenhalii*. 14. *Typhaeus vulgaris*. 15. *Rhynchophorus ferrugineus*. 16. *Ceratorrhina derbyana*. 17. *Licinus silphoides*. 18. *Polyphylla fullo*. 19. *Clytus urietis*. 20. *Pyrrochroa pulcherrima* (male). 21. Ditto (female). 22. *Euchroma goliatha*. 23. *Monochamus versatilis* (male). 24. Ditto (female). 25. *Catantopus giganteus*. 26. *Acrocinus longimanus*. 27. *Psilidognathus frieudii*. 28. *Carabus hispanus*. 29. *Sagra buquetii*. 30. *Dynastes tityus*. 31. *Eupholus schouherri*. 32. *Aeserina magnifica*. 33. *Aplagiognathus spinosus*. 34. *Chrysina macropus*. 35. *Eriocnemis tridens*. 36. *Goliathus caelestis*. 37. *Helicopsis bucephalus*. 38. *Curculio germari*. 39. *Chrysocroa chiensis*. 40. *Chrysocroa ocellata*. 41. *Euchirus longimanus*. 42. *Anoplognathus viridulae*. 43. *Euema pan*. 44. *Julodis hirsuta*. 45. *Ceratorrhina torquata*.

BEIRA. Town of Portuguese East Africa. At the mouth of the Pungue and Busi rivers, it is 374 m. by rly. S.E. of Salisbury, and is the capital of the territory of the Mozambique Co. Beira is the chief trading outlet of Rhodesia. As the coastal terminus of the Beira-Mashonaland rly. from Bulawayo and Salisbury, it forms an outlet from the Katanga regions, and the extension of the rly. from Blantyre, in the Nyasaland Protectorate, to Beira has made it the chief outlet for the Lake Nyasa regions. Pop. 11,871. There is a province of Portugal called Beira.

BEIRUT OR **BEYROUT** (anc. Berytus). Chief seaport of Syria, the seat of the French High Commissioner for Syria, and of the government of the autonomous state of Greater Lebanon. On the Mediterranean, about 60 m. by rly. N.W. of Damascus, it is a busy commercial centre, exporting silk, oil, gums, and fruits, and importing ironware, cotton goods, coffee, etc. Appearing first as a Sidonian seaport, it has belonged in turn to Greeks, Romans, Crusaders, and Moslems. It has a French and an American university. Pop. 80,000. See illus. p. 224.

BEIT, ALFRED (1853-1906). Anglo-Jewish financier. Born at Hamburg Feb. 15, 1853, of Jewish race, Beit went to South Africa for



Beirut, Syria. Panorama of the city, looking towards the mountains of Lebanon. See article, page 223

a Hamburg firm in 1875, and remained there for three years. Having previously gained some knowledge of the diamond trade at Amsterdam, he started in business as a diamond merchant at Kimberley. In 1884, with Julius Wernher, he founded a similar business in London, which in 1890 became Wernher, Beit & Co. At the same time Beit was associated with Cecil Rhodes in the control of the De Beers mines. He died July 16, 1906.

BEITH. Market town of Ayrshire, Scotland. It is situate 18 m. S.W. of Glasgow on the L.M.S. Rly. It contains the Speir School, founded 1887, and manufactures furniture, upholstery, ropes, linen, thread, leather, and cotton. Market day, Fri. Pop. 6,343.

Beith, JOHN HAY (b. 1876). British writer, better known as Ian Hay (q.v.).

BEL. Babylonian deity. The Semitic name, elsewhere denoting ownership of natural objects, meant, with the Babylonian Semites, lord of men. They applied it to primitive Sumerian gods, and especially to Enlil of Nippur. Hammurabi, about 2250 B.C., transferred Enlil's attributes to the local god of Babylon, Marduk, whom thereafter Bel denotes (Isaiah 46). See Babylonia.

BELASCO, DAVID (b. 1859). American dramatist. He was born July 25, 1859, at San Francisco, where he became an actor and then stage manager. He removed from San Francisco to New York in 1880, there to fill similar positions at the Madison Square and Lyceum theatres. He opened his own house, the Belasco, in 1887. His success as a manager was largely due to his skill in training actors and to his careful attention to stage details. The best known of his numerous plays are: *The Heart of Maryland*, 1895; *On Barry*, 1901; *The Darling of the Gods* (with John Luther Long), 1902; *The Girl of the Golden West*, 1905; *The Return of Peter Grimm*, 1911; *Temperamental Journey*, 1913; and *Fanny* (with Willard Mack), 1926.

BELCHER, JAMES (1781-1811). English pugilist. Born at Bristol, April 15, 1781, he was the grandson of another pugilist, Jack Slack. By trade he was a butcher, but his feats as a fighter attracted attention, and in 1798 he moved to London. In 1803 he lost an eye at racquets, and in 1805 was defeated by Hen Pearce and in 1807 and 1809 by Tom Cribb. He died July 30, 1811. A scarf, blue with white spots, was called a belcher because it was worn by the pugilist. His younger brother Tom (1783-1854) was also a pugilist.

BELÉM. Suburb of Lisbon, near the mouth of the Tagus. A monastery was built here to commemorate Vasco da Gama's discovery of the ocean route to India. The church contains his tomb and that of Camoens.

Belém do Pará is also another name of the Brazilian port Pará (q.v.).

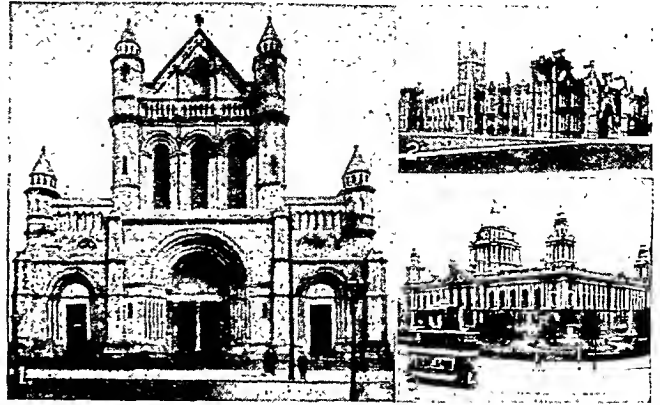
BELEMNITE. Genus of fossil cephalopods related to the ammonites and the living Loligo or squid. The portion of the animal's body found as a fossil is a solid eigar-shaped process or guard composed of calcium carbonate, which was enveloped by the soft part of the animal. At the end of the guard was situated a conical chambered attachment, on the front part of which rested the ink-sac.

In form the animal was roughly cylindrical, and somewhat similar to the modern sepia. It had ten arms surrounding the mouth, each furnished with hooklets for grasping food.

BELFAST. Capital of Northern Ireland and of co. Antrim, and before the creation of the Irish Free State capital of the prov. of Ulster. Pop. 415,000. On the Lagan where it enters Belfast Lough, it is a terminus of Northern Counties (L.M.S.), Great Northern, and Belfast and County Down Rlys. and is 101 m. from Dublin. A large part of the centre of the city has been built on land reclaimed from sandbanks and marshes.

The two chief industries are shipbuilding and linen manufacture. Here are the great yards of Harland & Wolff, and in this industry

some 20,000 men are employed. Other works are tobacco factories, engineering shops, bacon-curing works, and distilleries. The city

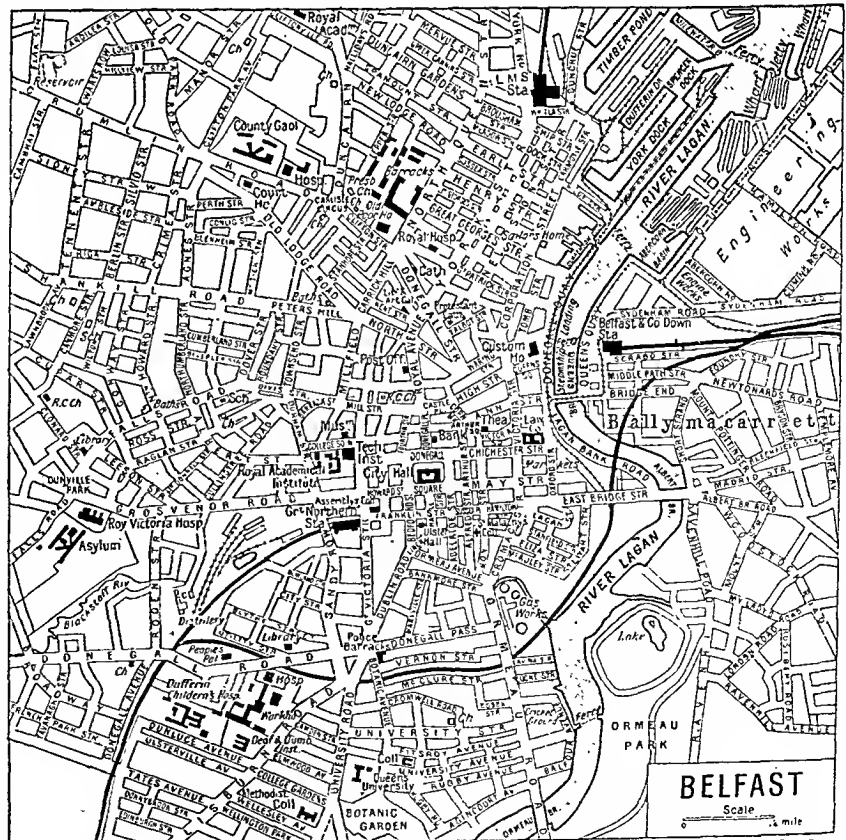


Belfast. 1. West front of the cathedral, completed in 1928. 2. Queen's University. 3. The City Hall; it consists of a quadrangle of classic design, surmounted by a dome

is also the banking, commercial, and distributing centre for Ulster.

Belfast is one of Britain's great ports. Its graving dock, opened in 1911, is one of the largest in the world, and a channel, 4 m. long, has been cut to deep water. Other improvements and extensions have been carried out, and ample docks, sheds, and wharfrage exist for the increasing trade. In 1929 the harbour commissioners decided to build a large new dock.

Belfast's chief church is the Protestant cathedral, the west front of which was completed as a war memorial. The art gallery contains some good paintings, and there is a new museum. The city hall is a fine edifice; others are the Ulster Hall and the public



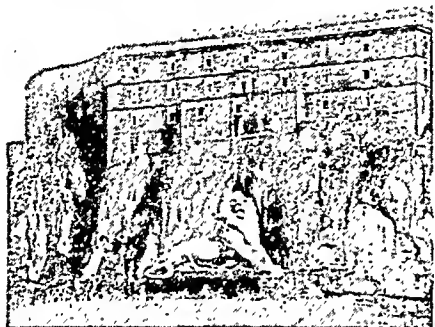
Belfast. Plan of the business quarter of the great commercial capital of Northern Ireland. It includes the shipbuilding yards, whence some of the world's largest vessels have been launched

library. The Ulster Theatre corresponds to the Abbey Theatre in Dublin. Royal Avenue is the main thoroughfare. The chief educational centre is Queen's University, which occupies a fine modern block of buildings. There is a technical college and several good secondary schools, notably the Royal Academic Institute and Campbell College. The corporation owns the tramways, markets and an abattoir, and maintains parks and the botanic gardens. The city has a broadcasting station (call 2 B E).

The formation of a separate government for Northern Ireland increased the importance of Belfast. At Stormont, just outside the city, the erection of a Parliament House and other buildings for the administration was begun, and there are new law courts in Chichester Street. Belfast was made a city in 1888, and has had a lord mayor since 1892.

Belfast Lough, between the counties of Down and Antrim, is 12 m. long and three broad.

BELFORT. Town of France. On the river Savoureuse, in the Gap of Belfort, 275 m. S.E. of Paris and 35 m. N.W. of Basel. It is



Belfort. The citadel, on a rock above the town, with Bartholdi's lion, a memorial of the siege of 1870-71

an important rly. junction and road centre. Of two memorials of the siege of 1870-71, one is the Lion of Belfort, by Bartholdi.

The chief industries are the making of cotton goods and machinery, and there is trade in agricultural produce. The place is chiefly notable as the fortress commanding the passage between the Vosges and the Jura, known as the Gap of Belfort. Having become French in 1648, the town was fortified by Vauban. In the Franco-Prussian War it was besieged from Nov., 1870, to Feb., 1871, and was only surrendered at the request of the Government. It was recovered at the peace and was fortified. During the Great War the Germans left Belfort untouched. Pop. 39,301.

The Gap (trouée) of Belfort is a plain, 18 m. wide, between the Vosges and the Jura. It has always been an important highway for the invader.

BELFRY (Fr. beffroi, watch tower). That part of the steeple or tower of a church or public building which contains large bells; a bell-tower; or a chamber, below the bells, occupied by the bell-ringers. Indicating in early times a movable wooden tower used in siegecraft, the term was applied later to a fixed tower on which sentinels were

stationed to ring alarm bells in case of attack. At Evesham, Berkeley and Chichester are bell towers completely detached from the church.

Of Belgian towers the most famous is the great tower at Bruges, built at the end of the 14th century, which reaches a height of 300 ft. That at Ypres was destroyed by the Germans in the Great War, and those at Louvain and Malines were damaged. See Campanile.

BELGA. Currency unit of Belgium. It was introduced in 1926 when the franc was stabilized. One belga is equal to five francs and 35 belgas go to the £.

BELGAUM. Town of India, capital of the Belgaum dist. of Bombay. It stands 2,500 ft. above sea level and is 245 m. by rly. S. of Poona. It is a military station, has an old fortress, temples, and native schools, and trades in cotton cloth, salt, dates, and coconuts. Pop. 48,320. The district has an area of 4,613 sq. m. and a pop. of 952,996.

Belgian Congo. Belgian colony in Central Africa. See Congo, Belgian.

BELGIUM. Kingdom of Europe. It is bounded N. by Holland, E. by Germany and the grand duchy of Luxembourg, and S. by France. Its short, low-lying W. coast-line is washed by the North Sea. The area is 11,755 sq. m. By the treaty of Versailles Germany ceded to Belgium neutral Moresnet and part of Prussian Moresnet, and Belgium also received provisionally the cantons of Malmédy and Eupen, a cession later confirmed by the League of Nations, to which Belgium belongs. The estimated population is 7,932,100.

Much of the country is flat. In the S.E. the Ardennes, which are well-wooded and intersected by river valleys, have an average elevation of 500 ft. The rivers are the Schelde, Meuse, Sambre, and Yser. The principal towns include Brussels (the capital), Antwerp, Liège, Ghent, Bruges, Malines, and Louvain.

The railway system is the oldest on the Continent. It has as its central point Malines, on the most direct route between the coast at Ostend and Liège. During their military occupation in the Great War the Germans constructed a direct line from Aix-la-Chapelle to Louvain, which, avoiding Liège, crosses the Meuse at Visé. There are over 50 canals and five ship canals. Wire-

less is being rapidly developed. In 1927 there were 143 radiographic stations, and the state is linked by air services with other European countries.

PRODUCTION AND INDUSTRY. The soil is fertile, about three-fifths of the country being under cultivation. Agricultural products include wheat, oats, rye, barley, potatoes, sugar beet, flax, hops, horses, and cattle. The chief minerals are coal, iron, zinc, and lead. The coalfields are principally in Hainaut, in a district known as the Borinage (place of boring), and around Liège. A new coalfield has been opened up in the Campine district, in the province of Limbourg.

Of the two branches of the Belgian people, the Walloons speak French and the Flemish the language known by their name, which is almost identical with Dutch. There are universities at Louvain, Liège, Ghent, and Brussels. Ghent and Liège are state universities; the other two are free.

DEFENCE. According to the military law of 1923 the army consists partly of conscripts, partly of volunteers. Compulsory service with the colours is for 10 months in the infantry, 12 in the heavy artillery and engineers, and 13 in the cavalry, horse field artillery and horse transport corps. The duration of military service is 15 years in the regular army and reserve, and 10 in the territorial army. In

1928 the strength of the army with the colours was 4,411 officers and 59,948 other ranks.

HISTORY. Having been part of the Netherlands since 1815, Belgium became an independent state in 1830. The first king of the Belgians, Prince Leopold of Saxe-



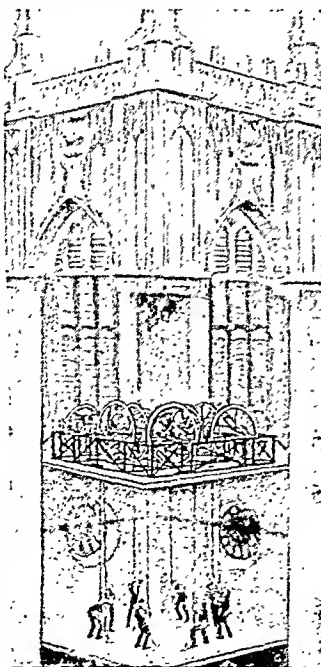
Coburg, was elected by the National Congress in 1831, and was succeeded in 1865 by his son Leopold II, who reigned until 1909 and was succeeded by his nephew Albert. The treaty of April 19, 1839, established the status of Belgium as an independent and neutral kingdom.

Belgium is a constitutional hereditary monarchy. The legislative power is vested in the King, the Senate, and the Chamber of Representatives. The executive duties are controlled by a prime minister and a cabinet. After being occupied by the Germans during the Great War, from the early summer of 1919 and onwards reconstruction proceeded in every direction. Railways, canals, and roads were almost restored to pre-war usefulness by the end of 1919. The coal mines had suffered less than other branches of industry. The textile industry had been crippled by the loss of machinery, but here, as also in the case of the metal workers, relief was afforded by the return of plant from Germany.

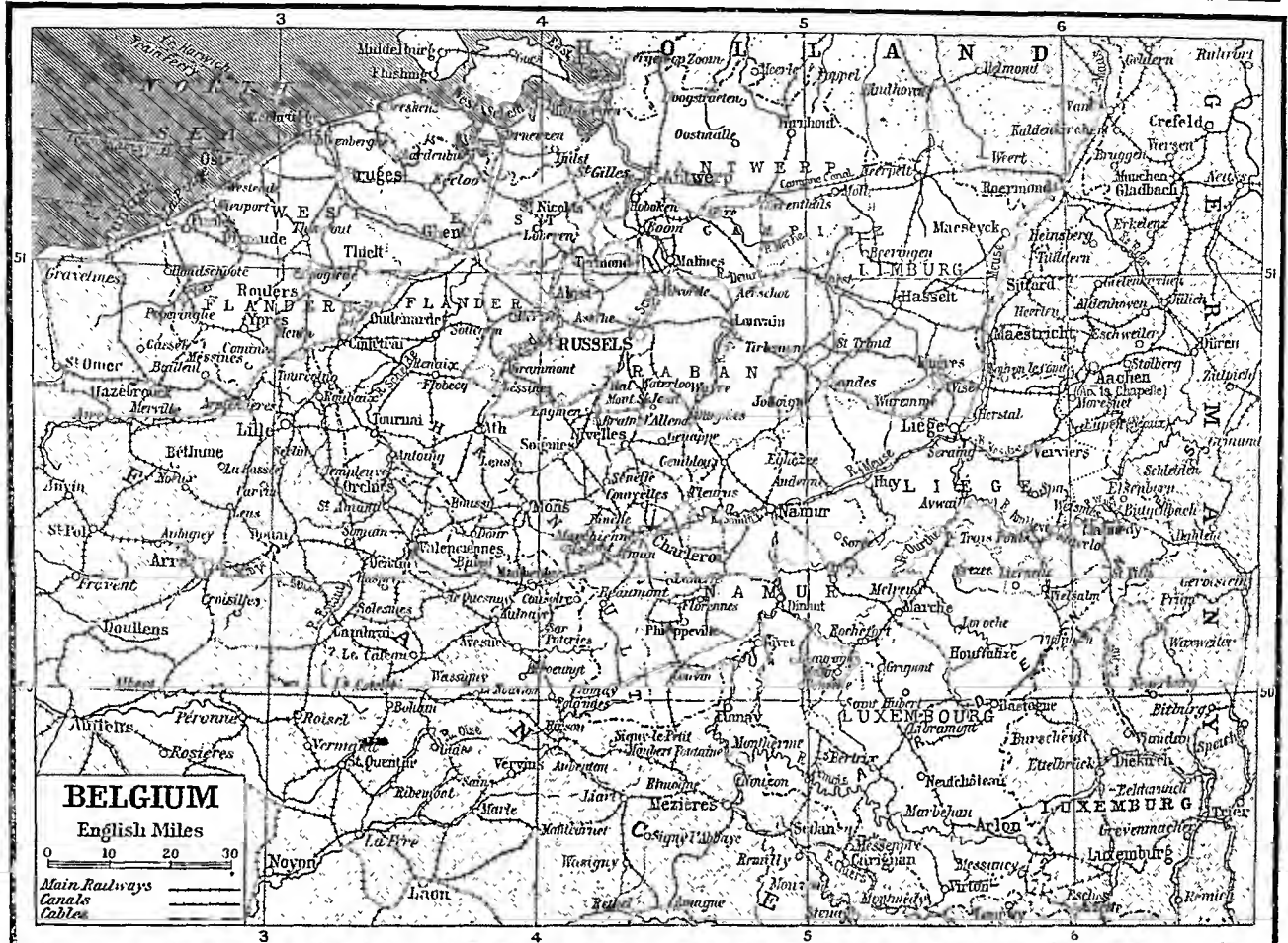
The years of economic recovery after the Great War were filled with political interest. The Coalition Government, which was in power in 1919, favoured a military alliance with France and an aggressive policy towards Holland. In 1921 the Socialists, under Vandervelde, withdrew, and for the next few years a union of Roman Catholics and Liberals carried on the government. In 1925, after securing many successes at the general election, the Socialists again joined to form a ministry, and under Henri Jaspar a coalition was still in office in 1930. In 1921 the constitution was revised in the direction of an extension of the franchise, and an economic treaty for 50 years was made with Luxembourg.

In 1926 economic recovery was completed by the stabilization of the currency, the franc being pegged at 175 to the £1. A loan for £20,000,000 was floated and the state railways were handed over to a company.

Belgium: types of women workers. Above, a Flemish milkmaid; below, two shrimpers near Ostend



Belfry, Westminster Abbey. Portion of N. tower cut away to show position of bells and ringers



Belgium. Map showing the boundaries of the kingdom as it was restored under the terms of the Peace Treaty of June, 1919

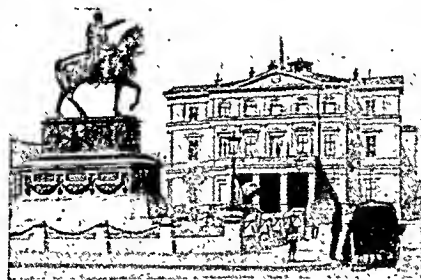
THE GERMAN OCCUPATION. Belgium was occupied by the Germans throughout the Great War. They attacked Liège, which they captured on Aug. 16, and on Aug. 18 the main advance began. Heavy fighting took place near Tirlemont and at other places, and despite a gallant defence the Belgian army was forced back. Brussels was surrendered on Aug. 20, and two days later the 5th French Army was attacked at Charleroi, and the British at Mons on Aug. 23. The fall of Namur on Aug. 25 liberated the main German armies for beginning their wide turning movement into France after leaving a sufficient force to subdue Antwerp, the last remaining stronghold. This city fell early in Oct. and by the 14th the Germans had reached the coast at Ostend. At the end of Nov. all Belgium except Nicuport, Furnes and Ypres was in their hands.

The country was placed under a German governor and deprived of all legal rights and protection. Property was confiscated, bank securities appropriated, and factories and works systematically stripped of machinery and plant. The Germans made no provision for feeding the population, and that it was able to live at all was due to outside help. There were wholesale deportations of men for forced labour in Germany. It is estimated that the cost to Belgium of the German invasion was in excess of £1,000,000,000. The evacuation of Belgium by the Germans was one of the conditions of the armistice.

BELGRADE OR BEOGRAD (White City). Capital of Yugo-Slavia, formerly of Serbia. On the S. side of the Danube at its junction with the Save, it lies opposite Zemun (Semlin). The town is fast losing its Oriental appearance,

having been much modernised since the Great War. Though it has few manufactures, it is the chief centre of the trade of the country.

Belgrade's strategic importance has been long recognized. In Roman times it was a military camp. Passing from the Byzantine emperors, it was occupied by the Hungarians.



From 1330 to 1427 it was in Serbian hands. In 1456 John Hunyady resisted the Turkish efforts to take it, but Soliman captured it in 1521, and with brief interludes it remained in Turkish possession until its transference to Serbia in 1866. As the Serb capital it had grown into a flourishing town of nearly 100,000 inhabitants by the beginning of the Great War, during which it underwent two bombardments and changed hands four times. Pop. (1921) 111,740; estimated pop. (1927) 250,000.

BELGRAVIA. District of S.W. London. It lies around Belgrave Square. Once The Five Fields, forming part of Ebury Farm, about 1825-35 it was laid out by Thomas Cubitt, and includes Belgrave and Eaton Squares. It is part of the London property of the duke of Westminster. See London.



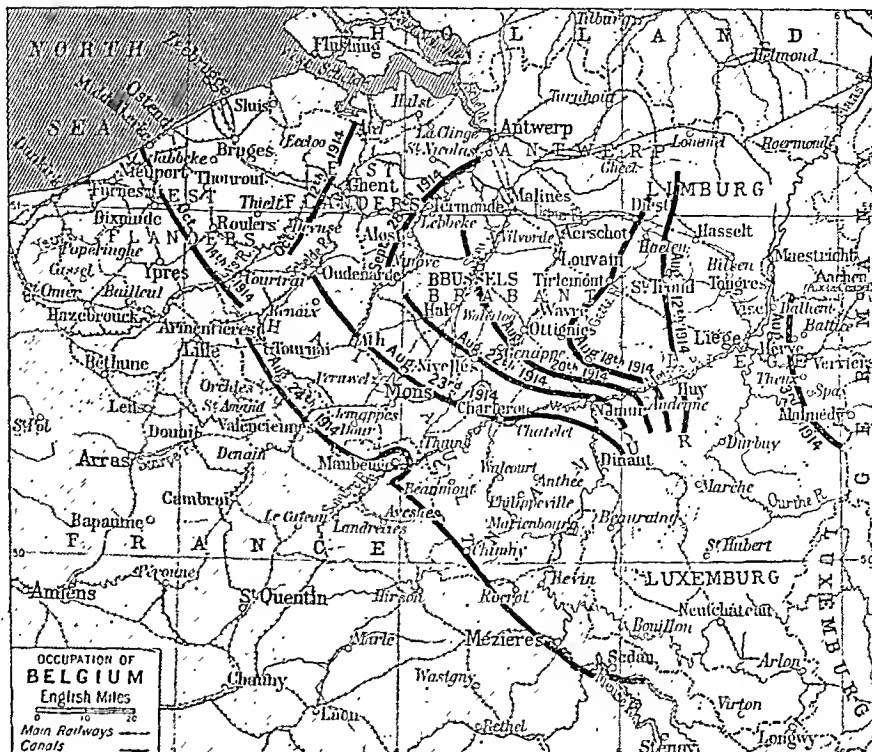
Belgrade. Panorama of the quays and shipping on the Danube. In the background is the cathedral. Above, the statue of Prince Michael, second son of Milosh Obrenovitch, the Serbian national hero

BELIAL. Word used in the O.T. to define the wicked or worthless, e.g. sons of Belial (1 Sam. 2 and 25; 2 Sam. 20; 1 Kings 21); and in the N.T. as a synonym for Satan (2 Cor. 6). In Milton's *Paradise Lost*, Belial is the spirit of lust.

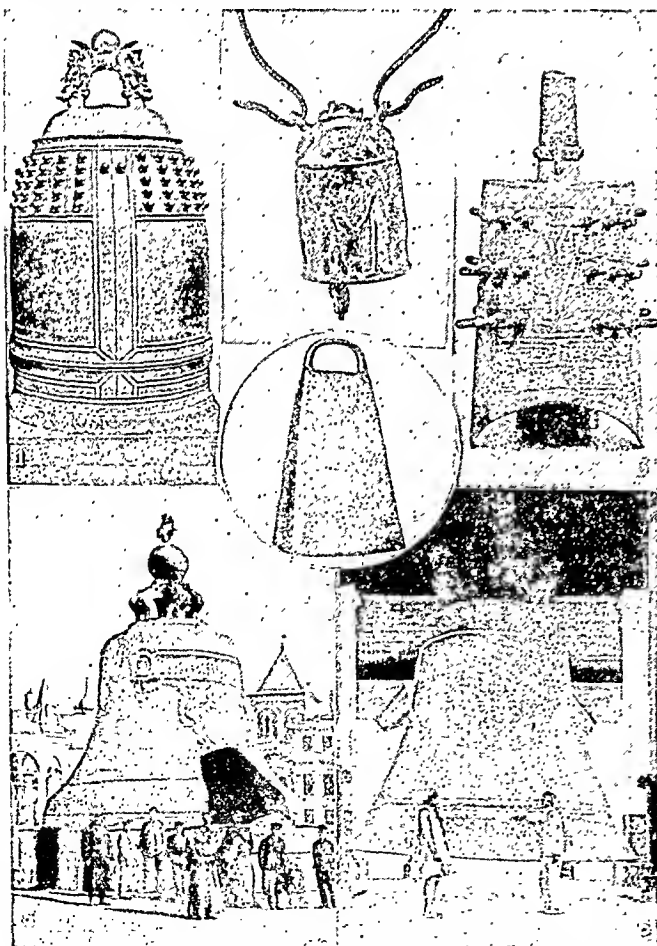
BELISARIUS (c. 505-565). Byzantine general. In command of the imperial troops he gained some notable victories against the Persians, and, later, almost annihilated the Vandals in Africa (533). He drove the Ostrogoths from S. Italy and occupied Rome in 536. There he was beleaguered by a huge army, but he forced the Goths to raise the siege when it had lasted for more than a year. He drove the Goths back to the north, and in 540 captured Ravenna, where he refused an offer of the crown. After a brief absence he returned to Italy, where for five years he fought the Goths under Totila. In 588 Belisarius was recalled to Byzantium, to beat back an invasion of Slavs and Huns. He was imprisoned on a charge of treason, but had been restored to his possessions before his death.

BELIZE OR **BALIZE.** Seaport and capital of British Honduras. At the mouth of the Belize river, in the Caribbean Sea, it is surrounded by swamps, which render the climate unhealthy. The harbour is accessible only to small vessels through a channel. Mahogany and other woods are exported, also sugar and bananas in large quantities. There is a wireless station. Pop. 12,661.

BELL (A.S. *bellan*, to bell, bellow). Generally a hollow, cup-shaped body of cast metal emitting one clear, pealing note, termed



Belgium invaded: map showing the German advance. By Aug. 24, 1914, the S. and E. were overrun, but the enemy were unable to advance their line in the N.W. until the fall of Antwerp Oct. 9, 1914. See p. 228



Bell. 1. Japanese bronze bell. 2. Assyrian bell. 3. Chinese bell, 6th cent. B.C. 4. S. Patrick's bell, the oldest specimen of Irish Christian metal work. 5. Great Bell of Moscow. 6. Bell in a Burmese pagoda, weighing about 80 tons

the fundamental, when struck by an attached clapper or hammer. Bells of this type are made with a slightly turned-up edge and are struck by the clapper at the thickest part, known as the sound bow. Another form of bell is saucer-shaped, against which the hammer is driven by a spring, as in clocks.

At Nimrod, Layard unearthed copper cauldrons containing 80 bronze bells with iron tongues, the bell-metal containing 14 p.c. of tin and 86 p.c. of copper. Small golden bells were used during the time of the Israelites for ornamenting the robes of the high priest. In Greece and Rome bells were in common use. Church bells were in use in the 6th century. In England bells were first cast in 940 A.D.

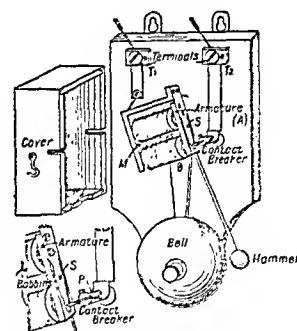
Enormous bells are in a pavilion at Mingoon, in Burma, and at Peking. Compared with these the largest English bells are pygmies. Great Paul in S. Paul's Cathedral weighs 16½ tons, Big Ben at Westminster 13½ tons, Great Peter in York Minster 12½ tons, and Great Tom at Oxford 7½ tons. All these are exceeded

by two bells in Paris, Le Savoyard in the basilica of the Sacré Coeur at Montmartre, 19 tons, and the 17-ton bell of Notre Dame; and these again were eclipsed in size by the Kaiser bell of Cologne cathedral, which weighed 27½ tons and was melted down in 1917.

BELL

This is an alloy of copper and tin. The proportions usually employed are from three to four parts of copper to one of tin. In some small bells found by Layard in the ruins of Nineveh, the tin appears to have been only one-seventh the weight of the copper; but bells have been made in which the proportion of tin has been as high as half the weight of the copper. An alloy largely used for machinery bearings and for small axles, where steel would not be admissible owing to the risk of corrosion, is substantially bell metal; this may contain zinc or lead.

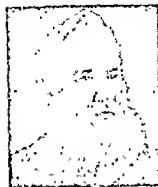
ELECTRIC BELLS. The vibrating electric bell continues to ring while current from a battery is allowed to pass through its circuit. The hammer is an extension of the armature, A, of an electro-magnet, M, and is normally held away from the magnet and in contact through spring, S, with a screw terminal, P, tipped with platinum. When the bell-push is depressed current flows from the battery to terminal T, through the coils of the magnet and thence by the armature spring and contact screw to terminal T₂, and back to the battery. The magnet is energised and attracts the armature, pulling the spring away from the contact



Bell. Diagram showing construction of the electric bell. Inset, left, contact breaker. See text

screw just as the hammer strikes the bell and breaking the circuit, so that the magnet ceases to attract the armature, and the armature with its spring returns to the former position and closes the circuit once more. This cycle in rapid sequence causes the continuous ringing of the bell as long as the push is depressed or some other form of switch is operated. See Battery.

BELL, ALEXANDER GRAHAM (1847-1922). Scottish scientist. Born in Edinburgh, Mar. 3, 1847, he was educated at the High School and University, and graduated as a doctor of medicine. Having settled in America, he became in 1872 professor of vocal physiology in the university of Boston. Inheriting an interest in sound from his father, Alexander Melville Bell (1819-1905), and his grand father, Alexander Bell, he studied the problem of transmitting sound, and in 1876 patented an apparatus which developed into the telephone. He died Aug. 2, 1922. See Telephone.



Alexander G. Bell,
Scottish scientist

BELL, CHARLES FREDERIC MOBERLY (1847-1911). British journalist. Born in Alexandria, April 2, 1847, he was for some years associated with a business firm in that city. In 1880 he founded The Egyptian Gazette. Correspondent of The Times in Egypt, 1885-90, he became manager in 1890, and was managing director from 1908 until his sudden death in his office, April 5, 1911. Consult Moberly Bell and his Times, F. Harcourt Kitchen, 1925.



C. F. Moberly Bell,
British journalist

BELL, GERTRUDE MARGARET LOWTHIAN. British administrator. A daughter of Sir Hugh Bell, Bart., she was educated at Queen's College, London, and at Oxford. Her travels in Arabia gave her an acquaintance with that country possessed by no other woman. In 1915 she joined the military intelligence department in Cairo, whence she transferred to Iraq. In 1917 she was appointed assistant political officer at Bagdad, and she was still in Mesopotamia when she died, July 12, 1926. An authority on the East, Miss Bell wrote several books, and her Letters, ed. by Lady Bell, appeared in 1929.



Gertrude Bell,
British administrator

BELL, HENRY (1767-1830). Scottish inventor. Born at Torphichen Mill, Linlithgow. Bell became a millwright and then worked as a shipbuilder. In 1791 he started in business at Glasgow and experimented on a vessel which could be propelled by steam. After some failures he built the Comet, which in 1812 began to run from Glasgow to Greenock. This was the first steamship to run regularly on a European river, although not the first steamship of any kind.



Henry Bell,
Scottish inventor
James Tolloch

BELL, JONAS (1811-95). British sculptor. He was born at Hopton, Suffolk, studied at the Academy schools, and exhibited at the Royal

Academy in 1832. The Guards' Memorial in Waterloo Place, 1858-60, was his work, and others were the Wellington Monument at Guildhall, 1855-56, the statue of Lord Clarendon at the Foreign Office, and those of Lord Falkland, 1847, and Sir Robert Walpole, 1854, at S. Stephen's Hall, Westminster. He presented a collection of his own sculptures to the Kensington Town Hall, and died at Kensington, March 14, 1895.

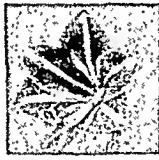
BELL, ROBERT ANNING (b. 1863). British artist. By birth a Londoner, he was educated at University College School, and studied art in England and abroad. Apart from his painting, he made a reputation as a designer, notably by his mosaic panels in the Houses of Parliament and in Westminster Cathedral. In 1914 he was elected A.R.A., and he became R.A. in 1922.



Belladonna, or deadly
nightshade

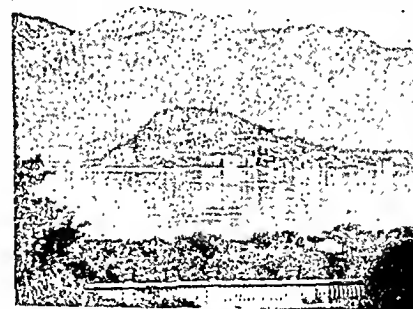
BELLADONNA (*Atropa belladonna*). Variant name of the deadly nightshade. Atropine is an alkaloid prepared from the leaves and root. Medicinal preparations of belladonna or atropine are made up mainly for external application. All parts of the plant are poisonous and narcotic. See Deadly Nightshade.

BELLADONNA LILY (*Amaryllis belladonna*). Bulbous plant belonging to the order Amaryllidaceae, the sole member of its genus. It produces in Sept. a flower scape about 18 ins. high bearing an umbel of handsome funnel-shaped flowers.



Belladonna lily
Amaryllis belladonna

BELLAGIO (anc. Bilacus). Town of Italy. At the point of the promontory separating the two lower arms of Lake Como, and some 15 m. by steamer N.E. of Como,



Bellagio. Beautiful Italian resort situated on Lake Como and encompassed by forested mountains

it is a favourite tourist resort. The natives are famous for carving in olive wood and make silk. Pop. 3,936.

BELLAMY, EDWARD (1850-98). American author. Born at Chicopee Falls, Massachusetts, from 1871 he was occupied with journalism, and in 1888 published Looking Backward, a romance of socialism which had an enormous vogue and has been translated into French, German, Dutch, and Italian. Dating his Utopia A.D. 2000, Bellamy sketched the process of change in society from capitalism to socialism, emphasising the will to



Edward Bellamy
American author

change, the ease of the new order, and the increase of material comfort. He also wrote a number of novels.

BELLARMINE, ROBERT (1542-1621). Italian theologian. Born at Montepulciano, he entered the Society of Jesus. As professor of theology and preacher in Louvain he won a great reputation. In 1576 he was moved to Rome and made professor of controversies at the Roman College, his lectures being the first serious attempt to combat the Protestant



Belle Alliance Farm, where Wellington and Blücher met after the battle of Waterloo. See below

position. In 1590 he went to France with the papal legation, and nine years later was made cardinal. For three years he was archbishop of Capua, and then returned to Rome as chief theological adviser to the pope.

BELLARY. City of India, capital of the Bellary dist. of Madras. A military station and important rly. junction, 305 r.n. by rly. N.W. of Madras, it has a 16th century fort built on a rock 450 ft. high. Cotton and silk are manufactured. Pop. 39,842.

BELLAY, JOACHIM DU (c. 1525-60). French poet. Born at Liré, near Angers, in 1549 he published *La Délicieuse et Illustration de la langue Françoisse*, the manifesto of the famous constellation of French poets known as the Pléiade. They claimed to be able to naturalise the ode and the sonnet and to introduce the fullness and elegance of Greek and Latin into French. He died at Liré, Jan. 1, 1560. His works are mainly sonnets written in the Petrarchian form.

Bell Bird (*Chasmorhynchus nivicus*). Genus of birds found in S. America. They are famed for their resonant metallic note.



Bell Bird, notable
for its curious cry

BELLE ALLIANCE. Name by which the battle of Waterloo is known to the Germans, Belle Alliance being a farm on the battlefield. The Belle Alliance Platz in Berlin was named in commemoration of the victory. See Waterloo; illus. above

Belle de Nuit. Variant name of the marvel of Peru (q.v.).

BELLECK. Village of Fermanagh, Northern Ireland. It is on Lough Erne, 22 m. from Enniskillen, and is famous for its pottery. This was opened in 1857 to use local clays. Parian and biscuit wares were made: also glazed pottery. The decorative motifs were mostly marine subjects, dolphins, sea horses, tritons, etc. Belleck Falls on the river Erne is a beauty spot. See illus. p 229.

BELLE-ILE-EN-MER. Island of France, off the W. coast of Brittany. It is 11 m. long and from 2½ m. to 7 m. broad, and 33 sq. m. in area. In the department of Morbihan. It is about 8 m. from Quiberon Point. Le Palais, a small port, with fortifications and a prison, is the chief town. Off the island the English fleet defeated the French in 1759, and from

1761-63 it was held by the English. It is also called Gueuvreur, a corruption, through its medieval name Guodol, of its Roman name Vindilis, and contains remains of prehistoric man. There are some remarkable grottoes along the coast. Agriculture, fishing, and the preserving of sardines and anebovies are the chief industries. The island has a fine breed of draught horses. Pop. 11,000.

BELLE ISLE. British island in the Atlantic, between Newfoundland and Labrador, at the entrance to the strait of Belle Isle. Rocky, 700 ft. high, and 21 m. in circumference, it has two lighthouses and a wireless station. There is another Belle Isle in Conception Bay, Newfoundland. It is 6 m. long and 3 m. wide, has cliffs rising to 400 ft., and contains large beds of iron ore. The Strait of Belle Isle is the shortest route from Europe to the St. Lawrence. It is 85 m. long and about 12 m. broad, and is open only in the summer.

BELLENDEN, WILLIAM (c. 1555-1633). Scottish scholar. Born at Lasswade, he was for some years a professor at Paris University, and was employed on various diplomatic missions by Mary, and also by her son, James. His Latin writings, a survey of Roman history from Cicero's works, were published in 1616. His last book was *De Trihus Luminibus Romanorum*—the three luminaries being Cicero, Seneca, and Pliny.

John Bellenden (d. 1587) was also a noted scholar. He translated Hector Boece's history and part of Livy for James V.

BELLENGLISE. A village of France, in the department of Aisne. It is 6 m. N. by W. of St. Quentin. It was the scene of two notable feats in the Great War. In Sept., 1918, British troops of the 46th Division, equipped with lifebelts and carrying mats and rafts, stormed the western arm of the canal at Bellenglise. Here, too, the 4th Australian Division penetrated the Hindenburg line. A memorial in the form of an obelisk was erected by the Australian Government to mark this feat. The village was captured by the British, Sept. 29, 1918.

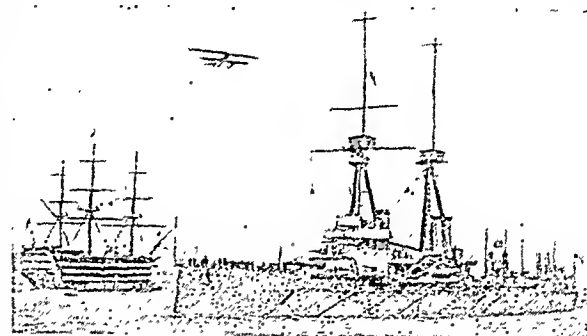
BELLEROPHON. Greek legendary hero. Falsely accused by Anteia, whose advances he had rejected, he was sent by her husband, Proetus, king of Argolis, to her father, Iobates,

king of Lycia, with a sealed letter requesting Iobates to compass the death of Bellerophon. To this end, Iobates sent him to kill the fire-breathing monster Chimaera. But, with the help of the goddess Athena, Bellerophon caught and bridled the winged horse Pegasus, on which he rose above the monster

and slew it with his arrows. After further feats Iobates gave him his daughter in marriage and made him his successor. But having incurred the displeasure of the gods, Bellerophon fled and led a wandering life.

BELLEROPHON. British battleship. Launched in 1907, her length was 490 ft., beam 82 ft., displacement 18,600 tons, and she had engines of 23,000 h.p., giving a total speed of 21 knots. Her armour was an 11-in. belt, with 12 ins. on the gun positions, and a protective deck 2½ ins. thick. Her armament was ten 12-in. and 20 smaller guns, and three torpedo tubes, and her complement was 850. The *Superb* and the *Temeraire* were sister ships. Bellerophon has been a famous ship name in the Navy since 1794, the first being the ship on which Napoleon surrendered to the British.

BELLEVILLE. City and port of Ontario, Canada. At the mouth of the Moira river, on Lake Ontario, 106 m. E.N.E. of Toronto, it is served by the C.N.R. Pop. 12,206.



H.M.S. Bellerophon, super-Dreadnought, built in 1907, lying in Portsmouth harbour alongside the old Victory of 1785
Cribb, Southsea

Another Belleville is a manufacturing town in Illinois, U.S.A., the co. seat of St. Clair Co. Pop. 25,000, mostly Germans.

BELLEW, HAROLD KYRLE (1857-1911). British actor. He was a younger son of John Chippendall Montesquieu Bellw (1823-74), a Church of England preacher who became a Roman Catholic. After a varied career, which included a naval cadetship and life in Australia, Bellew went on the stage, and won quick recognition in London. He played in America, 1885-6, and was associated with Mrs. Brown Potter in many successes. After 30 years' professional work he died at Salt Lake City. He was the author of several plays, including *Hero and Leander*, 1892.

BELLEWAARDE. Lake, wood, and ridge of Belgium, N. of Hooge and E. of Ypres. They were the scene of much severe fighting in the battles of the Ypres salient. See Ypres.



Bell-flower, *Campanula rotundifolia*

BELL FLOWER (*Campanula*). Genus of the order Campanulaceae, mostly perennials, with white, blue, or idae bell-shaped flowers. They are found in all the temperate regions and in most tropical countries. Harebell is the best-known example of the genus.

See Harebell.

BELLINGHAM. District of London. In the borough of Lewisham, it is 9 m. from the City and has a station on the Southern Rly. It owes its existence to the London County Council, which has built a large number of houses here. Another Bellingham is a village in Northumberland.

BELLINGSHAUSEN, FABIAN GOTTLIEB VON (1778-1852). Russian explorer. Born on the island of Oesel, Sept. 9, 1778, he entered the Russian navy in 1797. In 1803 he sailed round the world, and in 1819-21 commanded a Russian expedition to the Antarctic regions, when he discovered and named Alexander Land and Peter Island. In 1828 he took part in the Russian attack on Varna, and was afterwards commander of the Baltic Fleet and governor of Kronstadt. He died Jan. 13, 1852. The portion of the Antarctic Ocean S.W. of Drake Strait and W. of Graham Land, called Bellingshausen Sea, is named after him.

BELLINI. Name of a family of Venetian painters. Giacomo or Jacopo Bellini (d. 1468) was born in Venice and his few existing paintings show him as a rich and harmonious colorist and a careful draughtsman. He was the father of Gentile and Giovanni Bellini and his daughter married Andrew Mantegna.

The elder son, Gentile Bellini (1429-1507), studied under his father, and in collaboration with his brother Giovanni restored the frescoes by Gentile da Fabriano in the great council hall of the doge's palace (1474). His existing

works lack the poetic colour and profound sentiment of Giovanni's paintings, but his detail is carefully rendered. He was fond of introducing Oriental accessories into his works. He died at Venice, where much of his work remains, Feb. 28, 1507. He is represented at Milan, by the famous Preaching of S. Mark, and also in the National Gallery, London.

The younger son, Giovanni Bellini (d. 1516), was the greatest of the three. His early pictures, mostly in tempera, follow the austere traditions of the Paduan school. After 1476, when he began to use oil

colours, his art became broader and more full of colour. The change was accelerated after 1488, when Giorgione and Titian became his pupils. He died at Venice, Nov. 29, 1516. Bellini's most famous paintings are *The Madonna and Saints*, 1488, in the Academy at Venice; the altarpiece of S. John Chrysostom in Venice, 1513; and *The Agony in the Garden*, in the National Gallery, London. His famous portrait of the doge Leonardo Loredano is also in the National Gallery, London.



Giovanni Bellini, self-portrait by this Venetian painter
Capitoline Museum, Rome

BELLINI, VINCENZO (1801-35). Italian composer. Born at Catania, Sicily, the son of an organist, he studied at the Naples Conservatoire, and produced his first opera while still a student. His *Bianca e Fernando*, produced in 1826 at the Naples Opera House,



Bellerophon watering Pegasus. From a medieval relief
Spada Palace, Rome

achieved a considerable success, while II Pirata, written for Milan, brought him European fame, which was greatly increased by the production of *La Sonnambula*, 1831. *Norma*, 1831, and *I Puritani*, 1835. He died Sept. 24, 1835. Consult *Memoir*, W. A. C. Lloyd, 1909.

BELLINZONA (Ger. *Bellenz*). Town of Switzerland, capital of the canton of Ticino. On the Ticino river, it is 105 m. S.E. of Lucerne, on the St. Gotthard rly., and about 20 m. N. of Lugano. The old key to the St. Gotthard and San Bernardino passes, it was defended by castles and walls. In 1503 it became politically Swiss, though in character, climate, and language it is Italian. San Biagio, a 13th century church, has a curious 14th century fresco. The abbey church is a fine building. Pop 11,600.

BELLOC, JEAN PIERRE HILAIRE (b. 1870). British author. Born July 27, 1870, the son of a French father and an Irish mother, he was educated at the Oratory School, Edghaston, and at Balliol College, Oxford. Between school and college he served for a period in the French artillery. From 1906-10 he sat in Parliament as Liberal M.P. for S. Salford. Belloc's best literary work is to be found in his books of essays and travel, which are charming in style and matter, especially *The Path to Rome*, 1902, and *Hills and the Sea*, 1906. Prejudice affects his writings as an historian but his *Danton*, 1899, and *Robespierre*, 1901, are good literature. Later work included his *History of England*. Vols. I-III, 1925-28. *The Cruise of the Nona*, 1925, and *The Missing Masterpiece* 1929.



Hilaire Belloc.
British Author
E. O. Hopp

BELLO HORIZONTE OR MINAS. City of Brazil. At the foot of the Espinhaço range, about 48 m. by rly. N.W. of Ouro Preto, the former capital, and some 390 m. N. of Rio de Janeiro by the Central of Brazil Railway, it has cotton factories and meat canneries, and gold is mined in the vicinity. It has a law school. Pop. 55,663.

BELLONA (Lat. *bellum*, war). In Roman mythology an old Italian—probably Sabine—divinity, goddess of war, sister or wife of Mars. She had a temple at Rome, on the Campus Martius, where foreign ambassadors and triumphant generals were received by the senate, and near which war was declared by the priestly college of *fetiales*. Originally an Asiatic deity.

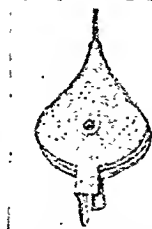
Bellona, afterwards confused with the Italian, was worshipped at Comana in Cappadocia.

BELLOT, JOSEPH RENÉ (1826-53). French explorer. Born in Paris, March 18, 1826, he studied at Rochefort, and entered the navy. In 1851 with Captain Kennedy and in 1852 with Captain Inglefield he joined the Arctic expeditions to find Franklin. In 1852 he discovered the strait between Boothia Felix and North Somerset Island, leading from Franklin Strait to the Gulf of Boothia, which was named after him. He fell into a crevasse Aug. 18, 1853, and was never heard of again.



Bellona. Roman goddess of War
From a bust by Auguste Rodin

BELLOWS (A.S. *baelig*, bag). Apparatus for creating a draught by the compression of a flexible or collapsible chamber to which air has been admitted. The work formerly done by bellows is now done largely by fans. In the smith's bellows the upper and lower walls are of wood and the sides of flexible leather. By means of a hand lever the chamber is alternately expanded and contracted, air being drawn in and expelled in turn.



Bellows. Hand variety
for domestic use

In music the bellows is an essential part of the mechanism for supplying wind to the pipes and reeds of the organ, harmonium, and kindred instruments, including the wind-bag of bagpipes. See *Organ*.

Bell Rock. Rock off Angus or Forfarshire, Scotland. It is better known as the Inchcape Rock (q.v.). See *Arbroath*.

BELLS. Term used on board ship to denote the hour of the day. A bell is struck every half-hour, the number of strokes indicating the number of half-hours that have passed in the particular watch then being kept. Thus, 4.30, 8.30, and 12.30, whether a.m. or p.m., are each "one bell," and the number of strokes is increased by one every half-hour until "eight bells," which marks the end of the ordinary watch. "Five bells in the morning watch" would thus be 6.30 a.m.

BELLSHILL. Town of Lanarkshire, Scotland. It is 10 m. S.E. of Glasgow, on the L.M.S. and L.N.E. Rlys., and has coal and iron mining industries. Pop. 17,411.

BELLUNO (anc. *Belunum*). City of Italy, capital of Belluno prov. On a hill above the junction of the Piave and Ardo, 72 m. by rly. N. of Venice, it has a Renaissance cathedral, several palaces and a museum. Leather, silk, and straw are manufactured. Pope Gregory XVI was born at Belluno, which gave the title of duke to Marshal Victor. Captured by the Austrians, Dec., 1917, it was reoccupied by the Italians, Nov. 2, 1918. Pop. 30,189.

BELLWORTS (*Uvularia*). Small genus of bulbous herbs of the order Liliaceae. Natives of N. America, they have bell-shaped, lily-like, drooping yellowish flowers, produced singly or in pairs in spring. The bruised leaves of *U. grandiflora* are considered a remedy for rattlesnake bites.

BELMONT. Town of Cape Province, South Africa. It is 50 m. by rly. S. of Kimberley and about 25 m. N. of the Orange river. A narrow gauge rly. to Douglas was completed in 1923. Belmont was the scene of an early battle in the S. African war. Nov. 23, 1899, when the British, advancing to the relief of Kimberley, pushed back the Boers.

BELOMANCY (Gr. *belos*, dart; *manteia*, divination). Divination by arrows. It was practised in ancient Greece and by idolatrous Arabs, although forbidden in the Koran. It is referred to in the O.T. (Ezek. 21).

BELOW, OTTO VOX (b. 1855). German soldier. Born at Danzig, he entered the army in 1875, and became a general in 1909. During the Great War, after fighting on the Eastern front, he replaced Bülow as commander of the German forces between Arras and Soissons in 1916. In Oct., 1917, he led the Austro-German offensive against Italy and won the battle of Caporetto (q.v.). Transferred to the Western front, he led an army in the second battle of the Somme, Mar., 1918.

His brother Fritz (1853-1918) also had a noted career in the war. He was prominent in the early operations in East Prussia, and in 1917-18 commanded an army on the

Western front. He was responsible for the German offensive in the third battle of the Aisne in May-June, 1918, and on its failure was superseded. He died in Nov., 1918.

BELPER. Urban district and market town of Derbyshire. It stands on the Derwent, 8 m. N. of Derby by the L.M.S. Rly. Its prosperity is chiefly due to cotton works established in 1776. The town has engineering works and hosiery, cotton, and nail factories. Market day, Sat. Pop. 12,329.

Jedediah Strutt, the inventor, helped to establish the cotton industry in Belper, and when his grandson, Edward Strutt (1801-1880), was made a peer in 1856 he took the title of Baron Belper, still held by his descendants. The family seat is Kingston Hall, Derby.

BELPHEGOR (*Beelphegor*, Greek form of Baal-peor). Syrian idol, who is believed to have symbolised the sun, and was worshipped by the Moabites, the Ammonites, and the Midianites. The name is also borne by a demon who married a mortal and fled from her, and whose story is told in *Nachhiavelli's Marriage of Belphegor* and in *La Fontaine's* tales.

BELSHAZZAR OR *BEL-SAR-UZUR*. Last king or prince regent of Babylon, at whose profane feast Daniel read the handwriting on the wall (Dan. 5). He has been identified as son of Nabonidus, the last king of Babylon. He was killed when Babylon fell to Cyrus's general, Gobryas, 538 B.C.

BELT (Lat. *baltens*). Girdle for the waist, either for confining the clothing, or for acting as support for a sword, etc. It is sometimes worn as a mere ornament. In English pugilism a belt is a badge of championship, e.g. the Lonsdale Belt.

In aeronautics the belt is the safety strap which secures the pilot to his seat in the aeroplane. Quick release clips are fitted so that in emergency the pilot can instantly open the belt.

The belt filler is a machine for fixing cartridges in the belts of fabric or metal that are used to feed certain types of automatic machine-gun. See *Machine Gun*.

BELT, GREAT. Channel separating the Danish islands of Zealand and Fünen. It is dangerous to navigation owing to the presence of currents, shoals, and ice. It connects the Kattegat with the Baltic Sea, and is 40 m. long and 10 m. to 20 m. broad. Its maximum depth is 26 fathoms.

The Little Belt is a channel between the Danish island of Fünen and the mainland. It forms the western and less direct route between the Kattegat and the Baltic Sea, and is more difficult to navigate than the Great Belt. It is 30 m. long, from 1 m. to 18 m. broad, and from 5 to 20 fathoms deep.

BELT AND ROPE DRIVE. Method of transmitting power to machinery. A pulley is secured to the driving shaft, a corresponding pulley is fitted to the machine, and an endless belt or rope is passed round the two pulleys, which must be in correct alignment. When the driving shaft revolves, friction between the pulley and the belt or rope draws the latter round, and the pulley on the machine is in turn rotated. See *Pulley*.

BELTANE OR *BELTAIN*. Celtic and pagan festival. It long survived in Scotland, Wales, Ireland, and elsewhere, and the name is still used in Scotland for May day. Fire played a most important part. A banquet was held and a fire lighted at the top of a hill; a cake was then cut up, and the person to whom a special piece fell by lot was regarded as one to be shunned and even threatened with death. Other ceremonies consisted in driving cattle between two fires, or compelling a young man to leap through the flames three times. The Romans had a similar festival. The etymology of Beltane is uncertain, the idea that it means Bel or Baal-fire being now rejected.

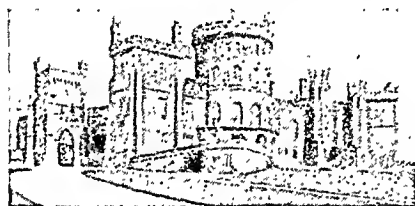
Beluga. Variant name of the white whale, a large dolphin. See Whale.

BELUS. Legendary king of Babylon, who was deified after death. He was regarded as the son of the Osiris of the Egyptians, and had a magnificent temple, supposed to have been the Tower of Babel. He is not to be confounded with the Greek Belus, father of Aegyptus and Danaus.

BELVEDERE (Italian for beautiful view). Architectural term for that part of a building, such as a turret or lantern, from which a clear view of the surrounding country can be enjoyed, and for the whole of a high structure of which only the top part offers this facility. The name is also applied to a summer house in a garden. The court of the Belvedere in the Vatican gives its name to the famous antique statue, the Apollo Belvedere, which it contains. Some of the Florentine palaces have belvederes on their summits.

Belvedere. District of Kent. It is on the Thames, $1\frac{1}{2}$ m. N.W. of Erith and 14 m. S.E. of London by the Southern Rly.

BELVOIR CASTLE. Seat of the duke of Rutland, in Leicestershire, 7 m. S.W. of Grantham. On a hill overlooking the Vale of Belvoir, it is a large, quadrangular modern



Belvoir Castle. The Duke of Rutland's seat in Leicestershire. It is in the centre of a hunting country.

Gothic mansion. It was built in 1808 to replace an earlier structure destroyed by fire. It contains valuable tapestries and old masters. The original castle was built by Robert de Toeni, standard-bearer to William I.

The Belvoir Hunt has its district in Lincolnshire and Leicestershire. Founded in 1750, it took its name from the duke of Rutland's castle. Successive dukes have been masters, and the kennels are at Belvoir. The country covered by the hunt lies between Melton Mowbray and Newark.

BEMBRIDGE. Village of the Isle of Wight. On the E. coast of the island, it has a station on the Southern Rly. During the Great War it had an aerodrome and a sea-plane station. There is an old fort on Bembridge Down. Pop. 1,973.

Bembridge Beds is the name given to Middle Oligocene deposits of the Isle of Wight and Hampshire. They consist of an upper series of marls and clays; a middle calcareous division; and a lower series of marls, clays, and limestones, known as Osborne Beds.

BEMERSYDE. Estate and residence in Berwickshire, Scotland, since the 12th century the home of the Haigs. On the Tweed, about

2 $\frac{1}{2}$ m. from S. Boswells, it incorporates a castle built in the 16th century for Border defence. Alone among the towers and castles in the Scottish Border counties, it has been seven centuries in the same family. In 1921 Bemersyde was handed over to Earl Haig (who took his title from here) as a gift from the people of the British Empire, thus fulfilling Thomas the Rhymer's prophecy:

Tyde what may betide,

Haig shall be Haig of Bemersyde.

BEN. (1) Hebrew prefix in proper names meaning "son" (Benjamin, "son of the right hand"). The plural, Beni, indicates a clan or society (Beni Israel, sons of Israel). Ben appears in Arabic as Ibn, corrupted into Aben, Aven, Avi (Abeneerrages, Avenpace, Avicenna). (2) Ben (Pen) is a Celtic word for mountain, common in names of mountains in Scotland and in Cornish and Welsh names (Ben Lomond, Ben Nevis, Pendennis, Penarth, Penmaenmawr). (3) The name, of Arabic origin, of an oil used in scents.

BENADIR. Former name of the Italian colony forming the S. portion of Italian Somaliland, now known as Somalia Italiana Meridionale, or Southern Somalia. It extends from 4° 30' N. lat. to the mouth of the Juba. In Aug., 1892, the sultan of Zanzibar leased the Benadir ports to Italy, and ceded his sovereign rights for a payment of £144,000 in 1905, when the ports, hitherto administered by the Italian Benadir Co., were placed under the administration of the Italian Government. The chief ports are Mogadiseio (the capital), Merea, and Brava. See Somaliland.

BENARES (Skt. Varanasi). City of the United Provinces, India, headquarters of Benares division (area, 10,427 sq. m.). On the Ganges, here spanned by the great Dufferin bridge, 3,518 ft. long, it is of great antiquity. It came into possession of the East India Company in 1775.

It is celebrated for its temples and shrines, and is one of the holiest places of the Hindus. The principal temple is the Bisheshwar, or Golden Temple, dedicated to Siva. Great numbers of pilgrims visit Benares every year, and its prosperity is largely dependent upon the pilgrim traffic.

Benares is a mart for shawls, silks, embroideries, and diamonds, and manufactures ornamental brass ware, jewelry, and lacquered wooden toys. It is an educational centre of some importance, containing Benares College, opened in 1791, and the Hindu University, opened in 1916. Pop. city, 198,447; division, 4,443,898.

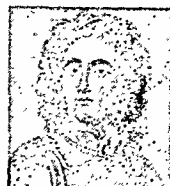
The native state of Benares was created in 1910 by transferring part of the family domains to the maharajah, who has a salute of 13 guns. In 1919 the town of Ramnagar, near Benares city, was handed over to him for his capital. Area 875 sq. m. Pop. 362,735.

Ben Attow. Mt. on the borders of Ross and Cromarty and Inverness-shire, Scotland. Alt. 3,383 ft.

Benbecula (Gael. mountain of the fords). Island of the Hebrides, between N. and S. Uist. The inhabitants are crofters.

BENBOW, JOHN (1653-1702). English admiral. Born at Shrewsbury, March 10, 1653,

by 1678 he was a master's mate. He took part in the battles of Beachy Head (1690) and of Barfleur and La Hogue (1692), and in the operations off the French coast in 1693-4. Rear-admiral in 1696, and vice-admiral in 1700, he held a command in the West Indies in 1699 and 1702. When he fought his great fight against the French, he pursued them for five days, until his leg was carried away by a chain shot and he was compelled to return to Jamaica, where he died, Nov. 4, 1702.



John Benbow, English Admiral Sir Godfrey Kneller

BENCH. Comprehensive term for the judicial body, either as a whole or in any given court. The title originates in the fact that the judges sat on a bench raised above the floor of the court, while the litigants, bar, and others sat on the floor level.

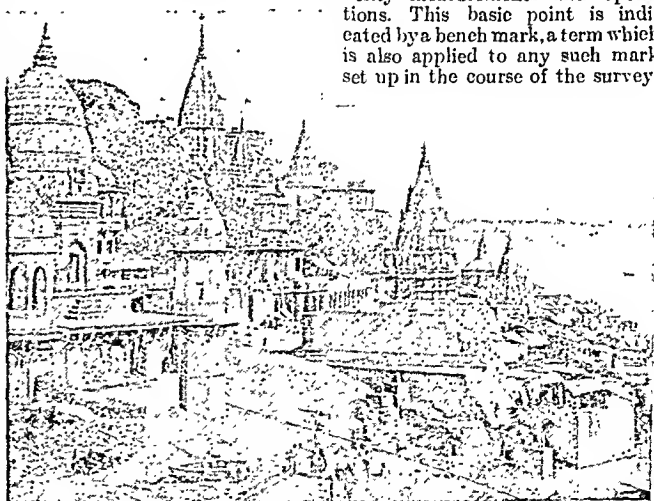
A member of the governing bodies of the four Inns of Court in England, and of the King's Inns, Dublin, is known as a bencher, the full name being master of the bench. There is no limit to the number of benchers of an inn; they are elected by their fellows, and usually

all barristers who attain eminence are called to this dignity. All questions affecting calls to the bar and the maintenance of discipline in the profession are settled by the benchers, subject only to an appeal to the visitors. See Bar; Inn of Court



Bench mark used in land surveying

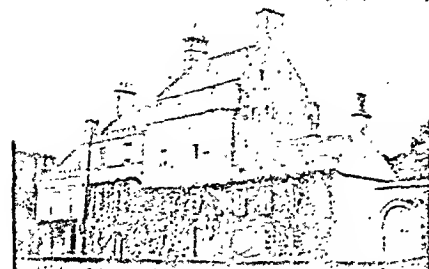
BENCH MARK. Surveying term. A land surveyor, when taking levels, requires some fixed point or datum as a standard of height by which to regulate and verify measurements and operations. This basic point is indicated by a bench mark, a term which is also applied to any such mark set up in the course of the survey.



Benares. Temples and shrines on the bank of the Ganges. The ghats, or landing-places, are generally crowded with worshippers and bathers in the sacred river

Ordnance bench marks take the form of the so-called "broad arrow" placed in some prominent position where it is least likely to be disturbed—on a boundary-stone or on the wall of a public building. They bear an ascertained relation to ordnance datum, i.e. to the mean sea level agreed upon as a standard basis or unit for the ascertainment or assumption of vertical height. See Surveying.

BENCKENDORFF, ALEXANDER, COUNT (1849-1917). Russian diplomatist. Entering the Russian diplomatic service in 1869, after serving in minor capacities in Rome, Vienna, and elsewhere, he was minister at Copenhagen, 1897-1903, and ambassador in London from 1903 until his death, Jan. 11, 1917.

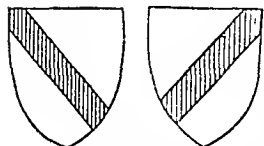


Bemersyde, for seven centuries the home of the Haigs. From it Earl Haig took his title

BENCOOLEN OR BENKULEN. Seaport on the W. coast of Sumatra, Dutch East Indies. Owing to coral reefs and surf, vessels must lie in the roads. Pepper, coffee, and camphor are the chief exports, maize, sugar, coconuts, and rubber are grown. The district was British from 1685-1825, when it was exchanged for Malacca. Pop. 7,700.

Ben Cruachan. Mt. of Scotland, in mid Argyllshire, between Loch Awe and Loch Etive. Its alt. is 3,689 ft.

BEND. In heraldry, a charge represented by a broad diagonal band (which should occupy one-third of the shield) from dexter chief to sinister base. A shield or charge divided by a diagonal line is said to be "per bend"; charges placed in a diagonal position are termed "in bend." The word sinister is added whenever the diagonal position is reversed and has been used as a mark of illegitimacy.



Bend. When the diagonal is reversed (right) it is a bend sinister

Bendery. Town of Bessarabia, Rumania. On the Dniester, 37 m. S.E. of Kishinev. It trades in cattle, grain, and timber. There are salt mines, paper factories, tanneries, and ironworks. In April, 1919, it was taken by the Soviet forces from the Rumanians, who recaptured it and made it a base for operations in Ukraina. Pop. 36,000.

BENDIGO. City of Victoria, Australia, capital of Bendigo co. It is 100 m. by rly. N.N.W. of Melbourne, in a rich gold-mining and agricultural region. The mines, discovered in 1851, employ many thousands. Other local products are wheat, fruit, wine, beer, pottery, tiles, and bricks. Its earlier name was Sandhurst. Pop. 33,910

BENDIGO (1811-80). Popular name for William Thompson, the British pugilist. He was born at Nottingham, Oct. 11, 1811, and as one of three sons was known as Abednego, his brothers being called Shadrach and Meshach. His first victory in the prize ring was in 1832; in 1839 he was awarded a championship belt, and his last fight was in 1850. Bendigo later became a Nonconformist minister, and, as the converted prize fighter, was a popular preacher at revival services. He died Aug. 23, 1880.

BENEDETTI, VINCENT, COUNT (1817-1900). French diplomatist. He was born at Bastia, in Corsica, of Greek descent, April 29, 1817, and entered the foreign service of France about 1840. He was in Paris until 1864, when he went as ambassador to Berlin. He took some part in arranging the peace between Prussia and Austria in 1866, and his interview with William I at Ems led to the Ems telegram and the declaration of war by France. On the fall of Napoleon, Benedetti retired from public life, and his last years were spent in Corsica. He died March 28, 1900.

BENEDICTE (Lat. Bless ye). Canticle of the Christian Church. Part of the addition to Dan. 3 in the Greek version of the O.T. called the Septuagint, it is also known as The

Song of the Three Holy Children, and it is an extended paraphrase of Ps 148. In the Greek Church it is sung daily, and in the Roman Catholic Church on Sundays and festivals at Lauds. In the Church of England from 1552 the alternate use of the Te Deum or Benedicite was left to the discretion of the minister. In the Scottish Prayer Book Ps. 23 takes the place of the Benedicite.



S. Benedict. Statue by Antonio Raggi in the Holy Grotto, Subiaco, Italy

BENEDICT (c. 480-543). Saint and founder of Western monasticism. Born at Nursia in Italy, of a noble family, about the age of twenty he retired to Subiaco, 40 m. from Rome, and for three years lived a hermit's life. Invited to become abbot of a monastery at Vicovaro, he accepted, but the rule of the community was not congenial, and he resigned his office and again retired to solitude.

Within the next few years so many asked to share his life that Benedict established twelve monasteries, with twelve monks and a superior in each. In 529 Benedict moved to Monte Cassino, where he established the monastery which was to become famous as the mother house of the great Benedictine order of monks. His sister, S. Scholastica, had adopted a similar life, and devoted herself to establishing communities of women. S. Benedict died in 543 and was buried at Monte Cassino. See Benedictines; Monasticism.



Benedict XV, Pope, 1914-22
d'Alissandri

was the creature of a faction. Nominally he reigned from 1032-46, but was several times deposed. Benedict X, an antipope, reigned for a few months, and was degraded by pope Hildebrand in 1059.

Benedict XIV was pope from 1740-58. His name was Prospero Lambertini, and he was born at Bologna. He became bishop of Ancona in 1727, cardinal in 1728, and archbishop of Bologna in 1731. A man of scholarship and great administrative powers, he did a great deal for education in Rome. He died May 3, 1758.

Benedict XV (1854-1922) was pope from 1914 until 1922. Born at Genoa, Nov. 21, 1854, of an old noble family, his name was Giacomo della Chiesa. He studied at the university of Genoa, became a doctor of law in 1875, and went

thence to Rome, where he graduated in theology. In 1878 he was ordained, and in 1883 was Cardinal Rampolla's secretary, and later held the same office for four years under Cardinal Merry del Val. In 1907 he was made archbishop of Bologna, and in May, 1914, cardinal. On the death of Pius X he was elected pope, Sept. 3, 1914. In the Great War he endeavored to mitigate the sufferings of the civilian populations, and in 1917 he made proposals for peace. He died on Jan. 22, 1922.

BENEDICT BISCOP (c. 628-690). English monk and saint. Of noble birth, Benedict was a thano of Oswiu, king of Northumbria, but tiring of this life, he became a monk in a monastery at Lerins. With Theodore of Tarsus he went to Canterbury in 669, when he was made abbot of S. Peter's, and in 672 he returned to his native Northumbria. There he founded Benedictine monasteries at Wearmouth and Jarrow, being himself abbot of the former. He had a distinct influence on Anglo-Saxon architecture. The Venerable Bede was his pupil. He died Jan. 12, 690, and his festival is kept on Feb. 12.

BENEDICTINE. Green liqueur invented and formerly made by the monks of the Benedictine monastery at Fécamp, France; now made in a factory there. It is also called Dom, from the inscription D.O.M. (Deo optimo maximo, to God most good and great) on the label. See Liqueur.

BENEDICTINES. Monks of the Benedictine order, i.e. who live under the rule of S. Benedict. In 580, when Monte Cassino, the chief Benedictine monastery, was sacked by the Lombards, the monks took refuge in Rome and there spread the knowledge of the Benedictine rule—a rule marked by an entire absence of extravagant asceticism, a liberal recognition that a community is made up of individuals of very varying dispositions, a paternal system of government, and an inspired common sense. Study is an essential part of the work with which a monk must occupy himself, and from its foundation the Benedictine order has been distinguished for its learning and its promotion of education, most of the older universities having grown out of Benedictine schools.

The rule soon superseded all others in the Western Church. It was introduced into France and generally accepted throughout Italy in the 6th century. The first English Benedictine monastery was established at Canterbury in 595. Two English Benedictines, SS. Willibrord and Boniface, evangelized Germany in the 7th century and in the 10th the order was firmly established in Spain.

The habit of Benedictines is commonly black, and hence they are known as black monks. There are Benedictine houses throughout the world. See Benedict, S.; Cluny; Monasticism. Consult Benedictine Monachism, E. C. Butler, 1919.

BENEDICTION (Lat. bene, well; dicere, to speak). Solemn form of ecclesiastical blessing which varies with the offices of which it forms a part. In the Anglican Church the Benediction, known also as the Grace, at the close of the morning and evening services, is based on 2 Cor. 13, 14: to that in the Communion service is prefixed Phil. 4, 7. The benedictional offices in Roman ritual for setting persons and things apart as sacred are



Benedictine monk. In the rule of this order work has an integral place

very numerous. A comparatively modern and very popular devotion in the Roman Catholic Church is the Benediction of the Blessed Sacrament. It has also been introduced into certain Anglican churches.

BENEDICTUS (Lat. blessed). Cantic of the Christian Church. It is said or sung after the Second Lesson at Morning Prayer in the Anglican Church, and daily at Lauds in the Roman Catholic Church. The Song of the Priest Zacharias, in thanksgiving for the performance of God's promises, it is taken from Luke 1, and in the latter part the priest addresses his son, the newly born John the Baptist.

BENEFICE (Lat. bene, well; facere, to do). In England, a compendious ecclesiastical legal term used to describe the holding of property by a bishop, dean, rector, or other ecclesiastical person or corporation. Thus a bishop may be patron of a benefice which may be a canonry, rectory, etc.

BENEFICIARY. In English law, a person entitled to the benefit of property, though he may not have the legal estate in it. Thus the legatees and devisees under a will are called the beneficiaries. As a rule, where there is a trustee of property, holding it in trust for beneficiaries, the trustee is the person to deal with the property and protect the interests of the beneficiaries.

BENEFIT OF CLERGY. A right claimed by ecclesiastical courts to sole jurisdiction in all cases where a person in orders was concerned. Exception was made in cases of treason, felony, and other serious crimes. It was not finally abolished until 1827.

BENES, EDUARD (b. 1884) Czech statesman. Born May 28, 1884, he became a lecturer on sociology and economics at Prague university. Escaping across the frontier in 1915, he reached Paris, where he helped to establish the Czechoslovak National Council. When Czechoslovakia came into existence in 1918 he was chosen its foreign minister. In 1921-22 he was premier, and he was still foreign minister in 1930. As such Benes was mainly responsible in 1921 for the Little Entente between his country, Rumania and Yugo-Slavia. My War Memories, an English translation of his book, appeared in 1928.



Eduard Benes,
Czech statesman

BENEVENTO (anc. Beneventum). City of Italy, capital of the prov. of Benevento. On a hill between the rivers Sabato and Calore, 31 m. direct and 61 m. by rly. N.E. of Naples, it has a 15th century castle, a 12th century cathedral, and the 8th century circular church of S. Sofia. Its triumphal arch, built in 114-16 in honour of Trajan, is one of the best preserved in Italy. It makes parchment and gold and silver articles, and trades in grain. In 1053 Benevento was given to Pope Leo IX by the emperor Henry III. Captured by the French in 1798, Napoleon made it a principality in 1806, but it reverted to the pope in 1815, becoming part of united Italy in 1860. Pop. 34,429.

BENEVOLENCE (Lat. bene, well; volens, wishing). Method of raising money for the crown by forced loans from the people. The term was first used in England by Edward IV. In 1484, during the reign of Richard III, Parliament declared benevolences illegal, but Richard himself resorted to this means of raising money, and was followed in the practice by Henry VII and Henry VIII. James I was the last English monarch to ask for benevolences.

BENFLEET. Two parishes (North and South) of Essex. They are 29 m. E. of London, on the L.M.S. Rly. The Danes were defeated here in 894. Pop. 2,209.

BENGAL. Prov. of India, and a presidency since 1912. It comprises the Bardwan (Burdwan) Presidency, Rajshahi, Dacca, and Chittagong divisions and the semi-independent states of Cooch Behar and Tippera. Its area is 82,277 sq. m. and its pop. 47,592,462. By the partition of 1905 Rajshahi, Dacca, and Chittagong were placed under the lieutenant-governor of Eastern Bengal and Assam. In 1912 the Presidency of Bengal was established under a governor.

Bengal chiefly comprises a large alluvial plain. It is traversed by the Ganges and Brahmaputra, which enters the Bay of Bengal by a combined estuary. Seventy-seven per cent of the population depend on agriculture. Rice and jute are the chief crops, others being barley, wheat, maize, tea and oil seeds.

Jute manufacture is the principal industry, the mills employing over 325,000 workpeople. Other industries are the making of cotton twist and yarn, silk yarn, and hand-made cloth. Coal is mined, and iron, mica, manganese, and slate are obtained. There are universities at Calcutta and Dacca. Calcutta, the capital, is the centre of the commercial and industrial activities. Other important cities are Dacca and Howrah.

The most important railway is the East Indian which serves the Ganges valley. Others are the Eastern Bengal Rly. and the Bengal-Nagpur Rly. Additional transport is also afforded by canals.

Bengali is the language spoken by about 35,000,000 people in Bengal and Assam. The Calcutta dialect may be taken as the standard Bengal

hemp is another name for sunn hemp.

The term Bengal lights is applied to the steady, slow-burning, vivid illuminants used in military and sea signalling and also in firework displays and on the stage. See Fireworks.

BENGAL GRAM

OR CHICK PEA (Cicer arietinum).

Small annual leguminous plant, native of S. Europe, W. Asia, and Abyssinia. It is very like a vetch, and is extensively grown in India as a crop plant, the seeds being ground into meal for making cakes, or parched for use as food. See Chick Pea.

BENGHAZI OR

BENGASI (anc. Berenice). Seaport of the Italian colony of Libya, Northern Africa, on the Gulf of Sidra, the capital of Cyrenaica. Its harbour is shallow and exposed, and admits only light-draught vessels. Barley, ivory, sponges, sheep, and horses are exported. An inland trade is carried on by caravan. It was occupied by the Italians on Oct. 20, 1911. Pop. 30,056, exclusive of the garrison. See Libya

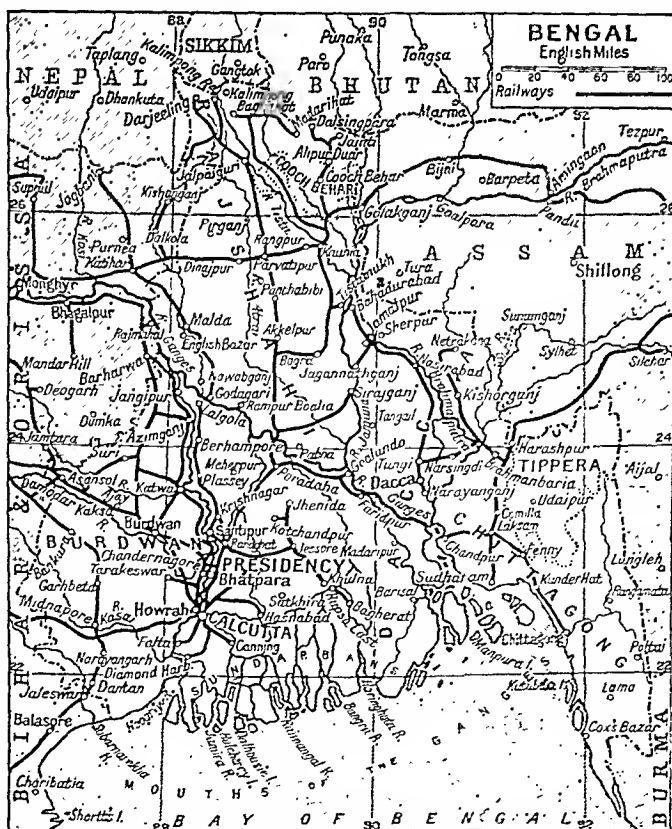
BENGUELLA OR SÃO FELIPE DE BENGUELLA. Town of Angola and capital of a district. It exports rubber, wax, and ivory, but is important as a railway centre. Pop. 4,000.

The Benguella Rly. runs eastwards from Lobito Bay on the Atlantic through Angola to the border of the Belgian Congo, a distance of 800 m. The section to Luao on the border was opened in Nov., 1929, and a further extension to Katanga is planned. The line shortens the route between England and parts of Central Africa by 2,500 m.

BENI HASAN. Village of Upper Egypt, on the right bank of the Nile, 169 m. above Cairo. In the limestone cliff are 39 rock-tombs of princes and monarchs of the XI and XII dynasties. Their mural scenes, depicting social and industrial life, were re-surveyed by Newberry (1893-94). Garstang opened up (1903-4) a necropolis of 1,000 pit-tombs in the valley beneath the cliff-terrace.

BENI-ISRAEL (Heb. sons of Israel). Jewish community in Bombay presidency. They may represent a post-exile emigration from the Persian Gulf. Although there was at first some admixture with Indian blood, they have for centuries practised a strict endogamy, and regard their more mixed congeners as Kala Israel or black Israel.

BENIN. Name of a city and river of W. Africa. Formerly applied to a large section of the coast E. of the Volta river and including the delta of the Niger, hence the Bight of Benin, the name has been gradually restricted to the city and prov. of Benin, in Nigeria. The area of the prov. is 8,429 sq. m. The Benin are a pure negro race, speaking a distinct language. Benin city, with a pop. of about 15,000, is some distance N. of the river.



Bengal. Map of this province of India. It includes the deltas of the Ganges and Brahmaputra, and alluvial plains along their courses, an extremely fertile area

Exports include palm oil, rubber and timber. Benin was discovered by the Portuguese in 1863, Sir Richard Burton made an

unsuccessful attempt to put a stop to human sacrifice, as the Beni were given to fearful excesses in fetishism. After two British expeditions, in 1897 and 1899, Benin was placed under a British resident. Native works of art collected after the expedition of 1897 are in the British Museum.

BENJAMIN. Youngest and favourite son of Jacob (Gen. 35). The tribe of Benjamin, which settled in Palestine between Ephraim and Judah, produced mighty men of valour who were often ambidextrous (Judg. 20; 1 Chron. 8); but it suffered terribly from the other tribes (Judg. 20-21). Saul and the apostle Paul belonged to the tribe of Benjamin. The word means son of my right hand.

BEN LAWERS. Mt. of Perthshire, Scotland, W. of Loch Tay. Rising 3,984 ft., it is easy of ascent, commands magnificent views, and is rich in alpine flora.

BEN LEDI (Gael. God's Hill). Mt. of Perthshire, Scotland, N.E. of Loch Katrine. It is 2,875 ft. high, and is referred to in Sir Walter Scott's *Lady of the Lake*.



Ben Lomond, rising from Loch Lomond. One of the beauty spots of Scotland
Fifth

BEN LOMOND. Mt. of Stirlingshire, Scotland. On the E. side of Loch Lomond, 3,192 ft. high, it is almost entirely covered with vegetation and commands extensive views of hill and lake scenery.

BEN MACDHUI (Gael. black pig mountain). Mt. on the borders of Aberdeenshire and Banffshire, Scotland. One of the Cairngorm group, it is composed chiefly of red granite, and is the second highest mountain (4,296 ft.) in Great Britain.

BENN, SIR JOHN WILLIAMS (1850-1922). British municipal leader. Born Nov. 13, 1850, he became head of Benn Brothers, Ltd., printers and publishers. M.P. in 1892-95 for St. George's-in-the-East and for Devonport from 1904-10, he was a Progressive member of the L.C.C. from 1889, and served as chairman in 1904-5. Knighted in 1906, and in 1914 created a baronet, he died April 10, 1922.

His eldest son, Sir Ernest John Pickstone (b. 1875), became head of the firms of Benn Bros., Ltd., and Ernest Benn, Ltd. A strong opponent of socialistic ideas, he published *Prosperity and Politics*, 1924; *Confessions of a Capitalist*, 1925; and *Letters of an Individualist*, 1927.

The second baronet's younger brother, William Wedgwood Benn (b. 1877), was a Liberal M.P., 1906-27, first for Tower Hamlets and then for Leith. From 1910-15 he was a junior lord of the treasury, and he won the D.S.O. in the Great War. In 1927 he joined the Labour Party and in 1928 became M.P. for N. Aberdeen. In 1929 he was made secretary of state for India.

BENNETT, ENOCH ARNOLD (b. 1867). British novelist. Born May 27, 1867, in the

district of Shelton, near Hanley, in the Five Towns, or Potteries, he studied law with his father and afterwards with a London solicitor,



Arnold Bennett,
British novelist
Goster

In 1902 Anna of the Five Towns established Arnold Bennett's reputation as an interpreter of social and commercial life in the Potteries. Amongst their smoke Clayhanger, 1910, *Hilda Lessways*, 1911, *The Card*, 1911, *The Matador of the Five Towns*, 1912, and other novels, were born. In later years he wrote fluently and with weight upon wider subjects.

Other important books were *A Great Man*, 1904; *The Old Wives' Tale*, 1908; *The Pretty Lady*, 1918; *Riceyman Steps*, 1923; *Lord Raingo*, 1926; *Accident*, 1929. His plays include: *Milestones*, 1912, and *Mr. Prohack* 1927, written with Edward Knoblock.

BENNETT, JAMES GORDON (1795-1872). American journalist and founder of *The New York Herald*. Born at Newmills, Banffshire, Sept. 1, 1795, he emigrated in 1819, going first to Halifax, Nova Scotia, where he taught bookkeeping, and thence to Boston, where he was proof-reader in the office of *The North American Review*. After varied journalistic experience in New York and Washington, on May 6, 1835, he founded *The New York Herald*. His *Memoirs* appeared anonymously in 1855. He died at New York, June 1, 1872.

His son, James Gordon Bennett (1841-1918), first edited the *New York Evening Telegram*, and on his father's death, in 1872, took over the active control of the *Herald*, instituting its Paris edition in 1887. In 1875, with the proprietors of the *London Daily Telegraph*, he bore half the expense of Stanley's Congo expedition; in 1879 he fitted out the Jeannette Arctic expedition, and in 1884, with John A. Mackay, founded the Commercial Cable Company. He did much to promote yacht racing, motoring, and other forms of sport. He died at Beaulieu, France, May 14, 1918.

BENNETT, RICHARD BEDFORD (b. 1870). Canadian politician. Born July 3, 1870, he became a barrister and for a time practised in his native province, New Brunswick. In 1897 he moved to Calgary, where he was a member of the legislative assembly of the North West Territories, and later of that of Alberta. In 1911 he was elected to the Dominion House of Commons, and in 1917 was director of national service. In 1921 he was minister of justice in the Conservative ministry, and in 1926 minister of finance. In 1927, on the retirement of Mr. Meighen, Bennett was chosen leader of his party, then in opposition to the Government.

BENNETT, SIR WILLIAM STERDALE (1816-75). British musician. Born at Sheffield, April 13, 1816, at the age of ten he entered the Royal Academy of Music, and in 1833 his first concerto was produced



W. Sterdale Bennett,
British musician

at an Academy concert. In 1849 he helped to found the Bach Society, and in 1856 was elected professor of music at Cambridge and conductor of the Philharmonic Society. He became principal of the R.A.M. in 1866 and was knighted in 1871. He died Feb. 1, 1875. His compositions include symphonies, overtures, concertos, an oratorio, *The Woman of Samaria*, the cantata, *The May Queen*, and many piano pieces. Consult *Life*, by his son, J. R. S. Bennett, 1907.

BEN NEVIS. Mt. of Inverness-shire, Scotland, loftiest summit in the United Kingdom. Situated 5 m. E.S.E. of Fort William. It has



Ben Nevis, from Corpach, on Loch Eil. The highest peak in Britain, it is generally snow-capped

an alt. of 4,406 ft. and a base circumference of 30 m. On its N. and N.E. sides are precipices of great height, one with a sheer fall of 1,500 ft. The Scottish Meteorological Society opened an observatory in 1883, but it was closed in 1904.

In 1930 a tunnel, 15 m. long, through the mountain was completed. It carries water in connexion with a power scheme for an aluminium factory near Fort William.

BEN-NUT TREE (*Moringa pterygo-sperma*). Small tree, native of India. From its seeds, produced in long pods, is obtained the oil of ben, used by watchmakers.

BEN RHYDDING. Village of Yorkshire, (W.R.). It is on the river Wharfe, 9 m. N.W. of Bradford by the L.M.S. and L.N.E. Rlys. In its hydropathic establishment, built in 1846, the compressed air bath was introduced.

BENSON, ARTHUR CHRISTOPHER (1862-1925). British author. Son of Edward White Benson, archbishop of Canterbury, he was born April 24, 1862. He was a master at Eton from 1885-1903, and was elected master of Magdalene College, Cambridge, in 1915. Benson wrote a *Life of his father*, 1899, and collaborated with Viscount Esher in editing the letters of Queen Victoria, 1907. He is the author of biographies of Rossetti, 1904, Edward Fitzgerald, 1905, and Walter Pater, 1906; some volumes of poems, novels, and various volumes of essays, including *The Upton Letters*, 1905, and *From a College Window*, 1906. He died June 17, 1925.

BENSON, EDWARD FREDERIC (b. 1867). British novelist. Son of Edward White Benson, the archbishop, he was born July 14, 1867. After a brilliant career at Cambridge he spent some time in archaeological work. In 1893 he made a sudden reputation with his novel *Dodo*. A number of other novels followed, including *Dodo the Second*, 1914; *Lucia* in London, 1927. He also published a biographical volume, *Our Family Affairs*, 1920.



A. G. Benson,
British author
Russell



E. F. Benson,
British novelist
Russell

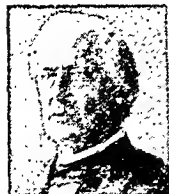


W. Wedgwood Benn,
British politician



R. B. Bennett,
Canadian politician

BENSON, EDWARD WHITE (1829-96). British ecclesiastic. Born at Birmingham, July 14, 1829, he became assistant master at Rugby and fellow of Trinity. In 1859 he was chosen as the first headmaster of Wellington College, which he raised to the status of a great public school. In 1872 he resigned to become chancellor of the diocese of Lincoln. In 1877 he was consecrated first bishop of Truro, and inspired the building of the cathedral. In 1883 he succeeded Dr. Tait as archbishop of Canterbury, and in 1889 gave judgement as metropolitan on the ritual practices of Dr. King, bishop of Lincoln. He died suddenly at Hawarden, Oct. 11, 1896.



E. W. Benson, Archbishop of Canterbury
Russell

His third son, Robert Hugh Benson (1871-1914), took Anglican orders, but in 1903 was received into the Roman Catholic Church. He wrote a number of books, chiefly novels, all from the Roman Catholic standpoint.

BENSON, SIR FRANCIS ROBERT (b. 1858). British actor. Born Nov. 4, 1858, at Alresford, Hants, he was prominent at Oxford University in the founding of the O.U.D.C. He made his first appearance in Henry Irving's company at The Lyceum in 1882, and two years later founded the Benson repertory touring company. For more than 25 years he organized the annual Shakespeare Festival at Stratford-on-Avon, and in 1901 founded a school of acting. He was knighted in 1916. His Memoirs appeared in 1930.



Monsignor R. H. Benson,
British novelist
Russell



Sir Frank Benson,
British actor
Russell

BENSON, RICHARD MEUX (1825-1915). Anglican divine. He was ordained in 1848, was made vicar of Cowley, near Oxford, in 1850, and in 1870 vicar of Cowley St. John. In 1865 he founded the Society of St. John the Evangelist, Church of England brotherhood, whose members, known as the Cowley Fathers, engage in mission work chiefly in India and S. Africa, and he was for many years its superior, resigning his vicarage in 1886. He died Jan. 14, 1915. He was the author of devotional works.

BENT, JAMES THEODORE (1852-97). British explorer and archaeologist. He was born at Baildon, near Bradford, March 30, 1852. His most notable work was done in Mashonaland in 1891, where, after careful measurements and excavations of the ruins of Zimbabwe, he formed the opinion that the builders were a northern race from Arabia closely akin to the Phoenicians, a view elaborated in his Ruined Cities of Mashonaland, 1892. He died in London, May 5, 1897.

BENT GRASS. Name for grasses of the large genus *Agrostis*, represented in all temperate and cold climates. In Europe they grow in damp pastures and waste places. Marsh bent or fiorin-grass (*A. alba*), forms long, creeping stems above ground which root at the knots. Dog bent (*A. canina*) is sought after by dogs and cats as a medicine.

BENTHAM, JEREMY (1748-1832). British philosopher, jurist, and reformer. Born in London, Feb. 15, 1748, the son of an attorney, he became a member of Lincoln's Inn, but, though called to the bar in 1772, soon ceased to

practise. His first work, *A Fragment on Government* (1776) was an attack upon Blackstone's complacent eulogy of the English constitution. His ideas were further developed in his *Introduction to the Principles of Morals and Legislation* (1789), which brought him fame in both France and England. In 1785 he was inspired with the idea of his Panopticon or model prison. He died June 6, 1832.



Jeremy Bentham,
British philosopher
After J. Watts

The keynote of Bentham's utilitarian philosophy, as it has been called, is to be found in the well-known phrase, which he borrowed from Priestley, "the greatest happiness of the greatest number." Some of the reforms he advocated have actually come to pass, and his influence can be traced in much of the ameliorative legislation, which has been passed since his time.

BENTINCK, LORD WILLIAM CAVENTISH (1774-1839). Governor-general of India. Born Sept. 14, 1774, second son of the 3rd duke of Portland, he joined the army in 1791. In 1803 he was made governor of Madras, but was recalled in 1807 after the Sepoy mutiny at Vellore. He was made governor-general of Bengal in 1827, and in 1833 became governor-general of India. His administration is memorable for the abolition of suttee (widow burning) and the suppression of the Thugs. He died June 17, 1839.



Lord Wm. Bentinck,
Gov.-General of India
Sir T. Lawrence

BENTINCK, LORD WILLIAM GEORGE FREDERICK CAVENTISH (1802-48). British politician and sportsman, better known as Lord George Bentinck. Born at Welbeck Abbey, Feb. 27, 1802, the third son of the 4th duke of Portland, he sat in Parliament 1828-48 as member for King's Lynn. He vigorously opposed Sir Robert Peel's free trade policy and, giving up the turf and his fine racing stud, accepted the leadership of the protectionist party. He died suddenly, Sept. 21, 1848.



Lord Geo. Bentinck,
British politician

BENTLEY, RICHARD (1662-1742). British scholar. Born at Oulton, Yorks, Jan. 27, 1662, he was ordained in 1690, and appointed keeper of the royal libraries in 1694. The following year he was involved with a young Oxford man, Charles Boyle, in what became known as the Phalaris controversy. This controversy, which really turned on the question of ancient and modern learning, brought Sir William Temple and Swift into the field in support of Boyle, and was the inspiration of the latter's brilliant effort *The Battle of the Books*. In 1700 Bentley was appointed master of Trinity College, Cambridge, which he combined from 1717 with the regius professorship of divinity. He died July 14, 1742.



Richard Bentley,
British scholar

BENTLEY, RICHARD (1794-1871). British publisher. Born in London, he started as a publisher in 1829, and in 1837 issued Bentley's Miscellany, with Charles Dickens as editor.

Harrison Ainsworth succeeded Dickens in 1839, and the Miscellany continued until 1868. Bentley specialised in the publication of novels. He died Sept. 10, 1871, and was succeeded by his son George (1828-95). The firm of Richard Bentley and Son was absorbed by Macmillan & Co. in 1898.

BENUE. River of western Central Africa. Rising in Adamawa, it enters Nigeria about 22 m. above Yola and flows W. to the Niger at Lokoja. Unbroken by rapids, it is navigated by stern-wheelers, is shallow in the dry season, but small boats can then reach Ibi (342 m.) and Yola (520 m.). Beyond Yola it is navigable for shallow boats as far as Garua and Léré. Its length is over 800 m., and the chief tributary is the Gongola.

Ben Venue. Mt. of Perthshire, Scotland, S.E. of Loch Katrine. It is a prominent feature of the Trossachs. Alt. 2,393 ft.

Ben Wyvis. Mt. of Ross and Cromarty, Scotland, 8 m. N.W. of Dingwall. Its alt. is 3,429 ft. Its deer forest covers 24,000 acres.

BENZAONINE or **BENZOYL-ACONINE.** Amorphous alkaloid which occurs in the roots of *Aconitum napellus* or monk's hood. It is also prepared by heating aconitine hydrochloride. Benzaconine has a bitter taste, but does not produce the tingling sensation in the mouth which is characteristic of aconitine.

BENZALDEHYDE or **ESSENTIAL OIL OF ALMONDS.** A colourless non-poisonous liquid with the smell of almonds. It is prepared by distilling bitter almond press-cake, but chiefly from benzyl chloride (q.v.). It is used in preparing benzaldehyde green and other aniline dyes, and as a flavouring agent in cookery and perfumery. See Almond Oil.

BENZENE. Colourless inflammable liquid obtained during the process of manufacturing coal-gas. Benzene, C_6H_6 , was first isolated by Faraday in 1825. In commerce benzene is known as benzol, which is suggested as a better name owing to the similarity of the words benzene and benzine (q.v.). Benzene is made by distilling coal-tar; it is the starting-point in the manufacture of aniline dyes. Benzene has remarkable solvent powers, indurates, asphalt, fats, sulphur, and phosphorus being readily dissolved in it.

Benzene Ring is the name given to the ring-like arrangement of the six carbon atoms of the benzene molecule (C_6H_6), by which its chemical combinations are explained.

BENZINE. Distillate obtained from petroleum which passes over between 70° and 90° C. It has a specific gravity of 0.68 to 0.72. The term is also applied to petroleum spirit generally. Benzine is used in dry-cleaning garments and gloves and as a solvent of india-rubber. Lighter varieties of petroleum spirit are known as petrol. Benzine should not be confused with the product benzene (q.v.).

BENZOLIN. Resinous substance obtained from the stem of *Styrax benzoin*. Benzoinic acid is prepared from benzoin and also synthetically from toluene and other substances. Preparations of benzoin and benzoic acid are employed as expectorants in bronchitis and consumption. Benzoic acid is used in the manufacture of aniline blue. The compound tincture of benzoin (friar's balsam) added to hot water makes a useful inhalation in laryngitis. These drugs are also of value in disinfecting the urinary tract in cases of inflammation of the bladder.

BENZYL CHLORIDE. Liquid with a penetrating odour which produces a rapid flow of tears. It is prepared on a large scale by passing chlorine into a vessel of toluene heated by a water bath. It is used in the preparation of other benzyl compounds, also in the manufacture of benzaldehyde and aniline dyes. See Tear Shells.

By distilling henyl chloride with potassium acetate and alcohol a sweet-smelling liquid known as benzyl acetate is obtained. It occurs naturally in the oils obtained from jasmine and ylang-ylang, and is used in the manufacture of perfumes. From benzyl chloride or benzaldehyde is prepared henyl alcohol, a liquid with a faint aromatic odour. It occurs naturally in Peru balsam.

BEOWULF. Anglo-Saxon epic poem probably dating from the 7th or 8th century, the only MS. of which, ascribed to the 10th century, is in the Cottonian Library of the British Museum. The oldest long poem in any Teutonic language, it consists of 6,356 short alliterative lines. The story tells mainly of the three great adventures of Beowulf, his slaying first of the monster Grendel, then of Grendel's mother, the fen-dwelling monster, and last of the dragon or fire-drake, when he himself was killed. The narrative includes much description of the life and customs of the period.

BEQUEST (A.S. be-; cwedhan, to say). In English law, a gift of personal property, not land or any interest in land, made by will. It is the same as legacy. Bequests or legacies are of four kinds: (1) specific, as of "the furniture in my house"; (2) general, as of "the sum of £100"; (3) demonstrative, when the testator gives a sum of money, or stocks, or shares, but also points out a particular fund from which the legacy is to be given—e.g. "I give to John Jones £100 out of my money in the Post Office Savings Bank"; (4) residuary, where the testator, after specific, demonstrative, and general legacies, gives the rest or residue of his personal property to one or more persons, who are called "residuary legatees." See Will.

BERANGER, PIERRE JEAN DE (1780-1857). French poet. Born in Paris, Aug. 19, 1780, after serving as printer's apprentice, he devoted himself to literature, encouraged in 1804 by the gift of a small pension from Prince Lucien Bonaparte, which was supplemented by a clerkship in the imperial university. His satirical, witty, and dainty songs under the Empire gained for him the widest popularity and the admiration of Goethe and Heine. The republican views expressed caused his imprisonment in 1821 and again in 1828. He died in Paris, July 16, 1857.

BERAR. Sub-province of India, in the Central Provinces. Its area is 17,766 sq. m. Since 1853 Berar has been administered by the British Government on behalf of the nizams of Hyderabad. and in 1903, by a new agreement with the nizams, it was transferred to the Central Provinces. It consists of a broad valley between two ranges of hills, and is watered by tributaries of the Godavari and Tapi. Pop. 3,075,316.

BERBER. Group of peoples of the Caucasian or white race, inhabiting Africa N. of the Sahara. They are the living representatives of the Libyans of early Egyptian history. Though usually brunet and dark-eyed, with wavy black hair, they sometimes exhibit blond characters, especially in the higher altitudes of the Atlas. They are mainly agricultural and village-dwellers. In Morocco and Libya they are the dominant race; in Algeria and Tunis they pertain chiefly to the settled Kabyles, and in the Sahara they become the nomad Tuaregs.

BERBER OR EL-MEKHEIR. Town in the Anglo-Egyptian Sudan. On the right bank of

the Nile, below its confluence with the Atbara, it was the capital of the prov. of Berber until 1905. It is on the rly. from Khartoum to Wadi Halfa and was formerly an important caravan station on the Red Sea and Cairo routes. A trade in the produce of the Nile valley is carried on. Pop. about 10,000.

BERBERA. Capital and chief port of British Somaliland. On the Gulf of Aden, about 160 m. S. of Aden, it has a small harbour and a wireless station. Pop. about 4,000, but during the annual fair from 25,000 to 30,000.

Berberis. Spiny shrub of the order Berberidaceae, commonly known as the barberry.

BERBICE. River of British Guiana. Rising in the S., it flows N. and N.E. for 350 m., entering the Atlantic through a wide estuary. It is navigable by small vessels for 175 m. The great water lily, *Victoria regia*, was discovered on its upper reaches in 1836. Drainage area, 13,500 sq. m.

The easternmost division of British Guiana is named Berbice, which is also the alternative name of the chief town, New Amsterdam.

BERCHEM OR BERGHEM, NICOLAAS (c 1620-83). Dutch painter. He was born at Haarlem, the son of a painter, Claes van Haarlem. One of the best and most prolific of the little masters of Holland, his works in the European galleries are extremely numerous. Conspicuous among his pictures is *The Halt of the Huntsmen*, formerly in St. Petersburg. He died Feb. 18, 1683, at Amsterdam.

BERCHTA. Supernatural being in German folklore. Her festival is kept upon New Year's Eve by the eating of oatmeal and fish or dumplings and herrings. She especially presided over all matters connected with spinning, visiting with wrath any careless spinners. She was ruler over night hags and enchantresses, elves and dwarfs, and was attended by the souls of unbaptized children.

BERCHTESGADEN. Town of Bavaria. About 1,700 ft. above sea level, its beautiful situation in the Bavarian Alps makes it popular with tourists. The Königssee and other lakes are in the vicinity. There are two old churches and an abbey. Mines of rock salt have been worked for nearly 800 years, and the inhabitants are skilled in making toys. Berchtesgaden was long the capital of a little principality ruled by an abbot. Pop. 3,214.

BERCHTOLD, LEOPOLD ANTHONY JOHANN, COUNT (b. 1863). Austrian diplomatist. The son of Count Sigismund Berchtold, he was born at Vienna, April 18, 1863, and entered the Austrian diplomatic service in 1900. For four years he was ambassador in Petrograd, and when the Great War broke out he was Austro-Hungarian minister for foreign affairs, and as such had much to do with the negotiations that led to the Great War. In Jan. 1915, he was replaced by Baron Burian. Afterwards he held a position in the court of the emperor Charles.

BERCK. Watering-place of France, in the dept. of Pas-de-Calais. It is on the English Channel, 28 m. S. of Boulogne. The actual town stands somewhat inland, a newer quarter having sprung up by the sea. Pop. 8,914.

BERDICHEV. Town of Ukraina. It is 120 m. W.S.W. of Kiev, on the Brest-Litovsk rly. Its chief trade is in grain, cattle, and horses; it has tobacco factories, dye and iron works, and four great yearly fairs. The town is the centre of the Jewish sect of the Chasidim. Pop. 55,613

BEREHAVEN. Channel between Bere Island and the S.W. part of co. Cork, Irish Free State. During the Great War the American army had an aircraft station on the coast here. Bere Island, on the N. side of Bantry Bay, is 6 m. long by 1 m. and has slate quarries.

BERENGARIA (d. c. 1230) Queen of Richard I of England. Daughter of Sancho VI, king of Navarre, she was married and crowned at Limasol in Cyprus, May 12, 1191, and travelled on to Acre. She saw little of her husband after 1192. During his captivity in Austria she visited Sicily and Rome, and eventually settled at Le Mans. She was buried in the neighbouring Cistercian monastery, founded by her at l'Épau.

BERENGARIA. British liner belonging to the Cunard Co. Formerly belonging to the German Hamburg-Amerika line, and known as *Imperator*, she was laid up in the Elbe throughout the Great War. Launched 1912, she is of 51,969 tons, with a length of 882 ft. and a speed of 23 knots. In Dec., 1919, she was delivered to the British government under the armistice arrangements. The name *Berengaria* was adopted in 1921.

BERENGUER. DAMASCO. Spanish general. He was high commissioner in Spanish Morocco, 1921, and chief of the king's military household, 1926-30. On Jan. 28, 1930, he became premier, following the downfall of the dictator Primo de Rivera (q.v.). See Spain.

BERENICE OR PHERENICE. City of ancient Egypt. It was situated on a bay of the Red Sea, mentioned by Strabo, and was at one time the chief centre of commerce with India and Arabia. Founded by Ptolemy II Philadelphus (308-247 B.C.), he named it after his mother.

BERENICE. Name of several Jewish and Egyptian princesses. Of the former the best known is the daughter of Herod Agrippa I, king of Judaea. An earlier Berenice was the daughter of Salome and the mother of Herod Agrippa I. The Egyptian princesses of this name include the wife of Ptolemy Soter, in honour of whom the city of Berenice was built; a daughter of Magas, king of Cyrene, who became wife of Ptolemy Evergetes and gave her name to the constellation Coma Berenices; the sister of Cleopatra, and queen of Egypt, put to death by the Romans in 55 B.C.

BERESFORD, CHARLES WILLIAM DE LA POER BERESFORD, BARON (1846-1919) British sailor and politician, better known as Lord Charles Beresford. He was a younger son of the 4th marquess of Waterford, and was born Nov. 10, 1846. He became a naval cadet in 1859 and commanded the Condor at the bombardment of Alexandria. He was commander of the Channel Fleet 1903-5; commander in the Mediterranean 1905-7; and again commander of the Channel Fleet 1907-9.

Beresford was returned as Conservative M.P. for Waterford in 1874. He sat until 1880 and, again off the active list, was M.P. for E. Marylebone 1885-89, being from 1886-8 a lord of the Admiralty. From 1897-1900 he was M.P. for York, in 1902-3 for Woolwich, and from 1910-16 for Portsmouth. In 1916 he was made a peer, and he died Sept. 6, 1919.

BERESFORD, WILLIAM CARR, VISCOUNT (1768-1854). British soldier. Born Oct. 2, 1768, an illegitimate son of the first marquess of Waterford, he entered the British army in 1785. He was in Egypt, 1801-3, and in South Africa in 1806, but his best service was in the Peninsular War. He was conspicuous in the



Lord Beresford,
British Sailor
W. & D. Downey



Berbers from the Sahara, a race descended from the early Libyans

retreat to Corunna in 1808, and in 1809 was made commander of the Portuguese auxiliary army, in which capacity he did good work at Busaco in 1810 and assisted to defeat Soult at Albuera in 1811. Beresford was rewarded with a barony, and in 1823 became a viscount. He died Jan. 8, 1854.

BERESFORD, JOHN DAVYS (b. 1873). British novelist. Born March 7, 1873, the son of a clergyman, he was educated at Oundle School. He qualified as an architect and practised as such for a few years, but in 1906 he began to write. His novels include *Jacob Stahl*, 1911; *Goslings*, 1913; *These Lynnekers*, 1916; *God's Counterpoint*, 1918; *Love's Pilgrim*, 1923; and *Real People*, 1929.

BERESINA (Russian, *Berézina*). River of Russia. Rising in the marshes of Borisov, N. of Minsk, it flows 350 m. S.E. to the Dnieper. It is much used for timber floating, and is connected with the Dvina (Daugava) by a canal. Its passage by Napoleon during the retreat from Moscow is famous.

BERETTINI, PIETRO (1596-1669). Italian painter also known as *Pietro da Cortona*. The ceiling of the Barberini Palace, Rome, is one of his most celebrated works. In Florence he was commissioned by the grand duke of Tuscany to decorate the Pitti palace. Grandiose conception, with bright colour and plenty of gilding, is the chief characteristic of his art.

BERG. Hot, dry, northerly wind round the coasts of S. Africa. It blows frequently, and its normal duration is about a day. The interior plateau is heated and warms the air above it. This warmed air is drawn over the coastal lowlands, and, further heated by compression on descending, reaches them as a hot, dry wind.

BERGAMO (anciently *Bergomum*). City of Italy. It is 33 m. by rly. N.E. of Milan, and is the capital of the prov. of Bergamo. The ancient walled town, standing on a hill, contains the cathedral, begun in 1459, and the church of S. Maria Maggiore, built 1137. In the lower town are several churches and monasteries, and the Carrara academy, with paintings by artists of the Lombard school. An important rly. junction, Bergamo manufactures cotton, silk, pottery, organs, iron goods and agricultural instruments. Its old cattle fair is still important. Pop. 81,411.

BERGAMOT (Lemon Bergamot). Alternative name for the sweet lime (*Citrus limetta*). An essential oil extracted from the rind of the fruit is largely used in perfumery. Bergamot nint is the natural variety citrata of the water mint (*Mentha aquatica*), and bergamot pear is a small roundish, brown-tinted pear, fine-flavoured and juicy.

BERGEN. Seaport and city of Norway. On a peninsula in a deep bay, 190 m. by rly. W.N.W. of Oslo, it is a tourist centre. Built largely of wood, Bergen was damaged by fire in 1702, 1855, and in Jan., 1916. The cathedral, founded in 1248 and rebuilt in 1537, was restored in the 19th century. The 12th century Gothic *Mariae Kirke*, with Romanesque nave, was used as a German church by the Hansa merchants from 1408 to 1763. The Hanseatic Museum is housed in one of the original wooden warehouses of the German fish merchants. The castle of *Bergenhus*, formerly the residence of Norwegian kings, has two towers and the fine 13th century King's Hall. Bergen has a commodious harbour and a wireless station. Fish is the chief export. Pop. 91,443.

BERGEN-OP-ZOOM. Town of Holland, in the prov. of North Brabant. On the river Zoom, near its junction with the Schelde, it is about 20 m. N. of Antwerp, with which it is connected by steam tramway. An old

town, it has remains of a castle, a palace, now used for barracks, and a fine Gothic church; but most of the buildings are modern. The manufactures include tiles, bricks, pottery, and cloth, and there is an export trade in fish, as well as a beet sugar industry. Oyster culture is carried on. Pop. 21,102.

BERGERAC, SAVINIEN CYRANO DE (1619-55). French novelist and dramatist. He was born in Périgord, and became an officer, fighting many duels, most of them to avenge affronts about his enormous nose. He also won fame with a tragedy (*Agrippine*, 1653) and a comedy (*Le Pédant Joué*, 1654). After travelling in England and Italy, he died in 1655, after a long illness. His famous *Comic Histories of the States and Empires of the Moon*, 1656, and of the *Sun*, 1661, were issued posthumously. Public interest in *Bergerac* was revived in France and England in 1897, when Rostand's comedy, of which he was the eponymous hero, was produced in Paris with Coquelin in the title rôle. An English version was given in London, 1919. See Rostand, E.



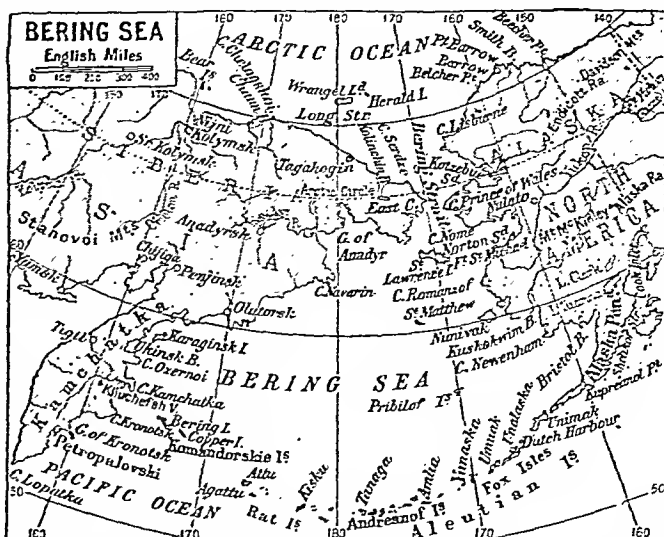
Cyrano de Bergerac, French novelist and dramatist
From an old engraving

French philosopher. He was born in Paris, Oct. 18, 1859, of Jewish descent, and in 1900 was appointed professor of philosophy at the College of France. He is the representative of a kind of Panvitalism, in which life is regarded as the real Being. An empiricist in method, he attaches great importance to internal experience as the source of knowledge. The solution of the chief problems of metaphysics is to be sought in an analysis of the phenomena of consciousness. Life is a continual development, a creative evolution, ever unfolding new elements.

BERI-BERI. Disease chiefly prevalent in Eastern Asia, the Philippine Islands, the Malay Archipelago, the West Indies, and parts of South America. It affects principally the nervous system, producing paralysis and loss of sensation, with dropsy in some cases.

The disease was observed to have a connexion with a diet in which polished rice bulked largely. This led to the discovery that, in polishing, a vitamin was removed in the husk. *Beri-beri* can be prevented or cured by the diet being rearranged so as to include foods containing this vitamin.

BERING OR BEHRING, VITUS (1680-1741). Danish navigator. After serving in the Russian navy in the war against Sweden he



Bering Sea. The ice-encumbered waters separating Asia from America in the far North, first navigated by Bering in 1728

began his voyages of exploration, seeking the eastern limits of the northern coast of Asia. He made various voyages, hoping to find land to the E., and actually reached Alaska. On his return he was wrecked on an island in the Bering Sea, called after him *Bering Island*, where he died, Dec. 19, 1741.

BERING SEA. Northern division of the Pacific Ocean, separating N. America from Asia. It lies N. of the Aleutian Islands, and is connected with the Arctic Ocean by the strait which extends between Cape Prince of Wales, Alaska, and East Cape, Siberia; here it is about 50 m. across. Bering Strait was discovered by Deshnev in 1648, and navigated by Bering in 1728. The sea, which contains several islands, receives the Yukon, the Anadyr, and other rivers. One of the islands, *Bering*, covers 615 sq. m.

Soon after the purchase of Alaska by the U.S.A. from Russia in 1867, a dispute arose between Great Britain and the United States in reference to the fishing rights in the Bering Sea. The *Pribilof* Islands, also assigned to the U.S.A., were the chief breeding ground of the seals, and Congress had passed laws to preserve them. In 1886 three Canadian sealing vessels were seized and condemned by an American court for fishing in forbidden waters. Acts of a like nature followed, and in 1892 it was agreed to submit the question to arbitration.

The court met in Paris in 1893. The case for the U.S.A. turned largely upon the rights possessed by Russia before 1867, and the arbitrators found in favour of Great Britain. Regulations for the future control of the industry were agreed upon, and in 1896 the sum of 473,151 dollars (=£95,000) was awarded to the Canadian sealers.

BERKELEY. Market town of Gloucestershire. It stands on a hill, overlooking the Severn, 24 m. N. of Bristol, on the L.M.S. and G.W. Rlys. Berkeley Vale is famed for its Double Glos'ter cheese and its castle, one of the finest in the country, in which Edward II was murdered in 1327. (See illus. p. 238.) The Berkeley hunt is one of the most famous in the country. Here Dr. Jenner, discoverer of vaccination, was born. Market day, first Wed. in month. Pop. 790.

The British title, *Earl of Berkeley*, borne since 1679 by the family of Berkeley, is named from the manor of Berkeley. The barony was created in 1295. The 8th earl inherited the

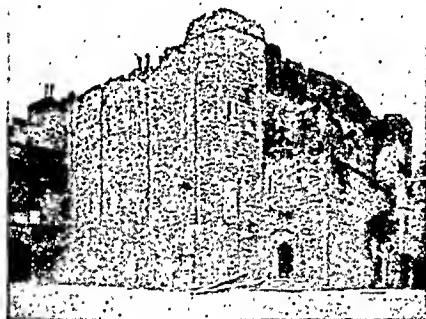


Henri Bergson, French philosopher
Elliott & Fry



Berkshire. Map of the southern county, which is rich in historical and literary associations. At one end is Windsor and at the other the Vale of the White Horse, while the Thames forms its northern border

valuable London property around Berkeley Square, which came to his predecessor in 1773 from the family of Berkeley of Stratton. Berkeley Square lies between Park Lane



Berkeley Castle. The tower in which is the dungeon where King Edward II was murdered, 1327. Sep. 237

and Bond Street, in Mayfair. Horace Walpole died at No. 11 and Clive committed suicide at No. 45. Pope and Bulwer Lytton resided here, and later, Lord Rosebery. The square was laid out about 1700, and some of its houses have extinguishers for links and torches before their doors. With some adjoining property, the land was sold in 1919 by the earl of Berkeley to Sir Marcus Samuel, later Lord Bearsted (q.v.).

BERKELEY. City of California, U.S.A., in Alameda co. It is 10 m. N.E. of San Francisco, on the Atchison, Topeka, and Santa Fé rly., and stands on a hill overlooking San Francisco Bay and the Golden Gate. Here is the university of California. It manufactures soap, motors, etc. Pop. 80,707.

BERKELEY, GEORGE (1685-1753). Irish divine and philosopher. Born in Ireland, March 12, 1685, he was educated at Trinity College, Dublin, of which he became a fellow in 1707. He was ordained and in 1734 was made bishop of Cloyne, co. Cork, Ireland. In 1752 he resigned his bishopric and retired to Oxford, where he died Jan. 14, 1753.



George Berkeley, Bishop of Cloyne

Founder of the philosophy of idealism, as opposed to the realism of Hobbes, he regards both the primary qualities of things (extension, figure, motion) and their secondary qualities (colour, taste) as not belonging to the things, but transferred to them by the perceiving subject. Our ideas, then, being the things themselves, it must be assumed that we receive them from a spirit, since only a spirit could produce ideas in us, and from a superior spirit—in fact, from God. At the same time, however, although objects cannot exist anywhere except in the mind, it is not denied that they possess a reality independent of us. Consult *Life*, A. C. Fraser, 1901.

BERKHAMPTSTAD, GREAT, OR BERKHAMSTED. Market town of Hertfordshire. On the Bulbourn river and the Grand Junction Canal, 10 m. N.W. of Watford by the L.M.S. Rly., it has a Gothic church. The public school, founded in the time of Henry VIII, was refounded in 1841, after a period of decay. The Inns of Court O.T.C. had a training school

here during the Great War. The poet William Cowper was born here, 1731. Market day, alternate Wednesdays. Pop. 4,746.

BERKSHIRE OR **BERKS.** Southern county of England. S. of the Thames, it is 53 m. long, 30 m. broad, and has an area of 724 sq. m. Chalk hills (White Horse Hill, 856 ft.), a spur of the Chilterns, traverse the W. of the county, to the N. of which is the Vale of the White Horse, and to the S. the Kennet valley. In the S.W. is Inkpen Beacon (1,011 ft.), the highest chalk down in England; Windsor Forest and Castle are on the E. border; and Bagshot Heath penetrates into Surrey.

Oats and wheat are cultivated, and sheep- and pig-breeding and dairy farming engaged in. Manufactured products include agricultural implements, biscuits (at Reading), whiting, and paper. Railway communication is provided by the G.W., L.N.E., and Southern Rlys., and water transit by the Wiltshire and Berkshire and Kennet and Avon Canals, in addition to the Thames. Wellington and Sandhurst colleges are in the county. Towns include Reading (county town), Windsor, Abingdon, Maidenhead, Wallingford, and Newbury. The county is divided into three parliamentary divisions, one member for each; Reading also returns one member. Pop. 294,821.

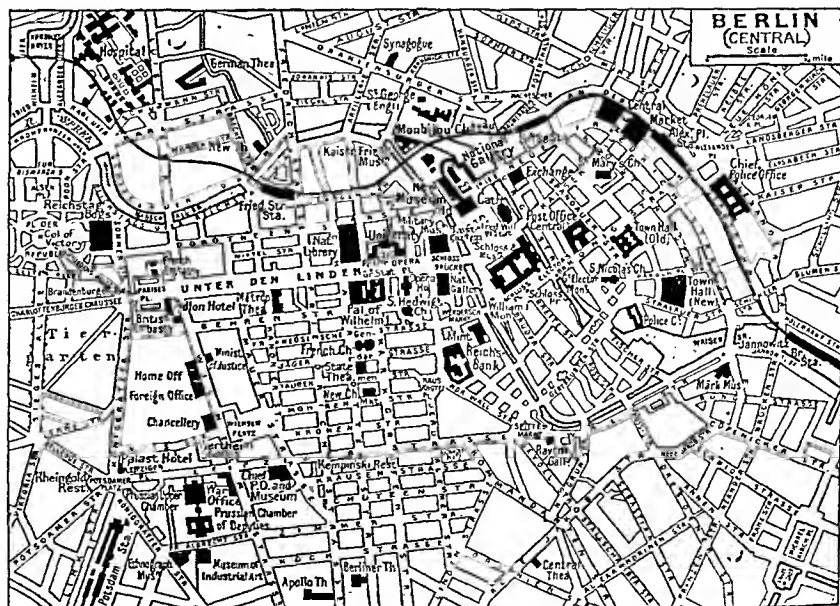
LITERARY ASSOCIATIONS. Perhaps the most notable of the older uses of Berkshire as literary background is in Shakespeare's *Merry Wives of Windsor*, where *Heme's Oak*, in Windsor Forest, is the scene of *Falstaff's* final discomfiture. *Bray*, above Windsor, recalls the vicar of the old popular song. Much of the county, notably *Cumnor* and *Wayland Smith's cave*, appears in *Scott's Kenilworth*. *Mary Russell Mitford's Our Village* presents the rural surroundings of *Three Mile Cross*, near Reading.

The English title of earl of Berkshire has been borne by the family of *Howard* since 1626. Since 1745 it has been united with that of *Earl of Suffolk*.



Berkshire Regiment badge

BERKSHIRE REGIMENT, ROYAL. Known as *Princess Charlotte of Wales's*, this is a union, dating from 1881, of the 49th (Hertfordshire) and 66th (Berkshire) regiments. The regiment saw service at *Egmont-op-Zee* (1799) and at *Copenhagen* (1801). In the *Peninsular War* and the *Crimean War* it



Berlin. Plan of the main portion of the city, showing the principal buildings. See opposite page.

won distinction, and the 2nd battalion made its historic stand at Maiwand in the Afghan War (1879-80). For gallantry shown by the 1st battalion on the occasion of an Arab attack on McNeill's zariha, March 20, 1885, Queen Victoria granted the title of Royal to the regiment. During the Great War it gained many additional battle honours. The regimental depot is at Reading.

BERLAD, BERLAT, OR BARLADU. Town of Rumania, in Moldavia. Capital of the dept. of Tutova, on the river Berlad, 145 m. by rly. N.E. of Bukarest, it has an annual horse fair, and trades in grain and timber. Pop. 25,367

BERLIN. Largest city of Germany and capital of the republic. It stands in a plain on both sides of the Spree. The city proper has an area of 29 sq. m. Greater Berlin covers 339 sq. m. and has a pop. of 4,024,165.

Unter den Linden may be regarded as the centre of the city. The Friedrichstrasse is a great shopping centre. The Wilhelmstrasse houses the various ministries. The Behrenstrasse is Berlin's Lombard Street. Among the many squares are that of the Opera House, the Castle or Schloss, the Leipziger, the Potsdamer, and the Pariser.

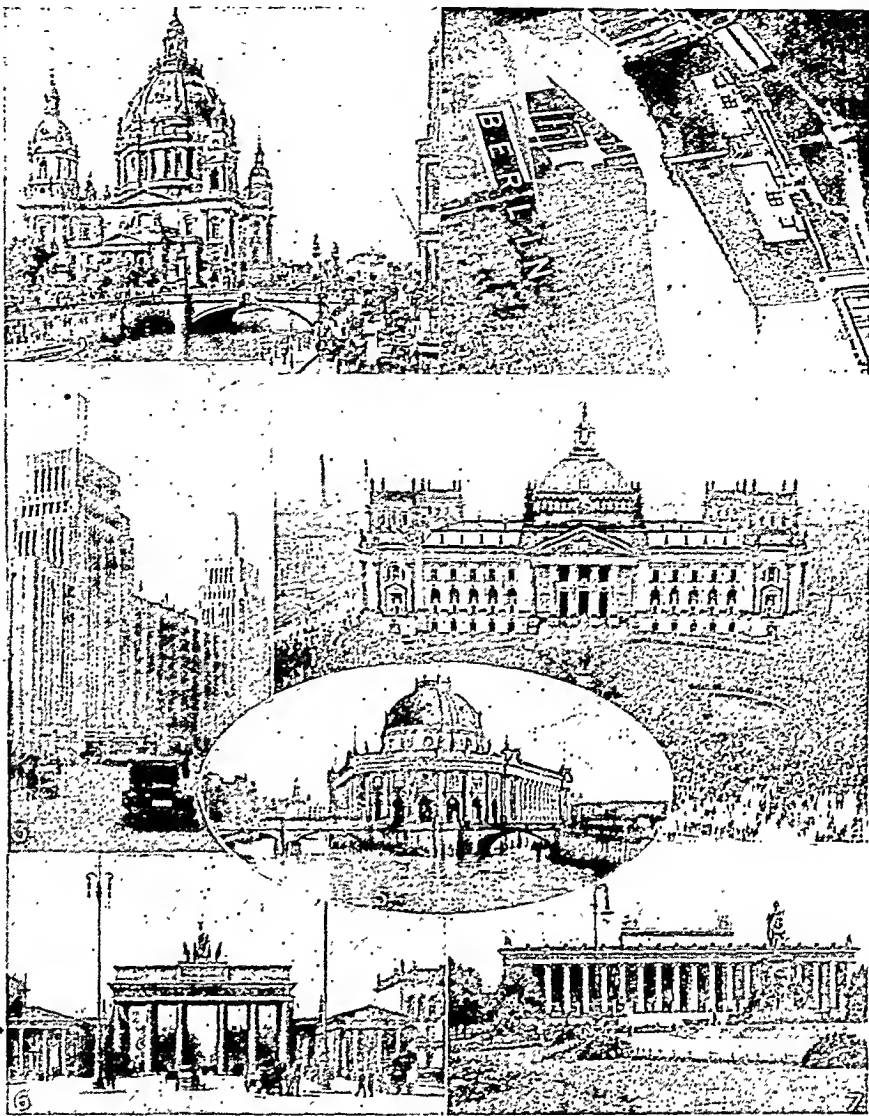
At the E. and older end of Unter den Linden are the university buildings, the nucleus of which was a palace. The Brandenburger Tor leads into the Tiergarten, a public park containing the zoological gardens. Overlooking the Tiergarten are the buildings of the Reichstag. A fine group of buildings centres round the palace. Here, enlarged and modernised, was the Berlin home of William II until his abdication in 1918. On one front is the Lustgarten, and on the other the Schloss Platz. Adjoining are the stables (Marstall), where the worst of the fighting took place in Nov., 1918.

In the old town are the exchange, the old and the new town halls, the post office, and several museums. Other buildings include the house of the Prussian Landtag, the Reichshank, the museum of industrial art, and the Kaiser Friedrich museum. The largest church is the cathedral. Of the few old churches only S. Nicholas and S. Mary are of any note. The most imposing bridge is the castle bridge, built in 1822-24 and adorned with eight large allegorical groups. The elector's bridge, with an equestrian statue of the great elector, a century older was restored under William II.

From 1881 until 1918 Berlin was a distinct administrative district of Prussia. On Nov 11, 1918, the German republic was officially proclaimed from the steps of the Reichstag. In 1920 a new municipality was formed, uniting Berlin and all its suburbs into a single uniform municipal region.

There are five great railway stations and several local railways. The North-South tube was opened in 1923. Of the canals, the Teltow connects the city with the Havel river, and another, opened in 1915, affords communication with Stettin by way of the Oder. The industries include the manufacture of machinery and railway stock, chemicals clothing, furniture, and fancy goods of all kinds, as well as beer and electrical apparatus. Berlin is a commercial, especially, perhaps, a banking and insurance centre, and also a publishing one. There is a terminal aerodrome at Tempelhof.

On Nov 9, 1918, Berlin banks stopped payment, and on Nov 11 the Socialists took complete control of the city. Grim fighting took place, particularly in the first week of Jan., 1919, when Karl Liebknecht, the Spartacist leader, attempted to overthrow the Ebert-Scheidemann Government. The capital was reconquered from the revolutionaries by Jan. 20. Further Spartacist disorders broke out at the beginning of March, heavy fighting taking place in the Alexanderplatz and other



Berlin. 1. The cathedral and Kaiser Wilhelm Bridge. 2. Aerial view of the terminal Tempelhof Aerodrome. 3. Part of the Karstadthaus in the east end district of Neukölln, one of the greatest department stores in the world, which was opened in 1929. 4. The Reichstag, during a political demonstration. 5. Kaiser Friedrich Museum. 6. The Brandenburger Tor, looking up Unter den Linden. 7. The National Gallery

parts of the city. There was renewed rioting in Berlin in Jan., 1920, and a more serious outbreak in March of that year.

BERLIN. Former name of the Canadian town now called Kitchener. It was changed at the request of the inhabitants early in the Great War. See Kitchener.

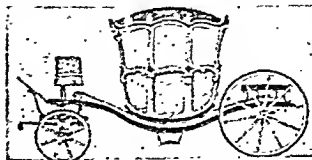
BERLIN, CONGRESS OF. Meeting of representatives of the Great Powers in Berlin to adjust conditions brought about by the Russo-Turkish war. Lord Beaconsfield having claimed that the treaty of San Stefano (March, 1878) should be revised, the congress met on June 13, Great Britain being represented by Lord Beaconsfield and Lord Salisbury. Bismarck's diplomacy was required in the capacity of "honest broker."

The result was the recognition of the independence of Rumania, Serbia, and Montenegro. A Bulgaria was established, autonomous, but tributary to Turkey, while two-thirds of the territory assigned to her remained under Turkish administration. Bosnia and Herzegovina were placed provisionally under the administration of Austria. Turkey separ-

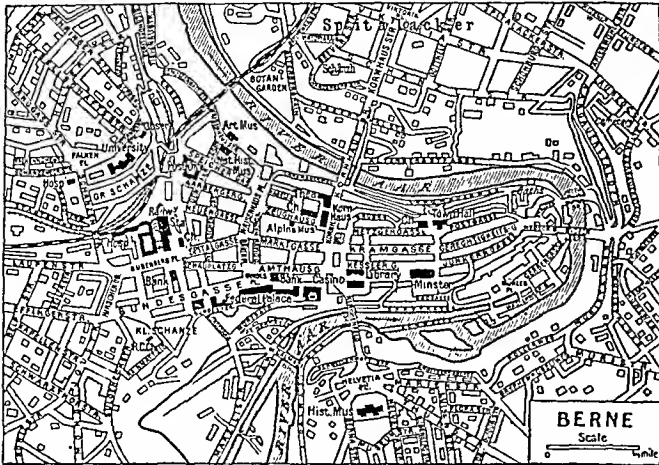
ately assented to the occupation of Cyprus by the British in return for a British guarantee of the possessions of Turkey in Asia apart from the cessions made to Russia. Lord Beaconsfield returned home bringing, as he himself said, "peace with honour." See Beaconsfield.

BERLIN DECREE. Order issued by Napoleon Nov. 21, 1806, with the object of destroying British trade. He proclaimed the British Islands to be in a state of blockade, forbade commerce with the ports of France and her dependents, confiscated British goods in French and allied ports, and treated British subjects in France and countries occupied by her troops as prisoners of war. Britain replied by forbidding neutrals to trade with France and her allies under penalty of confiscation of ships and goods.

BERLINE OR BEERLIN. Carriage popular in France in the 18th century. It was first made in Berlin, about 1670, hence its name. A covered vehicle on four wheels, it seated two persons inside and one in a seat, sometimes hooded,



Berline. Side elevation of a specimen in the museum at Vienna



Berne. Plan of the federal capital of Switzerland. It is famous for its old houses and the extensive views of the Bernese Oberland section of the Alps obtained from the streets

behind, as well as the driver. The word is nowadays used for a motor vehicle, a development of the limousine, which is designed to carry five passengers.

BERLIOZ, HECTOR (1803-69). French composer. Born Dec. 11, 1803, the son of a doctor, he studied music at the Paris Conservatoire and soon began to compose. He won the Grand Prix de Rome, 1830, but the unusual character and elaborate scope of his work hindered him from procuring adequate recognition. His best known compositions are a setting of Faust for voices and orchestra, an opera, *Beatrice and Benedict*, and several symphonies and overtures. Berlioz married the Irish actress Henrietta Smithson, 1833. He died in Paris, March 9, 1869. He wrote his *Mémoires*, published in 1870.



Hector Berlioz, French composer

BERMONDSEY. District of London and one of the 28 metropolitan boroughs. S. of the Thames, which it borders, between Deptford, Camberwell, and Southwark, it includes Rotherhithe, and its chief industries are connected with leather. Bermondsey possesses a leather market in Weston Street, a technical institute, and tanneries. It contains Tooley Street, the S. approach to the Tower Bridge, S. Saviour's Dock, and Jacob's Island, the supposed place of Bill Sikes's death. S. Olave's grammar school was founded in 1539. Bermondsey is governed by a mayor and council. It sends two members to Parliament. Pop. 119,452

BERMUDA GRASS (*Cynodon dactylon*). Perennial grass with stout creeping stems of woody consistence, stiff awl-shaped leaves, and erect flowering branches, a native of sandy shores in Europe, Asia, and Africa. It is a drought-resisting grass, of value as pasture in dry countries.

BERMUDAS. Group of British islands in the Atlantic, midway between the W. Indies and Nova Scotia. Of some 360 only 20 are inhabited. Practically an atoll, they have an area of 19 sq. m. A naval base on the N. America and W. Indies station, they possess good harbours, with dockyards, victualling yards, and floating docks.



Bermuda grass, *Cynodon dactylon*

The climate is so healthy that they are a popular resort for Americans. They produce and export onions, potatoes, and tomatoes, with arrowroot, bananas, and lily bulbs. The largest islands are Great Bermuda, also known as Long or Main Island (area 13 sq. m.), St. George, Somerset, Ireland, and St. David. The capital is Hamilton. There are no rlys., but many excellent roads and causeways. There are telegraphic, wireless, and telephonic services, and steamship communication is

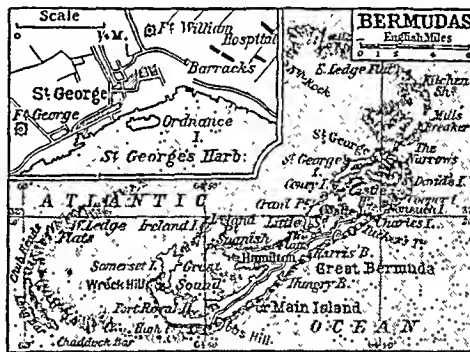
of Clairvaux, Aug. 20, 1153, the 163 monasteries founded by him had increased to 343. The Cistercian order of Bernardine nuns is named after him. He was canonised in 1174. His writings consist chiefly of sermons and hymns. See Cistercians.

BERNBURG. Town of Anhalt, Germany. On the Saale, about 23 m. S. of Magdeburg, it consists of the old town, the new town with a newer suburb, Waldau, and the so-called Bergstadt or hill-town on the other side of the river. The three were at one time separate municipalities, being united early in the 19th century. Situated in the chief salt-mining district of Germany, its manufactures include chemicals, pottery, and paper. At one time the capital of the little duchy of Anhalt-Bernburg, Bernburg is a very old town, with a moated castle on the Bergstadt. Pop. 34,305.

BERNE OR BERN (Ger. Bären, bears). City of Switzerland, capital of Bern canton, and, since 1848, of the Swiss Confederation. Picturesquely placed on a sandstone bluff 1,788 ft. above sea level, it is enclosed on three sides by the Aar, here crossed by six bridges. Berne is an important rly. junction; it has direct communication with the Simplon rly. and N. Italy by the Loetschen tunnel through the Bernese Oberland. The Minster is a late-Gothic church, built 1421-1598. In the Bears' Den bears have been kept continuously.

The Historical Museum contains relics of Berne's historic past, and also the original MS. of the *Wacht am Rhein*. Other noteworthy buildings are the university, founded 1834, the art and natural history museums, the 15th century town hall and the towers of the old town walls.

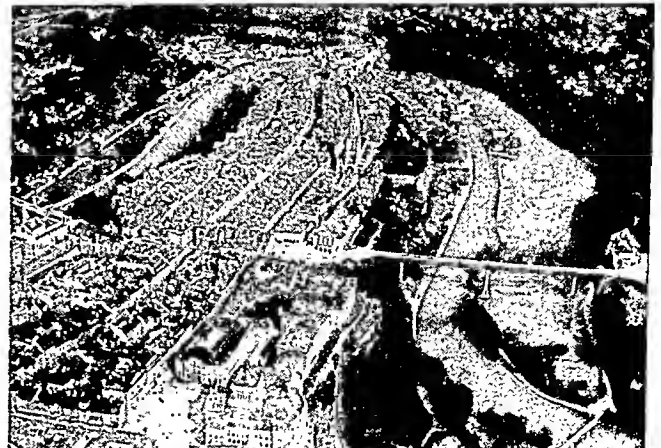
Berne has few manufactures. It is the seat of several international bureaux, such as the Universal Postal Union, the International Telegraphic Union, and the Transport and Copyright Associations. Founded in 1191, Berne became a free city of the Empire in 1218. It allied itself with the three Forest Cantons, 1323, and joined the Swiss Confederation, 1353. Pop. 109,020.



Bermudas. British islands off the coast of N. America. Of some 360 isles and islets only 20 are inhabited

BERNADOTTE. Name of a family members of which have been kings of Sweden since 1818. Jean Baptiste Bernadotte, son of a French lawyer, Henri Bernadotte, rose to the rank of marshal in Napoleon's armies, and in 1810 was selected as successor to the king of Sweden, Charles XIII. He was virtually ruler of the country from that time, and succeeded to the throne as Charles XIV (q.v.), king of Sweden and Norway, in 1818.

BERNARD OF CLAIRVAUX (1090-1153). Saint and theologian. Born near Dijon of a noble Burgund family, when about 23 he entered the Cistercian monastery at Cîteaux. Two years later he was sent to found a branch house at Clairvaux in Champagne, of which he became abbot. His sanctity, learning, and preaching powers made Clairvaux famous throughout Europe. In 1128 he was secretary to the Council of Troyes, and drew up the outline of the rule of the Templars. Within the Cistercian order he accomplished many reforms, and when he died in his abbey



Berne. Air view showing the city in an elbow loop of the Aar, the bridges to left and right being the Kornhaus and Kirchenfeld respectively. The great building in the centre foreground is the Federal House of Representatives

Aerofilm

The Convention of Berne, an agreement to bring about reciprocity of copyright on uniform lines, was signed at Berne, Sept. 5, 1887, by representatives of Great Britain, Belgium, France, Germany, Haiti, Italy, Spain, Switzerland and Tunis. Other states afterwards came in. Modifications were introduced by conventions in Paris in 1896 and Berlin in 1908. See Copyright.

BERNERS, JOHN BOURCHIER, 2ND BARON (1467-1533). English diplomat and author. Succeeding his grandfather in 1474, he went on missions to France, 1514, and Spain, 1518, on behalf of Henry VIII, and acted as the king's deputy at Calais, 1520-33. He translated Froissart's *Chronicles* (1523 and 1525) and *The Golden Book of Marcus Aurelius*.

The barony which Berners inherited fell into abeyance on his death, remaining so until 1720. It was again in abeyance from 1743 to 1832, when it was secured by a member of the Wilson family, a descendant in the female line of Jane Knyvet, daughter of Sir John Bourchier. In 1871 it passed to Emma, wife of Sir H. T. Tyrwhitt, Bart., and it has since been held by the Tyrwhitt family.

BERNESE OBERLAND. Division of the Swiss Alps. Mainly in canton Berne, and N. of the Rhône, it extends N.E. from the Lake of Geneva nearly to the Lake of Lucerne. The term embraces also Hasli, Lauterbrunnen, and other valleys, and such resorts as Interlaken, Meiringen, Mürren, Grindelwald, Adelboden, Kandersteg, Château d'Oex, and Thun. The range increases in height from W. to E., culminating in the Finsteraarhorn. Among the next highest summits are the Aletschhorn, the Jungfrau, the Mönch and the Schreckhorn.

BERNHARDI, FRIEDRICH VON (b. 1849). German soldier and writer. Born at St. Petersburg while his father was attached to the German embassy, Nov. 22, 1849, he entered the German army in 1869, retiring in 1909.

Bernhardi had become a keen follower of Treitschke and his gospel of force, and in 1912 wrote *Germany and the Next War*, which ran into many editions and was translated into English in the same year. In this book he advocated the theory that civilization could make progress only by warfare. In 1921 appeared his book on the Great War, *Deutschlands Heldenkampf, 1914-18*.

BERNHARDT, SARAH (1845-1923). French actress. Born in Paris, Oct. 23, 1845, she became a pupil at the Conservatoire, 1860, won several prizes, and made her stage



Sarah Bernhardt,
French actress
Downey

début in Racine's *Iphigénie* at the Comédie Française, 1862. Her first appearance in London was at *The Gaiety*, June 2, 1879, in *Phédre*; at New York, Nov. 8, 1880, as Adrienne Lecouvreur. Other rôles, in all of which temperament was predominant, included *Fédora*, *Théodora*, *La Tosca*, *Joan of Arc*, *Hamlet*, *Marguerite Gautier*, *Magda*, *L'Aiglon*, *Frou-Frou*, *Cleopatra*, and *Queen Elizabeth*.

It is doubtful if any actress played so many parts so well. Sarah Bernhardt's magnetic personality, incontestable genius, and golden voice were themes of international eulogy. Apart from the stage, she achieved distinction as painter and sculptor. What was described as the first volume of her *Memoirs* appeared in 1907. She died Mar. 26, 1923.

BERNICIA. Name of an old English kingdom, corresponding roughly to the modern Northumberland. For about a hundred years it had its own kings, and its capital was Bamburgh. See Northumbria.

BERNINI, GIOVANNI LORENZO (1598-1680). Italian sculptor. Born at Naples, he settled in Rome, where he planned a palace for Pope Urban VIII and the great colonnade of St. Peter's. Of his statuary the most famous piece is the group *Apollo and Daphne*. He died in Rome, Nov. 28, 1680.

BERNOULLI OR BERNOULLI. Name of a family noted for its mathematicians. Originally settled at Antwerp, they removed to Switzerland in the 17th century, and eight descendants of Nicholas Bernoulli (1623-1708) achieved distinction.

James (1654-1705), a son of Nicholas, was professor of mathematics at Basel. He extended the use of the differential calculus and determined various curves. Another son, John (1667-1748), was professor successively at Groningen and Basel, and investigated similar problems; and a grandson, Nicholas (1687-1759), was professor of mathematics at Padua and of law at Basel.

Of John Bernoulli's three sons, Nicholas (1695-1726) became professor of jurisprudence at Berne, and from 1725 was professor of mathematics at St. Petersburg. John's second son, Daniel (1700-82), was professor of mathematics at St. Petersburg, of anatomy and physics at Groningen, and of anatomy, botany and physics at Basel. His younger brother John (1710-90) was professor of mathematics at Basel, and contributed by his investigations to the theory of light and heat.

Of the latter's two sons, John (1744-1807) was appointed astronomer to the academy of Berlin in 1763, and wrote books on astronomy; and Jacob (1758-89) succeeded his uncle, Daniel, as professor of physics at Basel.

BERNSTEIN, EDUARD (b. 1850). German socialist. Born in Berlin, June 1, 1850, he was forced to leave Germany on account of his pronounced socialist views, and he resided in London from 1888 until 1901. Bernstein was a member of the Reichstag, 1902-6, and again in 1912. During the Great War his full support was given to the Minority Socialists who opposed it. His writings include *Social Democracy of To-day*, 1905, and a study of the Revolution in Germany, 1921.



Eduard Bernstein,
German socialist

BERNSTEIN, HENRY LÉON GUSTAVE CHARLES (b. 1875). French dramatist. He was born in Paris of Jewish parents. His plays, generally marked by strong emotion, include *Le Marché*, 1900; *Joujou*, 1902; *La Griffe*, 1905; *Le Voleur*, 1906; *Samson*, 1907; *Israël*, 1908; *L'Assaut*, 1912 (English versions of the last three were produced); and *Le Secret*, 1913.

BERNSTORFF, JOHANN HEINRICH, COUNT (b. 1862). German diplomatist. Born in London, Nov. 4, 1862, he entered the German army in 1881. He joined the diplomatic service in 1889, and in 1908 was appointed ambassador to the U.S.A. He held that post until Feb., 1917, when he was given his passports by President Wilson. In 1919 he was one of those who discussed the terms of peace presented by the Allies.

BERRE, ÉTANG DE. Lagoon of France, in the department of Bouches-du-Rhône. It is connected with the Mediterranean by the narrow Canal-de-Bouc, about 3 m. long, and has an area of about 60 sq. m.

BERRUGUETE, ALONZO (c. 1450-1561). Spanish artist. Born at Paredes de Nava, he

studied under his father, painter to Philip I of Spain. In 1503-4 he visited Italy, where he came strongly under the influence of Michelangelo, the result being that his art combines the qualities of both the Italian and the Spanish schools. He produced some wonderful altar pieces—combinations of painting and sculpture—for the churches of Notre Dame de San Lorenzo and the Benedictine convent of S. Benito at Valladolid. Other typical works are at Ventosa, Palencia, and Toledo, where he died.

BERRY (A.S. *berie*). Succulent fruit with several seeds immersed in pulp. Familiar examples are the grape and gooseberry. Some of the fruits popularly known as berries are not so in the botanical sense. See Blackberry; Raspberry, etc.

BERRY OR BERRI. One of the provinces of France before the Revolution. It is now covered by the departments of Cher and Indre. In early times it was inhabited by the Bituriges, and its capital was Bourges. In the 13th century it came under the rule of the king of France and in 1360 Berry was made a duchy for John, a son of John II. The title duke of Berry was borne by one or other of the Bourbons until 1820.

Charles Ferdinand, duc de Berry (1778-1820), son of Charles X, served with the royalist army 1792-97, went to England in 1801, and returned to France at the restoration of 1814. He was stabbed to the heart in Paris, Feb. 13, 1820. Seven months later a son, the duc de Bordeaux, better known as the comte de Chambord, was born to him.

BERRY, SIR JAMES GOMER (b. 1883). British newspaper proprietor. The third son of John Mathias Berry, an alderman of Merthyr Tydfil, he was associated with his elder brother, Baron Camrose (q.v.) in acquiring control of many important newspapers and journals. He became deputy-chairman of The Amalgamated Press, Ltd., Allied Newspapers, Ltd., The Daily Sketch and Sunday Graphic, and part proprietor of The Daily Telegraph and a number of other journals.



Sir J. Gomer Berry,
Newspaper proprietor
Russell

Apart from his share in these great publishing enterprises, Sir Gomer Berry is a director of various large industrial undertakings, and takes a prominent part in philanthropic work, being chairman of the Infants' Hospital, to which in May, 1928, he made a gift of £50,000 in memory of his wife, who died Feb. 1, 1923. He became a baronet in 1928.

BERSAGLIERI (Ital. sharpshooters). Name given to regiments of Italian infantry which are recruited from selected men of exceptional physique.

They do not act as a corps d'élite, but one regiment is allotted to each army corps. Their picturesque head-dress—consisting of scout's hat with drooping plume of black cocks' feathers—and their custom of marching at the trot have always attracted attention. They correspond to the English rifle regiments and light infantry and the French Chasseurs à pied.



Bersaglieri. Soldier
in marching kit

BERSERK. Viking champion of the 10th and 11th centuries, generally included as body-guard in the households of Scandinavian kings. The name is variously explained

as bare sark, going into battle without mail coats; bear sark, wearing animal skins; and as descendants of one Berserker. The old sagas name them wolf-coats and bear-coats. Their rage in battle became proverbial.

BERT, PAUL (1833-86). French scientist and politician. Born at Auxerre, Oct. 17, 1833, he became a doctor of medicine. His valuable and successful experiments concerned the grafting of skin, the subject of air pressure on living organisms, and the influence of light on plants. In 1886 he was sent out to Hanoi as resident-general in Annam and Tongking, and died there, Nov. 11, 1886.

BERTHA (d. c. 615). Queen of Kent. She was the wife of Ethelbert, king of Kent. A Christian princess, she influenced Ethelbert to be baptised in 597, and gave S. Augustine a dwelling place in Canterbury.

BERTHELOT, PIERRE EUGÈNE MARCELLIN (1827-1907). French chemist. He was born in Paris, Oct. 29, 1827, and in 1854 took his degree of doctor of science.



P. E. M. Berthelot,
French chemist
Gerschet

In 1865 he was appointed to the chair of organic chemistry at the Collège de France, and commenced his researches in thermo-chemistry, of which branch of the science he was the creator. Afterwards he turned his attention to the study of explosives, and prepared synthetically acetylene, benzene, methane, formic acid, and methyl and ethyl alcohols. He was minister of public instruction, 1886-7, and of foreign affairs, 1895-6. In 1889 he succeeded Pasteur as secretary of the Academy of Sciences. He died Mar. 18, 1907.

BERTHIER, ALEXANDRE (1753-1815). French soldier. He fought under Lafayette in America, and after the French Revolution became chief of staff to Napoleon, from the Italian campaign, 1795, onwards. He was made marshal by Napoleon 1804, prince of Neuchâtel, 1806, and prince of Wagram, 1809. On the emperor's downfall in 1814 he made peace with Louis XVIII. He died at Bamberg, June 1, 1815.

BERTHOLLET, CLAUDE LOUIS, COUNT (1748-1822). French chemist. Born at Talloire, in Savoy, Dec. 9, 1748, he succeeded Macquer in 1784 as superintendent of dyeing processes at the Jardin du Roi, Paris, and published *The Art of Dyeing* (Eng. trans. A. Ure, 1824). He was the first to propose the use of chlorine for bleaching fabrics. At the beginning of the Revolution Berthollet showed how to make saltpetre for the manufacture of gunpowder in Paris. His work on national defence led him to discover also potassium chlorate, cyanogen chloride, and fulminating silver. He died Nov. 6, 1822.

BERTHON, EDWARD LYON (1813-99). British inventor. Born in Finsbury Square, London, Feb.

20 1813, he was of Huguenot descent. After six years of European travel, in 1841 he went to Cambridge, and in 1845 was ordained. He had a living at Parham, 1847, and in 1849 became vicar of Romsey, where he



Berthon. Collapsible canvas boat carried by submarines and destroyers

remained until his death, Oct. 27, 1899. Berthon's claim to remembrance rests on his inventions. He conceived the idea of propelling ships by a screw, and invented an instrument known as Berthon's log for registering their speed, and a collapsible boat, constructed of canvas upon wooden stretchers. Owing to the handiness with which they can be stowed, all destroyers and submarines in the British navy carry Berthons.

BERTIE, FRANÇOIS LEVESON BERTIE, 1st Viscount (1844-1919). British diplomatist. He was a younger son of the 6th earl of Abingdon and was born Aug. 17, 1844. He entered the Foreign Office in 1863, and was made assistant under-secretary in 1894. In 1903 he was appointed ambassador to Rome, being then Sir Francis Bertie, but two years later he was transferred to Paris. There he remained until 1918. In 1915 he was made a peer, as Baron Bertie of Thame, and on his retirement he was rewarded with a viscounty. He died in London, Sept. 26, 1919.

BERTILLON, ALPHONSE (1853-1914). French criminologist. Son of Louis Adolphe Bertillon (1821-1883), one of the founders of the Paris school of anthropology, a doctor and a statistician, he was born in Paris and became head of the identification department of the Paris police. In 1879 he evolved his system for measuring and so identifying criminals.



Bertillon Measurements. British system of photographing the subject with a mirror showing profile

length of left foot, length of left forearm. In the British service Bertillonage has been discarded for the finger-print system.

BERTRAM, CHARLES JULIUS (1723-65). British literary forger. He was born in London, and was teacher of English in the Royal Marine Academy at Copenhagen, where he died. To obtain notoriety he carried out a remarkable literary fraud. In 1747 he wrote to William Stukeley (1687-1765), the antiquary, stating that a friend possessed a MS. containing a history of Roman Britain by a certain Richard of Westminster, together with a map. Stukeley asked Bertram to procure him a facsimile copy, which duly arrived. Stukeley then identified the supposed Richard of Westminster with Richard of Cirencester (d. 1400), a monk of S. Peter's, Westminster, and author of a chronicle of the deeds of the kings of England. The copy was generally accepted as made from a genuine MS. and historians used it as an authority. In 1866-67 Dr. Woodward, librarian at Windsor, exposed the fraud in *The Gentleman's Magazine*.

BERTRAND DE BORN (c. 1140-1215). French troubadour. He was born in Périgord, and as vicomte de Hauteforte played a conspicuous part in the feuds which the three sons of Henry II of England carried on against their father. On the death of Henry II he accompanied Richard I to Palestine, and the

last 20 years of his life he spent at the abbey of Dalon. Over forty of his poems are extant.

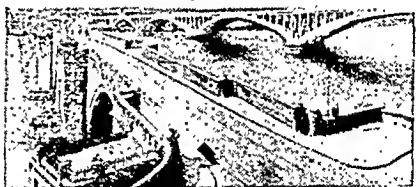
BERVIE OR INVERBERVIE Royal burgh, seaport, and market town of Kincardineshire, Scotland. It stands at the mouth of Bervie water, 13 m. N.E. of Montrose by the L.N.E. Rly., and manufactures woollens, yarns, and chemicals. Market day, Wed. Pop. 1,041.

BERWICK, JAMES FITZJAMES, DUKE OF (1670-1734). French soldier. Born at Moulins, in Bourbonnais; Aug. 21, 1670, he was a natural son of James II by Arahella Churchill, sister of the duke of Marlborough. He was made a duke before his father lost his throne, after which he served with the French forces in Ireland and Flanders, being made a marshal in 1706. In the war with Spain he was in command of the army which defeated the allied English and Portuguese forces at Almanza in 1707. He was killed at the siege of Philippsburg, June 12, 1734. In 1930 a descendant, the Duke of Alba and Berwick, became foreign minister of Spain.



James Fitzjames,
Duke of Berwick

BERWICK-UPON-TWEED. Borough, seaport, and market town of Northumberland. At the mouth of the Tweed, 67 m. N.W. of Newcastle-upon-Tyne, on the L.N.E. Rly., it comprises with Spittal and Tweedmouth the county of the borough and town of Berwick-upon-Tweed. The town communicates with



Berwick. Royal Tweed Bridge, of ferro-concrete, opened in 1928. In foreground is the 17th cent. bridge

the S. bank of the Tweed by several bridges, one opened in 1928 supplementing the 17th century stone one, too narrow for modern traffic, and another a railway viaduct designed by Robert Stephenson. Constantly in dispute between England and Scotland, Berwick was neutral until 1551, when it was attached to Northumberland in 1885. Market day, Sat. Pop. 12,994.

BERWICKSHIRE. Maritime and border county of S.E. Scotland. It falls into three natural divisions—the Lammermuir Hills in the N., the valley of Lauderdale in the W., and the richly fertile district of Merse in the S.E. Its length N. to S. is about 21 m.; breadth E. to W., about 31 m.; area, 457 sq. m. The steep and rocky coast affords little shelter to the few but important fishing harbours. The loftiest summit is Meikle Sava Law, 1,749 ft., on the Haddington border. Two rivers flow to the sea, the Tweed, which partly separates the county from England, and the Eye. More than half the county is under cultivation, and the fisheries are among the most valuable in Scotland. The L.N.E. Rly. traverses the county. Duns is the co. town; others are Eyemouth, Coldstream, and Lauder, a royal burgh. Berwickshire and Haddingtonshire unite to return one member to Parliament. Pop. 26,200.

LITERARY ASSOCIATIONS. Berwickshire has association with much of the old ballad literature of the Border. At Dryburgh Abbey

Sir Walter Scott is buried. There are many memories of Scott and his works. Fast Castle, Coldingham, is the Wolf's Crag of the Bride of Lammermoor, which takes its title from the Lammermoors of the county.

BERWYN MOUNTAINS. Range in N. Wales, between Montgomeryshire and Merionethshire. Moel Soch (2,713 ft.) and Cader Idrion (2,568 ft.) are the highest summits.

BERYL (Gr. beryllon). Generic term including several of the finest gem stones, such as the emerald, the aquamarine, morganite, and euclase. The beryl of the jewellers is a pale green stone, while the pure yellow-green variety is called the gold beryl, and is frequently classed as a chrysoberyl. Chemically, beryl is a silicate of beryllium and aluminium; it is found in the Ural mountains, Hungary, Brazil, and many other countries.

BERYLLIUM. Metal related to barium, calcium, magnesium, and strontium, and the base of one of the so-called alkaline earths. Chemically it is an element, with an atomic weight of 9.1 and the atomic number 4; its symbol is Be. It is hard, in colour of a bright, silvery white; its melting point is 1,400° C. It is found in nature in the mineral gems, beryl, emerald or aquamarine, in euclase, and in chrysoberyl.

BERZELIUS, JÖNS JAKOB, BARON (1779-1848). Swedish chemist. Born at Väverunda, near Linköping, Aug. 29, 1779, he was educated at Upsala University, and was appointed professor of botany and pharmacy at Stockholm University in 1807. He spent ten years in determining with great exactness the atomic and molecular weights of more than 2,000 chemical substances, the results being published in his book on fixed proportions and weights of atoms. He invented the system of symbols used for the chemical elements, and discovered selenium, selenic acid, cerium, and thorium. He died Aug. 7, 1848.

BES. Egyptian deity. Of Sudanese origin, he is represented as a bandy-legged dancing dwarf, wearing a feathered headdress and the tailed pelt of a dog-like leopard.

BESANCON. Town of France, capital of the department of Doubs. On a peninsula on the river Doubs, 76 m. by rly. E. of Dijon, it is the seat of an archbishop. The cathedral of S. Jean dates in part from the 11th century, and the Gothic and Renaissance palaces of Cardinal Granvelle from the 16th century. It has a university, a fine library, and an observatory. The making of watches and clocks is carried on. It was the capital of Franche-Comté, became a free city in 1184, and belonged to Spain from 1648 to 1678, when it was ceded to France. Victor Hugo was a native. Pop. 58,525.

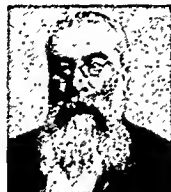
BESANT, ANNIE (b. 1847). British Theosophist. Born Oct. 1, 1847, daughter of William Page Wood, she was married in 1867 to the Rev. Frank Besant, brother of Sir Walter Besant, vicar of Sibsey, Lincolnshire, from whom she was legally separated six years later. Mrs. Besant joined the National Secular Society in 1874, and for some ten years was associated with Charles Bradlaugh. She then became a socialist. In 1889 Mrs. Besant came under the influence of Madame



Mrs. Annie Besant,
British Theosophist
E. H. Mills

Blavatsky, and henceforth devoted herself to the theosophical cause. She founded a college and a school at Benares, and in 1907 was elected president of the Theosophical Society. Identifying herself with the Indian Nationalist movement, Mrs. Besant was interned for a time in 1917. Her Autobiography appeared in 1893.

BESANT, SIR WALTER (1836-1901). British author. Born at Portsea, Aug. 14, 1836, he was educated at King's College, London, and Christ's College, Cambridge. In 1871 he began to collaborate with James Rice, editor of *Once a Week*. This partnership, which lasted until Rice's death in 1882, resulted in the production of a number of novels, including *Ready Money* (1872), *Butterfly* (1876), and *The Chaplain of the Fleet* (1881). Henceforward Besant worked singly as a novelist. The best of his later novels are *All Sorts and Conditions of Men* (1882); *Dorothy Forster* (1884); *Children of Gibeon* (1886); and *The World Went Very Well Then* (1887). The last seven years of his life he spent



Sir Walter Besant,
British author
Elliott & Fry

include *The Virgin Goddess*, 1906; *Olive Latimer's Husband*, 1909; *Don*, 1909; *Lady Patricia*, 1911; *Kings and Queens*, 1915; *Kultur at Home*, 1916; *A Run for his Money*, 1916; and *The Ninth Earl*. He collaborated with the author in a dramatized version of H. G. Wells's *Kipps*, 1912.

BESIKA BAY. Opening on the N.W. coast of Asia Minor. Opposite the island of Tenedos, it was used as a naval station by the British Fleet in 1853-54, and was a base of operations in the Russo-Turkish War of 1877-78.

BESKID MOUNTAINS. Name given to the northern portion of the Carpathian system, between Galicia on the N. and Slovakia on the S. The Western Beskids extend from the W. side of the Jablunka pass to the valley of the Dunajetz, and the Eastern Beskids from the Dunajetz to the Lupkov pass. Fighting took place in the Beskid passes between the Russians and the Austrians in 1914-15. Early in the latter year the Russians conducted a great offensive in the Carpathians, and by April 9 had gained many of the summits, but by May 16 had lost them.

BESNARD, PAUL ALBERT (b. 1849). French painter and etcher. Born in Paris, June 2, 1849, he studied at the Ecole des Beaux Arts, first exhibited at the Salon, 1868, and carried off the Prix de Rome, 1874. After two years in London with his wife he returned to astonish Paris with some paintings for the Ecole de Pharmacie in which he applied his theories to decoration.

BESSARABIA. Eastern portion of Rumania, formerly a government of S.W. Russia. It lies between the Dniester, the Pruth, and the Black Sea, and has an area of 17,146 sq. m. The country is generally low and flat, except in the N., where it is relieved



Berwickshire. Border county in the S.E. of Scotland. It was frequently overrun by the Scots and English in their struggles for the possession of Berwick.

by wooded offshoots of the Carpathians. It is watered by the tributaries of the Dniester and Pruth. Large quantities of wheat, maize, fruit, flax, and tobacco are cultivated. The leading industry is stock rearing. Marble, salt, and other minerals are obtained, and the forests provide timber. The chief towns are Kishinev, the capital, Bender, Ismail, and Akkerman. The pop. of 2,344,800 is very mixed, the predominating races being Moldavians, Little Russians, Jews, and Bulgarians.

Bessarabia figured in the Great War, considerable operations taking place between Austro-Germans and Russians on the frontier in 1915 and 1916. When Russia deserted the Allied cause in 1917 Bessarabia proclaimed itself an independent republic, and asked Rumania for aid against the Bolsheviks. The Rumanian Government sent troops, but by the Treaty of Bukarest (q.v.) they evacuated the territory. By a convention signed Oct. 29, 1920, the sovereignty of Rumania over Bessarabia was recognized by the Powers.

BESSBOROUGH, EARL OF. Irish title borne since 1739 by the family of Ponsonby. William Ponsonby, a landowner in co. Kilkenny and M.P. for that county, was made Baron Bessborough in 1721 and Viscount Duncannon in 1722. His son, the 2nd viscount, was made earl of Bessborough in 1739 and a peer of the United Kingdom in 1749. Most of the succeeding earls took some part in public life, John William, the 4th earl (1781-1847), being lord lieutenant of Ireland, and Vere, the 9th earl (b. 1880), as Viscount Duncannon, was M.P. for Dover, 1913-20. The family seat is Bessborough, co. Kilkenny.

BESSEMER, SIR HENRY (1813-98). British scientist and inventor. Of Huguenot stock, he was born at Charlton, near Hitchen, Jan. 19, 1813. His father was Anthony Bessemer, an engineer, who set up a small works at Charlton for the manufacture of gold chains and later started type founding. Here his son gained some valuable experience, but soon he settled in London, where he was hard at work putting his ideas into practice. He invented dies for stamps which made fraud in their use almost impossible; he made lead pencils from waste plumbago; he improved the casting and setting of type, and he made bronze powder by a secret process, deriving thereby much profit.



Sir Henry Bessemer,
British inventor
Elliott & Fry

But his great invention was the making of steel by the process named after him. He was knighted in 1879, and died March 15, 1898.

THE BESSEMER PROCESS. By this process air is forced through a molten mass of iron in a special type of furnace known as a converter, thus removing impurities such as carbon, silicon, sulphur, phosphorus and manganese. The resulting metal is a highly purified iron, but to make it tractable a small proportion of carbon must be replaced, and the metal must be freed from an appreciable quantity of oxygen it contains. This is effected by adding a quantity of an alloy such as ferro-manganese or spiegeleisen, and again forcing an air blast through the mass, when a Bessemer mild steel results. The slag removed in the Bessemer process is a valuable fertiliser.

BEST, SIR ROBERT WALLACE (b. 1856). Australian politician. Born at Fitzroy, Victoria, June 18, 1856, he became a barrister and mayor of his birthplace.



Sir Robert Best,
Australian politician
Elliot & Fry

In 1889 he was sent to the legislative assembly, and in 1894 became minister of lands in Victoria. On the foundation of the Commonwealth, in 1901, he became a senator. In 1907-08 he was made leader of the government and deputy prime minister under Deakin, and in 1909-10 was minister of trade and customs. He sat in the House of Representatives, 1910-22. He was knighted in 1908.

BESTIARY (Lat. bestia, wild beast). Name given to a book describing, in word and picture, the animals of the world. Popular in the Middle Ages, these books included fabulous animals, such as the unicorn, and exhibit the credulity and ignorance and also some of the nobler features of their time.

BETA (β, β). Second letter of the Greek alphabet. It has the same position in the Hebrew alphabet, where it is called Beth (house) from a fancied resemblance in its outline. In astronomy β generally denotes the second brightest star in a constellation. It appears as the name of one of the earliest British airships, and is used in connexion with certain chemical combinations.

BETAINE. Alkaloid occurring in beet root and beet root molasses. It can also be made synthetically by the interaction of monochloroacetic acid and tri-methyl-amine. Betaine hydrochloride is known under the name of acidol, and is used in the treatment of gastric affections due to a deficiency of hydrochloric acid. Betaine hydrochloride liberates hydrochloric acid in the stomach.

BETEL NUT. Fruit of the Betel palm (Areca catechu; see illus. p. 119). A handsome tree, which rises to a height of about 30 ft., it is a native of India, and has feather-like leaves from 3 ft. to 6 ft. long. The fruit is the size of a hen's egg, the rind enclosing a single "nut" or seed as big as a nutmeg.

The betel pepper (Piper betel) is a trailing or climbing shrub, native of the E. Indies. The leaves, with a little lime and a slice of the areca nut, are chewed. The combination acts as a stimulant to the salivary glands and digestive organs, and turns the saliva a bright red.



Betel Pepper, leaves
and flower spikes.

Beth. Hebrew word meaning house. It is of frequent occurrence in place names, such as Bethel and Bethlehem.

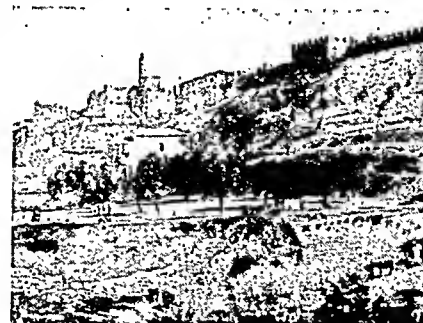
BETHANY (Heb. house of dates). Village of Palestine. It lay 2 m. E. of Jerusalem, on the S.E. slope of the Mount of Olives. To-day the site is occupied by the hamlet of El Azariyeh or Lazariyeh, and it has remains of a 12th century convent, beneath which is the reputed grave of Lazarus. Bethany is frequently mentioned in the N.T.; it was the home of Lazarus and his sisters, and the reputed scene of the Ascension. In the Great War it was occupied by the British, Dec., 1917.

BETHEL (Heb. house of God). Ruined town of Palestine. It lies 12 m. N. of Jerusalem, at a height of 2,880 ft. Called Luz before Jacob's time, the present village is called Beitin. It was here that Abraham pitched his tent and Jacob dreamed. It became a resting-place of the ark, a royal residence, a national shrine, and an idolatrous centre. In the Great War it was occupied by the British on Dec. 30, 1917.

The word Bethel is sometimes applied to a seamen's church or chapel. It also came to be used in England and Wales for a Nonconformist place of worship, hence the phrase Little Bethel.

BÉTHENCOURT, JEAN DE (c. 1360-1422). French explorer. Of noble birth, he became a courtier in the train of Charles VI of France. His claim to fame rests on his attempt to conquer the Canary Isles, whither he sailed in 1402. This was not altogether successful, although something was accomplished by his companion, Gadifer de la Salle, and Béthencourt received from his patron, the king of Castile, the empty title of king.

BETHESDA. (Heb. house of mercy or house of the spring) Name of a pool or public bathing place in ancient Jerusalem. The exact site is unknown, but some identify



Bethlehem. David's royal city, the birthplace of Christ. Known now as Beit Lahm, it is 5 m. S.W. of Jerusalem

it with a natural spring S.E. of the Temple. Its waters were supposed to possess miraculous powers, and it was frequented by the blind, the lame and other sufferers. See John 5.

BETHESDA. Urban district of Carnarvonshire, Wales. It is 5 m. S.E. of Bangor on the L.M.S. Rly. Named after its Nonconformist chapel, it has extensive slate quarries. The slate is conveyed to Port Penryn by a light rly. Pop. 4,134.

BETH HORON (Heb. house of the hollow way). Two neighbouring villages of Palestine. They lie 11 m. N.W. of Jerusalem and command the ancient main pass from the coast to the city. Through the pass Joshua drove the Amorite kings (Josh 10), and here Judas Maccabaeus won a victory over the Syrians (1 Mac 3), about 166 B.C. The two villages, now called Upper and Lower Beit-ur (Beit-ur el Foqa and Beit-ur et Tahta), were the scene of bitter fighting with the Turks before the British captured Jerusalem in Dec., 1917.

BETHLEHEM (Heb. house of bread). Town of Palestine, birthplace of Jesus Christ and of King David. The modern Beit Lahm,

it lies 5 m. S.W. of Jerusalem, and contains the famous grotto of the Nativity said to have been built by the Empress Helena, wife of Constantine, on the spot where the Saviour was born. The Church of the Nativity, built over the grotto or crypt, is perhaps the oldest church in the world. It is surrounded by several chapels and convents belonging to various Christian communities. During the Great War Beit Lahm was captured by British troops on Dec. 8, 1917. Pop. 6,658.

BETHLEHEM. Borough of Pennsylvania U.S.A., in Northampton co. On the Lehigh river and canal, it is 56 m. N. of Philadelphia and is served by the New Jersey Central and other rlys. It has iron and steel works, silk and knitting mills, and paint works. It is the American headquarters of the Moravian sect and an educational and musical centre. Bethlehem was incorporated in 1845; in 1904, West Bethlehem was annexed. Pop. 62,828.

Two bridges connect Bethlehem with South Bethlehem, a centre of the iron and steel industry, containing the enormous works of the Bethlehem Steel Corporation. It is the seat of Lehigh University and contains a women's college and a Moravian seminary.

BETHLEHEMITES. Name given to three religious orders. One, mentioned by Matthew Paris, was granted a house at Cambridge in 1257; the members wore a white habit with a red and blue star on the breast. Another order was founded in 1660 by a Franciscan brother at Guatemala, to attend the sick and teach in schools; this order spread widely in Latin America, and its members were placed under the rule of St. Augustine in 1687. It was suppressed in 1820.

A military order known as the Knights of Bethlehem was instituted by Pope Pius II (1456-64) to defend the island of Lennos against the Turks, but it was suppressed.

BETHLEN, STEPHEN, COUNT (b. 1874). Hungarian statesman. Born Oct. 8, 1874, he belonged to a family that had long been settled in Transylvania, where they had large estates.

In 1901 he entered the Hungarian parliament, where for 20 years he was a prominent member of the opposition. In 1921, after he had taken a leading part in crushing the Bolshevik movement led by Bela Kun, he was chosen prime minister of Hungary, and he was still holding that position in 1930. He had to deal with the attempts of the emperor Charles to regain the throne and with serious financial and economic difficulties. He reformed the land laws and set up a new electoral system, but his great work was carrying through a scheme of financial reconstruction.



Count Bethlen,
Hungarian statesman

BETHMANN HOLLWEG, THEOBALD VON (1856-1921). German statesman. Son of Enkel von Bethmann-Hollweg, a Göttingen

professor, he was born at Hohenknov, Eberswalde, Sept. 29, 1856. Educated at Strasbourg, Leipzig, and Berlin, he entered the civil service in 1879. He was made president of Brundenburg in 1901 and vice-president of the Prussian ministry in 1907. In 1909 he was chosen by the emperor to be chancellor and minister president of Prussia, and was holding

those positions when the Great War broke out. In numerous speeches in the Reichstag, Bethmann-Hollweg defended the action of Germany. During the latter part



Theobald von
Bethmann Hollweg,
German statesman

of 1916 he coquetted with a movement in Germany towards democracy, but the German military party would not countenance him, and their opposition led to his fall, July 13, 1917. In 1919 Bethmann-Hollweg published a book justifying his conduct in the war. He died Jan. 2, 1921.

BETHNAL GREEN. District of London. It is one of the 28 metropolitan boroughs, and since 1885 a parliamentary borough, returning two members. It lies E. of Shoreditch, S. of Hackney, and N. of Stepney. Its industries include the making of furniture, boots, and matchboxes, and the weaving of silk. The museum, opened in 1872, in Cambridge Road, is a branch of the Victoria and Albert Museum. Part of Victoria Park is in the borough, as are also Oxford House and a chest hospital. The L.N.E. Rly. serves the borough. Pop. (1921) 117,238.

BETH-PEOR (Heb. house of Peor). Place near Nebo, in Moab, where was a sanctuary to Baal (Baal-Peor, Num. 25). It was one of the last resting-places of the Israelites before they entered Canaan, and near the burial-place of Moses (Deut. 3, 4, 34; Josh. 13).

BETHPHAGE (Heb. house of green figs). Village of Palestine. It occupied a site, the exact location being unknown, on the Mt. of Olives, probably near Bethany. It is mentioned in the N.T. (Matt. 21).

BETHSAIDA (Heb. house of fishing). Town of Galilee. It stood N.E. of the Lake of Galilee, and was the scene of the feeding of the five thousand by Christ (Luke 9). It is called Bethsaida of Galilee to distinguish it from another Bethsaida, W. of the lake, the home of Peter, Andrew, and Philip.

BETHSHEMESH (Heb. house of the sun). Name of three ancient cities of Palestine, and of a temple of On, in Egypt. One city was in Upper Galilee, a fenced city of Naphtali (Josh. 19, 38), and another in Issachar (Josh. 19, 22). The most important of the three was a town of the Levites, in Judah, the principal city of Dan. Here Jehoash captured Amaziah (2 Kings 14). Duncan Mackenzie's excavations (1911-12) revealed its story from the coming of the Semites to Byzantine times. By 1500 B.C. the city was walled, with a strong south gate. The Israelite occupation was finally overthrown by Sennacherib (701 B.C.)

BÉTHUNE. Town of France, in the department of Pas-de-Calais. It is 24 m. by rly. N.W. of Arras, at the junction of two canals and in a rich coal mining region. It has a fine 14th century belfry, and the church of S. Vaast dates from the 16th century. Before the Great War its industries were oil distilling, salt refining, and earthenware and linen manufacture.

In the war Béthune was a principal railway head for the Allies' positions N. of the Lys river, strategically covering their communications with the Channel ports. In 1915 and 1918 the Germans made serious attempts to penetrate the Allied line in front of Béthune, and in April, 1918, they all but captured the town. The British, by recovering Locon northward, restored the Béthune canal defences. The town suffered great damage. Pop. 15,840.

BETHUNE. Sir Edward Cecil (b. 1855). British soldier. Born June 23, 1855, he entered the army in 1875. He saw service in Afghanistan and S. Africa and in the S. African War of 1899-1902, where he raised and commanded Bethune's Horse. He was director-general



Sir Edward Bethune, British Soldier
Russell

of the Territorial Force, 1912-17, and was knighted in 1915. Pron. Beeton.

BETONY (*Stachys betonica*). Perennial labiate herb. It is a native of Europe, N. Africa and W. Siberia, and has woody root-stock and annual stems about 30 ins. high. The leaves are heart-shaped, with rounded teeth, and the flowers red-purple, in whorls. It was used as a remedy for coughs.

BETROTHAL. Formal engagement for marriage. Elaborate usages and rites often attend betrothals. It is a very widespread institution, and among some primitive peoples infants are betrothed with elaborate rites. A fowl given to the girl's mother may suffice, or the boy's mother may drop a rupee into the girl baby's first bath. Infraction of the compact at puberty may be punishable by death, as in Australia. In Mahomedan India spies report upon the girl's looks to the boy's people. Courtship may rest with the maiden; if her offer of a neck ornament be accepted the engagement is complete (New Britain). The bride elect may be sent to a fattening house (S. Nigeria), a fasting hut (Orinoco), or may be secluded for five years in a leaf cage (New Ireland). In China her department is regulated strictly by the ancient Book of Rites.

The Jewish engagement (*shiddukhin*) should be distinguished from the legal betrothal (*qiddushin*). This, by rabbinical law, is the first step in the marriage, both ceremonies being, since the 16th century, performed on the same day.

BETTERMENT. Term employed in England to describe the state of things that exists when a public improvement has been effected, and in consequence thereof the property of an adjacent owner becomes more valuable. Thus, if A owns land in a slum and the local authority clears away the slum and makes a broad street along the site, so that A's land now abuts upon a fine street and increases largely in value, there is said to be a betterment of A's land. At common law A gets all the benefit, but local authorities have power under certain Acts of Parliament to make a charge on A's property for the benefit conferred by the improvements.

BETTERTON, THOMAS (c. 1635-1710). English actor. He was born in London, the son of a cook to Charles I, and was for some time a bookseller's apprentice. In 1659 he became an actor, and in 1661 he joined the company formed by Sir William Davenant at the theatre in Lincoln's Inn Fields. In 1695 he and Mrs. Bracegirdle opened a theatre in Lincoln's Inn Fields, removing in 1705 to the building erected by Vanbrugh in the Haymarket. Betterton made his last appearance on April 25, 1710, as Melantius, in Beaumont and Fletcher's *Maid's Tragedy*, and died three days later. Betterton is buried in the cloisters of Westminster Abbey. Consult Life, R. W. Lowe, 1891.



Thomas Betterton, English actor
Kneller

BETTIA. Town of Bihar and Orissa, India. It is 105 m. by rly. N. by W. of Patna, and contains the mabarajah's palace, an English school, and a Roman Catholic mission founded 1746. Pop. 24,291.

BETTING. Staking money or other valuable consideration upon the still undecided issue of an event. In Great Britain it is associated with many forms of sport, but more particularly with horse racing. The layers and backers resemble the bulls and bears of the stock exchange.

On every racecourse, and also elsewhere, are bookmakers who correspond to stockbrokers. They watch the odds against the various horses, and take money from the public on these terms. Like stocks and shares, the odds against each horse vary from hour to hour; those laid just before the race starts are the starting prices. On important races like the Derby betting begins some months beforehand. This is known as ante-post betting, and it is usual to call over the card, i.e. to fix the betting prices, at one of the chief racing clubs on the night before a race. These



Bettws-y-Coed. The Miner's Bridge, a wild glen near this beautiful Welsh village

and the prices ruling on all recognized racecourses are given in the newspapers for the guidance of intending backers.

Although carried on to a vast extent, betting was long illegal in Great Britain, and bookmakers were occasionally fined. In 1926 a tax on bets was introduced and bookmakers were ordered to take out an annual licence. The tax was reduced in 1928 and abolished in 1929, its place being partly taken by a heavy charge on the telephones used by bookmakers, who must also pay £10 a year for a licence to carry on the business of a bookmaker.

In 1928, too, a law was passed allowing totalisators to be used for betting on racecourses and elsewhere. A tax of 1/2 per cent was put upon the amount of each bet and a Betting Control Board set up to supervise the arrangements. See Bookmaker: Totalisator

BETTWS-Y-COED. Urban district of Carnarvonshire, Wales. It is 4 m. S. of Llanrwst on the L.M.S. Rly. Beautifully situated at the confluence of the Llugwy with the Conway, it is a tourist, fishing, and coaching centre, while the surrounding scenery, with the waterfalls and mountain views, attracts many artists. It was a resort of David Cox, who is said to have painted a signboard for the Royal Oak Inn. Pop. 1,027.

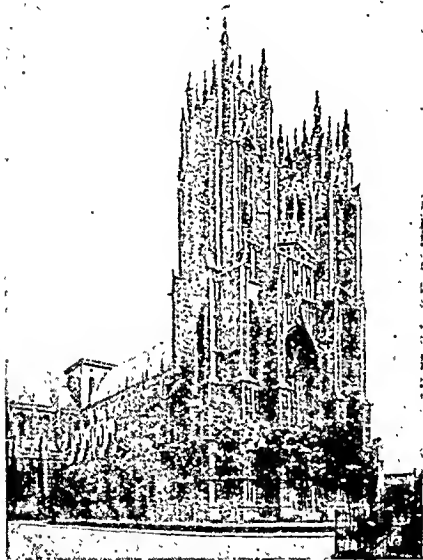
BETTY, WILLIAM HENRY WEST (1791-1874). British actor. Born at Shrewsbury, Sept. 13, 1791, he was taken to Ireland, and when twelve years old appeared on the stage in Belfast. His popularity in Ireland, and still more in Scotland, was remarkable: he was called the Young Roscius, and in 1804 made his début in London, and on one occasion the Commons adjourned to see him play Hamlet. His extraordinary career as a boy actor ended in 1808; after three years spent at Christ's College, Cambridge, he returned to the stage in 1811, but his success was only moderate. He retired very rich in 1824, and died Aug. 24, 1874.

BEUTHEN or **OBEBREUTHEN.** Town of Upper Silesia, Prussia. About 50 m. S.E. of Oppeln, it is a mining centre, coal, iron, and zinc being found in the neighbourhood. There are foundries and rolling mills in the town, and manufactures of woollens and furniture. It has railway communication with Warszawa by way of Czeszochowa. Pop. 62,543.

BEVELLING (Fr. hiveau). In carpentry, the cutting off the edge of a surface at a slight angle. Thus if a wooden strut intended to be set at an angle of 45° is to rest evenly on its support its lower end must be bevilled.

Bevel also denotes the inclination of one surface to another at an angle other than a right angle. In heraldry it is used to describe a break made in a line so as to form two equal acute angles, a bevilled line becoming two parallel lines joined by a slanting one.

BEVERLEY (anc. Beverlac, heaver lake). Borough and market town of Yorkshire (E.R.). It stands near the river Hull, with which it has canal communication, 8 m. N.W. of Hull, on the L.N.E. Rly. Its minster, 13th to 15th cent., is one of the finest Gothic churches in England; the Percy shrine is of exquisite workmanship. S. Mary's church also is a fine example of later Gothic. Outside the town are an aerodrome and racecourse. In 1929 the town celebrated the 800th anniversary of the granting of its charter. Until 1868 Beverley sent two members to Parliament. It is now part of the Holderness division (East Riding, Yorks.). Market days, Sat. and alternate Wed. Pop. 13,469.



Beverley Minster. West front of this splendid church, one of the marvels of Gothic architecture
Frith

BEWDLEY (originally Beaulieu). Mun. bor. and market town of Worcestershire. On the river Severn, 3 m. W. by S. of Kidderminster by the G.W.R., it manufactures malt, combs, ropes, bricks, and leather, and has tanneries and brass works. Its grammar school was founded 1591. Bewdley was separately represented in Parliament until 1885. It is now a co. div. with one member. Pop. 2,758.

BEWICK, THOMAS (1753-1828). English engraver. He was born at Cherryhurn, near Newcastle, Aug. 12, 1753, and apprenticed to a copper plate engraver. His apprenticeship over, Bewick came to London, but soon returned to Newcastle, and became partner with his old master, Ralph Beilby. His best work followed: *Select Fables*, 1784; a *History of Quadrupeds*, 1790; *British Birds and British Water Birds*, 1797; and *British Fishes*, 1822. Bewick's work is distinguished by its infinitesimal detail. He died at Gateshead, Nov. 8, 1828.

He was assisted by his brother John (1760-95) in the woodcuts for the *Poems of Goldsmith and Parnell*, 1795, and by his son, Robert Elliot Bewick (1788-1849), in those for *Aesop's Fables*, 1818. Consult *Life*, H. A. Dobson, 1884.

BEX. Town of Switzerland in the canton of Vaud. In the Rhône valley, 29 m. by rly.

S.E. of Lausanne, it is frequented for the grape-cure, and is connected by electric rly. with Gryn and Villars. Salt, first found in 1544, is extensively worked. Pop. 4,609.

BEXHILL. Borough and watering-place of Sussex. It is 5 m. S.W. of Hastings, with which it is connected by electric tramway, and is served by the Southern Rly. Bexhill old town, with a Norman church, lies inland; Bexhill-on-Sea is a modern seaside resort with a kursaal. Pop. 20,363.

BEXLEY. Urban district of Kent. It stands on the river Cray, 4 m. W. of Dartford, and 14 m. S.E. of London by the Southern Rly. The church of S. Mary, in the Early English and later styles, was restored in 1883. Hall Place occupies the site of a house in which the Black Prince is stated to have been born. Bexley Heath, to the E., has a Gothic church and a Foresters pensioners' asylum. At both Bexley and Bexley Heath there are several dene-holes (q.v.). Pop. 26,000.

Nicholas Vansittart (1766-1851) was raised to the peerage as Baron Bexley in 1823. He was secretary for Ireland in 1805, and chancellor of the exchequer 1812-22. He helped to found King's College, London. His title became extinct on his death.

BEY. Turkish title for officials, military officers, and other distinguished persons. The hereditary sovereigns of Tunis are called beys. The word is a modern form of beg (lord).

BEYERS, CHRISTIAN FREDERICK (1869-1914). Boer soldier and politician. Born at Stellenbosch, he served as a general in the S. African War. He was chairman of the peace conference at Vereeniging in 1902, and later was made speaker of the legislative assembly of the Transvaal. He was also commandant of the Union Defence Force, but resigned this post in Sept., 1914, and roused the Boers against Great Britain. His men were routed by Botha near Rustenburg, and soon he was a fugitive. On Dec. 8 he was again attacked, and was drowned while trying to escape across the Vaal.



Christian F. Beyers,
Boer soldier

Beyrout. Variant spelling of the name of the Syrian seaport Beirut (q.v.).

BEZA OR DE BESZE, THÉODORE (1519-1605). French-Swiss reformer. Born at Vézelay in Burgundy, June 24, 1519, and educated at Orléans, he graduated in law. In 1548 a dangerous illness persuaded him to a serious view of life. He removed to Geneva with his wife, became a Calvinist, and from 1549-59 was professor of Greek at Lausanne. In 1559 he left Lausanne for Geneva to become Calvin's chief assistant and president of the college, and, on Calvin's death in 1564, became head of the reformed church in that city until his death Oct. 13, 1605. Consult *Life*, H. M. Baird, 1899.

BÉZANT OR BESANT. Byzantine gold coin which was current between the 4th and 15th centuries in the East Roman Empire and Europe generally. Silver bezants worth between one and two shillings were current in England in the 13th and 14th centuries. The bezant was long the medium and standard of exchange between East and West, and was used in India. In heraldry, a bezant is a golden roundel, represented in drawings by a circular figure covered with small dots.

BÉZIERS (anc. Beterrae). Town of France on the river Orb, it is 47 m. by rly. S.W. of Montpellier. Its most interesting building is the church of S. Nazaire, partly 12th century, and there are remains of a Roman arena and of the town walls. Béziers is the terminus of the Canal du Midi, which here joins the Orb. It has a trade in wine. Pop. 65,654.

BÉZIQUE. Card game, usually played by two persons. Two packs of cards are shuffled together after all the twos, threes, fours, fives, and sixes have been discarded. The highest cut indicates the dealer, who reunites the pack and gives eight cards by three, two, and three to his opponent and himself alternately. The seventeenth card is turned for trumps and placed on the table face upwards between the players, the remainder of the pack, forming the stock, being disposed in a pile by its side, so that a single card may be easily extracted.

A game generally consists of 1,000 points up; or for a certain stake per point, the loser's score being deducted from that of the winner. The score is kept by a marker.

BEZOAR (Persian padzahr, expelling poison). Term originally denoting an antidote for poison, and now applied, from their supposed efficacy against poison, to the stony concretions or "hair balls" formed round hair, wood, or other indigestible nucleus, occurring in the stomach or intestines of ruminants. As a prolific source of bezoars, the wild goat of Persia has been called the bezoar or bezoar-goat. Bezoars are still esteemed for their medical properties in India, China, and other Oriental countries, those obtained from the Persian wild goat and from the S. American llama being especially prized.

BHAGALPUR (Hind. tiger city). Town and district of Bihar and Orissa, India. The district is divided by the Ganges into two nearly equal parts.

Bhagalpur town, the headquarters of the division and the district, is on the Ganges, 265 m. by rly. N.W. of Calcutta. It has grown in importance owing to increased trade in agricultural produce. It manufactures coloured glass and coarse silken goods, and contains a college, monuments, and Jain shrines. Pop. district, 2,033,770; town 68,878.

BHANG. Name given in India to the hemp plant (*Cannabis indica*), and particularly to a narcotic and intoxicant obtained from it. The drug is prepared from the dried leaves, stalks, and fruits, and is dark green with hardly any taste. It is taken into the system by smoking, chewing, eating, or drinking. The Arabic name of preparations made from bhang is hashish.

BHARTPUR OR BHARATPUR. City of Rajputana, India, capital of the native state of Bhartpur. It is 35 m. by rly. W. of Agra. Unsuccessfully besieged by the British four times in 1805, it was captured, 1827, by Lord Combermere. The town was named after Bharat, a famous character in Hindu mythology. There is an agricultural fair in September. Pop. 33,494. Bhartpur state covers 1,982 sq. m., and has a pop. of 496,437.

BHAUNAGHAR OR BHAYNAGAR. Seaport town of Kathiawar, Bombay, India, capital of the native state of Bhaunagar. On the W. coast of the Gulf of Cambay, 60 m. N.W. of Surat, it is a terminus on the Gondal rly., and exports cotton. Founded in 1743, it rapidly rose in importance, owing to its commodious harbour for ships of light draught, becoming the principal harbour for the export of cotton in Kathiawar. Pop. 59,392.

Bhaunagar stato has an area of 2,860 sq. m. and a pop. of 426,404.

BHEL, BAEI, OR BENGAL QUINCE. Fruit of a small Indian tree (*Aegle marmelos*), about 10 ft. high, with trefoil leaves and fragrant white flowers. The thick rind of the not quite ripe fruit is a valued remedy in diarrhoea and dysentery on account of its astringent properties, and the pulp is a laxative. The rind furnishes a yellow dye.

BHILS (bowmen). Primitive forest tribes occupying hill ranges in India, principally in Bombay, the Central Agency, and Rajputana.

They are descended from the low Caucasian race which made India its home until driven out of the plains by the Aryan invaders. They number upwards of a million, two-thirds being animists and one-third Hinduised. Most of them speak, instead of their original Munda dialect, a debased Gujarati. Of medium height, dark, broad-nosed, and small-headed, they are clever trackers and expert bowmen.



Bhils tribe. A warrior from Mt. Abu with bow and arrow

BHOPAL. British political agency, native state, and town of Central India. The agency, which has an area of 11,653 sq. m., includes the native state, and is administered by an agent responsible to the governor-general.

The native state, area 6,902 sq. m., was founded in 1723 by Dost Mahomed, an Afghan chief. Since 1844 the throne had descended in the female line, but this was changed in 1926, when the hegum abdicated in favour of her son. In 1927 the right of the daughter of a ruler to succeed in the absence of a son was recognized. At the same time a legislative council was established. The ruler is entitled to a salute of 19 guns. Pop. 692,500.

The town, the capital of the state, is served by the Great Indian Peninsula and other rlys. Cotton weaving and printing are carried on, and there is a large oil depot. Pop. 45,094.

BHUTAN. Independent state of India. On the S. declivity of the eastern Himalayas, it is bordered on the S. by Bengal and Assam, and covers an area of about 18,000 sq. m. Almost wholly mountainous, it is watered by tributaries of the Brahmaputra. Punakhā is the winter capital and Tashichozong (Tasichodzong) the summer capital. A treaty in 1865 regulated the state's relations with India. Bhutan formerly possessed two rulers: the Dharm Rajah, the spiritual head, and the Deb Rajah, the temporal head. In 1907 the Deb Rajah, who was also Dharm Rajah, resigned and an hereditary maharajah was appointed. Pop. about 300,000.

BHUVANESWAR. Town of India in Bihar and Orissa, 16 m. S. of Cuttack. It was from A.D. 474 to 950 the capital of the Kesaris or Lion dynasty of Orissa. Yayati, the first of the line, restored the worship of Juggernaut and began the building of the great Sivaite temple here in 500. The lake was at one time surrounded by 7,000 shrines, of which some 500 remain. Pilgrimages are made to Bhuvaneswar by Siva worshippers.

BIAFRA, BIGHT OF. Large bay of West Africa, an E. extension of the Gulf of Guinea. Situated between Capes Formosa and Lopez, it contains Fernando Po, Principe, and São Thomé islands, and receives the Niger, Old and New Calabar, Cameroons, Sanaga, and Gabun (Gabon) rivers, and the Rio del Rey.

BIARRITZ. Watering place of France, in the dept. of Basses-Pyrénées. Picturesquely situated on the Bay of Biscay, 5 m. S.W. of Bayonne, it has a mild climate and a fine beach. Originally a fishing village, it became the summer residence of Napoleon III and the Empress Eugénie and attained popularity as a health and pleasure resort, both in summer and winter. There are casinos, fine hotels and villas and three harbours. Pop. 18,353.

BIBLE. The word Bible has come down to us from the Greek through the Low Latin biblia, meaning a book. When the Church set beside the Hebrew Scriptures a collection of classical Christian documents, the two great divisions of the Christian Bible came to be known as the Old Covenant and the New Covenant. Covenant was generally represented in Latin by testamentum; in this way came the familiar titles the Old Testament and the New Testament.

THE ENGLISH BIBLE. As regards the history of the Bible in English, the early versions, such as Caedmon's paraphrase, Bede's rendering of a portion of John, the Vespasian Psalter, the Paris Psalter, the Lindisfarne Gospels, the translation of Old Testament books by Aelfric, and other early versions, were made from the Vulgate, which was a translation from Hebrew into Latin, not from the original languages. Before Wycliffe's death, in 1384, a translation from the Vulgate into English was completed, but it is uncertain whether Wycliffe himself had any part in it. This was revised probably about 1388.

The true history of the English Bible begins with Tyndale rather than Wycliffe. He translated directly from the original, and not from the Vulgate. He completed the New Testament, the Pentateuch, and Jonah, and left in MS. a translation of the Historical Books of the Old Testament. The version was published piecemeal, 1525-35.

In 1611 the revision, known as the Authorized Version, was published. Gradually it drove all rivals, including the Geneva Version, out of the field, and for more than two centuries and a half no attempt to supplant it was made. In 1870 a revision of it was undertaken, and the Revised Version of the New Testament was published in 1881, the Old Testament being completed in 1884, and the Apocrypha in 1895.

RARE EDITIONS. The most valuable printed work in the world is the copy of the Bible printed at the press set up by Gutenberg and Fust at Mainz, in 1452-56. In two folio volumes, printed in Latin, in double columns, from movable types, with large initial letters resembling those of old MSS., it is commonly known as the Mazarin Bible, from the discovery of a copy in the library of the cardinal of that name. Coverdale's Bible, 1535, folio, black letter, was the first complete Bible printed in English; only one perfect copy is known. The Geneva Bible was first printed in 1560; the Authorized Version in 1611, the latter a large folio of 1,464 pages. The British Museum contains more than 16,000 copies of the Bible with different titles.

BIBLE SOCIETIES. Protestant societies formed for the dissemination of the Scriptures. The oldest is the Constein Bible Institute, founded at Halle, Germany, in 1710. The Naval and Military Bible Society was formed in London as The Bible Society in 1780. The most important of the others, with dates of their foundation, are the British and Foreign Bible Society, 1804; the National Bible Society of Scotland, 1861; the American Bible Society, New York, 1841; and the American Bible Union, a Baptist organization, 1850.

BIBLE CHRISTIANS. A body of Christians, an offshoot of the Methodist movement. Founded 1815, at Shebbear, N. Devon, by William O'Bryan (d. 1868), and until the split in 1829 known as Bryanites, they made great progress in the west of England. In July, 1907, they joined with the Methodist New Connexion and the United Methodist Free Church to form the United Methodists. See Methodism.

BIBLIOGRAPHY (Gr. biblion, book; graphein, to write). Word first used to denote the transcribing of books and the enumeration of size, title-page, contents, and colophon. It has become more generally

applied to the grouping together of works on some particular subject, place, or period, or the different volumes of one author.

In connexion with English literature an exhaustive work has been completed in The Cambridge History of English Literature (1907-16), the bibliographies at the end of each volume covering the work of all known writers in English to the end of the Victorian period. The bibliography of each author has been compiled as far as possible with the object of recording his original MSS., every edition of his separate works, and all editions of his collected works; these being supplemented by every critical work of other competent writers upon the author in question.

BIBLIOMANCY (Gr. biblion, book; manteia, divination). Practice of opening a book at random and regarding the word or passage that first meets the eye as an omen. So the Greeks used Homer, and the Romans Virgil. Similar to the Sortes Homericae and Sortes Virgilianae was the Sortes Biblicae or Sortes sanctorum of the early Christians.

Bibliomancy has been practised by Jews and Moslems and was general in Christendom, as was proved by its prohibition by several Church councils between the 4th and 14th centuries. Bunyan, Wesley, and Cowley were victims to the superstition. Charles I and Falkland consulted Virgil in this way before the Civil War. Tennyson introduces the practice in Enoch Arden, and Defoe in Robinson Crusoe. Consult Credulities Past and Present, William Jones, 1880.

BIBLIOMANIA (Gr. biblion, book; mania, madness). Passion for book collecting, especially without regard to the value of the contents of the books. The victim is described as a bibliomaniac. The earliest known English satire on the mania is in Barclay's version of Brandt's Ship of Fools, 1509; another is John Ferriar's The Bibliomaniac: an Epistle in verse to Richard Heher, 1809.

BIBLIOTHÈQUE NATIONALE. Library in Paris, one of the largest and finest in the world. The building is surrounded by the Rues de Richelieu, des Petits Champs, Vivienne, and Colbert. Its nucleus was the palace of Cardinal Mazarin. There are a public reading-room and rooms for students.

The collection of books dates back to Louis XII, or perhaps earlier, for Charles V had a library in the Louvre and there was another at Blois. Louis XII obtained these, and added others, which had various homes until 1724, when they were put in Mazarin's palace. The collection was then known as the Bibliothèque Royale. The library receives a copy of every book printed in France, and contains more than 3,000,000 printed books and 100,000 MSS. The collection of objets d'art is a later addition. It consists of some 250,000 engravings and 150,000 coins, etc. See Library.

BIBRACTÉ. A Gaulish settlement on Mont Beuvray, Saône-et-Loire, France. Controlling the traffic route from Marseilles into the Loire and Seine basins, the Aedui made the hill-top their capital, protected by a rampart enclosing 334 acres. Excavations have brought to light houses, streets, a market place, and quarters devoted to metal-working and enamelling. The finds—crucibles, balances, iron and bronze tools, horse trappings, ornaments, pottery, and coins—illustrate the late Tenian period of the early Iron Age. Caesar wintered here in 52 B.C. See La Tène.

BIBURY. Village of Gloucestershire. It stands on the Colne, 6 m. from Cirencester, and is regarded as one of the prettiest villages in England. A group of picturesque cottages, called Arlington Row, became the property of the National Trust in 1928.

BICARBONATE. Carbonic acid forms with soda and potash two carbonates, one containing double the amount of carbonate and hence designated bicarbonate. Bicarbonate of soda is made by passing carbonic acid gas into a saturated solution of carbonate of soda. It gives off a larger amount of carbonic acid gas when acted upon by acids, and hence, mixed with cream of tartar, is employed in baking powder.

BICESTER. Urban district and market town of Oxfordshire, 12 m. N.E. of Oxford by the L.M.S. Rly. It is an agricultural and hunting centre, the town giving its name to a hunt. Its industries include brewing and the manufacture of leather, rope, sackings, and clothing, and cattle fairs are held. The church of S Eadburg, the holy nun of Aylesbury, was originally Norman, but embraces several later styles. There are remains of the Augustinian priory of SS. Mary and Eadburg, founded in 1182. In 1928 excavations proved the existence of a Roman settlement near Bicester. Market day, Fri. Pop. 3,200.

BICHAT, MARIE FRANÇOIS XAVIER (1771-1802). French physiologist. Son of a surgeon, he was born at Thoirre, Jura, Nov. 11, 1771. At the age of 26 he was appointed lecturer, and in 1800 physician at the Hôtel Dieu. He died July 22, 1802. In his *Anatomie Générale Appliquée à la Physiologie et à la Médecine*, 1801-12, he shows the intimate connexion between brain, heart, and lungs.

BICKERSTAFF, ISAAC. Pseudonym used by Swift, and adopted by Steele and the Scottish poet Allan Ramsay. Swift used the name to discredit a certain astrologer or prophet named John Partridge. In January, 1708, he wrote *Predictions for the Ensuing Year* by Isaac Bickerstaff, asserting that on March 29 Partridge would die. On March 30 a notice appeared saying that the man was dead. In asserting that he was still alive, Partridge covered himself with ridicule, and Swift wrote in April, 1709, his *Vindication of Isaac Bickerstaff*.

Bickley. Residential district of Kent. It is 12 m. S. of London, with a station on the Southern Rly. Pop. 6,154.

BICYCLE (Lat. bis, twice; Gr. *kyklos*, circle). Machine consisting of two wheels one behind the other and used for riding. Something of the kind had long been in existence, but the modern use of bicycles dates from about 1800. At first propulsion was effected by the primitive method of pushing the feet against the ground. Then came the pedals and their connexion with the back wheel, the main principle of the modern bicycle. After experiments in 1860 there was evolved the bicycle known as the boneshaker, with one large and one small wheel. Rubber tires were introduced, and about this time the name bicycle came into general use.

About 1880 came the earliest types of the modern safety bicycle, one with the two wheels of approximately equal size. This made the bicycle much more popular, especially after the invention of the pneumatic tire, which reduced friction to a minimum. Other improvements, the free wheel, for instance, were introduced; the machines were made lighter and were able to travel much faster, this being aided by new methods of gearing. The motor-bicycle was then evolved and to some slight extent ousted the safety.

In Great Britain, under an Act which came into operation in April, 1928, all bicycles that are without a lamp showing a red light to the rear must carry an unobscured and efficient red reflector. See *Cycle*; *Motor Cycle*.

BIDA. Walled town of Nigeria, W. Africa. The capital of Nupé province, it is 25 m. N. of the Niger and 40 m. by rly. from Baro. It

has metal, glass, and dyeing industries. Pop. about 50,000.

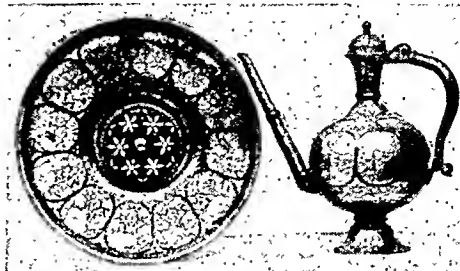
BIDASSOA (Basque, clean river). River of France, forming in its lower reaches the boundary with Spain. About 33 m. long, it enters the Bay of Biscay near Fuenterrabia. On an island in the stream the treaty of the Pyrenees (q.v.) was signed in 1659. In 1813 Wellington forced the passage of the Bidassoa, carried the French lines on its northern side, and planted his army in France. Consult War in the Peninsula, Napier's, vol. iii, 1893.

BIDDER, GEORGE PARKER (1806-78). British mathematician and engineer. Born at Moreton Hampstead, Devonshire, he showed as a boy a remarkable gift for arithmetical calculations. He gave public exhibitions of his abilities, but eventually was sent to school and then to Edinburgh University. Having taken his degree, he became an engineer, his time being divided between practical work and appearing before committees. He originated the rly. swing bridge and was a founder of the Electric Telegraph Co. He died at Dartmouth, Sept. 20, 1878.

BIDDERY or **BIDRI**. An alloy of zinc with copper, lead, and usually tin, used by Indian craftsmen as a foundation for inlaid work in gold and silver. See *illus.* above.

BIDDING PRAYER (A.S. *biddan*, to pray). Form of prayer in the Church of England. It is only customary to-day before university sermons and at special cathedral services. Embracing the whole of Christendom and all appointed rulers and governors of the British realm, its origin may be traced to the collective prayers of the early Christian Church, when the exhortation, *Let us pray*, preceded each petition. Later came the injunction to bid (or offer) prayer after the sermon at Mass for all sorts and conditions of men, the people "bidding their bodes," i.e. using their rosaries, and at each petition saying in silence the Lord's Prayer. Survivals of this form may be found in the prayer for the church militant

BIDEFORD. Borough, seaport, and market town of Devonshire. On Torridge estuary, it is 3 m. S. of Barnstaple Bay and 9 m. by rly. S.W. of Barnstaple, with a station on the Southern Rly. Its two portions are connected by an old bridge. In 1928 it again became a port, a status it had lost in 1882. The "mine" of Bideford black, a mineral deposit used for anti-fouling composition for ships, was modernised in 1929. Market day, Tues. It was the birthplace of Sir Richard Grenville, and the scene of much of Kingsley's *Westward Ho!* Pop. 9,125.



Bidder ware. Examples of this Indian metal work
Victoria and Albert Museum

BIELEFELD. Town of Westphalia, Prussia, S.W. of Hanover. It stands at the base of the Teutoburger Wald, on both sides of the river Lutter. The 12th century castle of Sparenburg has been rebuilt as a museum. Its chief industry is linen manufacture; others are the making of silk and plush goods, sewing machines, agricultural machinery, and motor-cars. Bielefeld consisted of two towns until 1520. In 1606, as part of the duchy of Jülich, it passed to Brandenburg, and so to Prussia. Pop. 86,062.

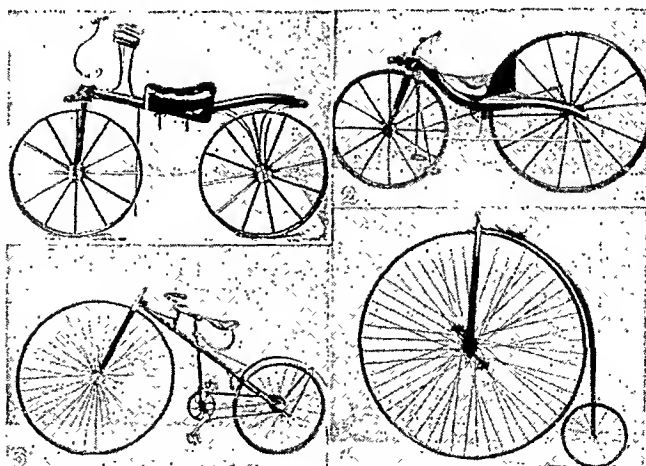
BIELOSTÓK or **BIALYSTOK.** Town of Poland, in the county of Białostók. It is 45 m. by rly. S.W. of Grodno, on the Bialy river. It has wool, linen, silk, and felt hat manufactures, and trades largely in grain and timber. At the partition of Poland, 1795, Białostók fell to Prussia, but by the treaty of Tilsit, 1801, was transferred to Russia. It became part of Poland in 1919. There was a massacre of Jews here in 1906. Pop. 76,792.

BIENE, AUGUST VAN (1850-1913). Anglo-Dutch actor and musician. Born of Dutch parents, he played the violoncello for many years on the British stage, chiefly in *The Broken Melody*. He died while performing, Jan. 23, 1913.

BIENNE or **BIEL.** Town of Switzerland, in the canton of Berne. At the N. end of the lake of Biemme, just below the Jura and on the river Suze, it is 20 m. N.W. of Berne. Its industries include the making of watches and clocks, railway machinery, nails, cement, and earthenware, and it has a large technical institute. The Schwab museum contains relics of prehistoric men and Celtic and Roman antiquities. The health resorts of Macolin and Évilard are reached by cable-railways. Pop. 36,800.

The lake of Biemme is about 10 m. long.

BIENNIAL (Latin *bis*, twice; *annus*, year). Plants which live for two years or seasons, flowering and dying in the second season.



Bicycle. 1. Hobby or Dandy Horse, 1818. 2. Kirkpatrick's bicycle, 1839. 3. Bicycleette, 1879. 4. Rudge's "Ordinary," 1884, a type known as the boneshaker

BIDDULPH. Urban district of Staffordshire. It is 4 m. S.E. of Congleton, on the L.M.S. Rly., in a coal and iron-stone district. Market day, Sat. Biddulph Grange is noted for its gardens. Pop. 7,936.

The usual method of culture is to sow seed in the open ground in the autumn and transplant the young plants the following summer, when they will bloom and die in the season after that. Hollyhocks, Canterbury

bells, and snapdragons are good garden biennials. See Annual.

BIERCE, AMBROSE (1842-1914). American author. He was born in Ohio, in June, 1842, served in the Civil War, and in 1866 went to California. His books include *Tales of Soldiers and Civilians*, 1891, Eng. ed. 1892, renamed *In the Midst of Life*; *Can Such Things Be?*, 1898; *Fantastic Fables*, 1899; *Shapes of Clay*, 1905; and *Write it Right*, 1909. His collected works were published in 1909-12. As a master of the short story he may be said to rank with Edgar Allan Poe and Bret Harte. He was last heard of in Mexico, where in 1914 he served on the staff of General Villa.



Ambrose Bierce, American author

BIFRÖST. Bridge built by the Norse gods over the earth, described variously as the rainbow and the Milky Way. At its apex was Valhalla in Asgard. When the sons of Muspel from the burning south went to the last great fight with the gods, the bridge broke down under their weight.

BIG. Name of several rivers. The most important, in Quebec, Canada, flows from the centre of the province W. for about 500 m. into James Bay. Others are in Canada, the U.S.A. and New Zealand.

BIGAMY (Lat. bis, twice; Gr. gamos, marriage). Legal offence consisting in going through the ceremony of marriage with a person when one is already married to another. If the first spouse has not been heard of for seven years or more before the second marriage, the prosecution must prove that the prisoner had good reason to believe that the real spouse was alive. In any case the prisoner escapes if able to convince the court that he or she had good reason to believe that the spouse was dead, even though seven years had not elapsed since the last communication. The punishment is seven years' penal servitude as a maximum or imprisonment with or without hard labour for a maximum of two years. See Marriage.

BIG BEN. Great bell in the Clock Tower of the British Houses of Parliament. It was named after Sir Benjamin Hall, first commissioner of works when it was hung, in 1856. Originally weighing 15 tons, it was recast and the weight reduced to 13½ tons. The total cost was about £40,000.

BIGELOW, POULTNEY (b 1855). American author and traveller. Born Sept. 10, 1855, he was a son of John Bigelow (1817-1911), American ambassador to France. He travelled extensively in Europe, Australia, China, Java, and Japan, was editor of *Outing* from 1885-87, and correspondent of *The Times* and of *Harper's Weekly* during the Spanish-American War. His chief works are *The Borderland of Tzar and Kaiser*, 1895; *History of the German Struggle for Liberty*, 1896; and *Prussian Memories*, 1915. In 1928 his *Memoirs: Seventy Summers* appeared.

BIGGARSBERG. Mt. range in Natal, S. Africa, a branch of the Drakensberg. Extending E.S.E., below Dundee, it cuts off the N. corner from the rest of the province. See Drakensberg.

BIGGLESWADE. Urban district and market town of Bedfordshire. On the navigable Ivel, 11 m. E.S.E. of Bedford by the L.N.E.R., it manufactures cycles and trades in corn, timber, coal, and market garden produce. Market day, Wed. Pop. 5,400.

BIG HORN. River of the U.S.A. Rising as the Wind river in the Shoshone mts., Wyoming, it flows through Montana, to the

Yellowstone river. Its length is about 445 m., and it is navigable to Fort Custer, where it is joined by the Little Big Horn. In N. Wyoming, E. of the Big Horn river, are the Big Horn mts. Cloud Peak, the highest, is 13,165 ft. high.

BIGHORN. Name given to the mountain sheep (*Ovis cervina*) of N. America. Once found along the whole chain of the Rockies, they are now not seen S. of Montana. They live in bands up to 50 and are wild and shy. The horns of the larger rams sometimes measure 42 ins. around the curve.

BIGHT. Long curve in a coastline, or a wide, open bay. Examples are the Bight of Biafra, W. coast of Africa; and the Great Australian Bight, S. coast of Australia.

BIGNONIA. Large genus of shrubs chiefly natives of the warmer parts of America. They usually climb to great heights by means of tendrils. The flowers have a bell-shaped calyx and trumpet-shaped corolla. The pod-like seed capsule opens by two valves. There are about 120 species, known generally as trumpet flowers. The goat vine (*B. capreolata*), native of N. America, has crowded orange leaves of B. chiria with which Indians on the Orinoco paint their bodies.

Bigorre. Older name for a district in France, once part of Aquitaine and then of Gascony. Its capital was Tarbes.

BIHAR. Town of India. It is 38 m. from Patna, and has remains of Buddhist buildings. It was the capital of the ancient kingdom of Magadha and, as the cradle of Buddhism, is still regarded as sacred by Buddhists. Pop. 36,700. The sub-province of which it is now the capital has, on account of its fertility, been called the garden of India.

Bihar and Orissa is the name of a province of India. Formed in 1912 by five divisions of the old province of Bengal, it consists of the three sub-provinces of Bihar, Orissa, and Chota Nagpur, and has a total area of 53,181 sq. m. and a pop. of 34,002,189. The capital is Patna.

Chota Nagpur is in the hill country;

the other sub-provinces consist of the valleys of the Ganges, Mahanadi, and other rivers. Rice is the most important crop grown:

Coal-mining is a very important industry, and iron and mica are found. At Jamshedpur are the Tata iron and steel works.

BIJAPUR. Ancient city of Bombay, India. It is 60 m. by rly. S. of Sholapur and was once the capital of a powerful Mahomedan kingdom. It contains a fort 6 m. in circuit, palaces, and mosques. Here is the tomb of Adil Shah, one of the most magnificent in the world. The city became British in 1848. Pop. 32,485.

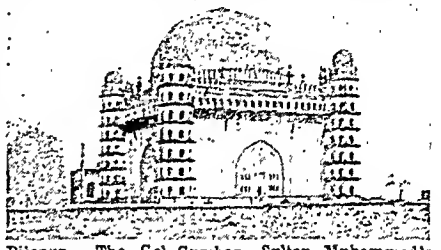
BIKANER. Native state of Rajputana, India. A desolate, sandy region of 23,215 sq. m., with no perennial streams,



Bighorn, *Ovis cervina*. Mountain sheep of N. America



Bignonia, American trumpet-flower



Bijapur. The Gol Gumbaz, Sultan Muhammad's tomb, said to be the largest domed space in the world. It has coal deposits, and its shallow lakes produce salt. The people of Bikaner are Rajputs, Jats, and Bhattus. Pop. 659,685.



Bihar and Orissa Map of the province of India which was formed in 1912, on the reconstruction of Benal, from five divisions of the old province

The maharajah of Bikaner, who is entitled to a salute of 19 guns, accompanied the Indian Expeditionary Force to France in 1914.



Maharajah of Bikaner
Tandyk

He was one of India's representatives at the Peace Conference, Paris, 1919. The Bikaner Camel Corps rendered important services against the Turks in Egypt in 1916.

Bikaner, the capital of the state, is the terminus of a branch line of the rly. from Jodhpur to Jaipur. It contains carved Jain monasteries and a palace.

Carving and the manufacture of pottery, blankets, and sweetmeats are among the industries. Copper, fuller's earth, and red sandstone are found. There is an annual sheep and cattle fair. Pop. 69,410.

BILBAO. Seaport of Spain. On the river Nervion, 8 m. from its mouth, and 348 m. by rly. N. of Madrid, it is the largest Basque town. It owes its importance to the neighbouring iron mines. The old and new towns are connected by five bridges. It has the largest dry dock in Spain, and a wireless station. Bilbao has long been noted for its iron and steel, and in addition to iron ore it exports pig iron and wine, most of its trade being with England. It has iron-smelting works and foundries, breweries, distilleries, flour mills, and tanneries, manufactures rope, leather goods, paper, soap, cotton, and glass. Founded in 1300 as Belvao, it was long celebrated for sword blades. Pop. 148,383.

BILBERRY or **WHORTLEBERRY** (*Vaccinium myrtillus*). Small shrub of the order Ericaceae, a native of Europe, N. and W. Asia, and N.W. America. It has a creeping root-stock with erect stems (2 ft.), smooth angular branches, and small oval leaves. The rosy-green inverted pitcher-shaped flowers are solitary. The fruit is a glaucous blue-black berry, which is made into jam, and also produces a purple dye. The plant thickly covers elevated heaths.



Bilberry, the fruit and leaves

BILBOES. Name given to the fetters on board ship into which culprits were put. It is derived from the name of the Spanish town Bilbao. A sword was called a bilbo, and its plural came to have the sense mentioned above, in which it is used by Shakespeare (*Hamlet* v. 2). Bilboes were carried by the Spanish Armada, and used in the British navy until about 1700. They were usually shackles round the ankles joined by an iron bar.

BILE (Lat. *bilis*). Secretion of the liver. It is stored in the gall bladder, or discharged into the upper part of the small intestine through the common bile duct, the discharge being most active when food is passing through the intestine. Bile is a yellowish brown or green fluid. Its most important function is to act in conjunction with the pancreatic juice in the digestion of fat. When the bile is prevented from entering the intestine, the most common cause of which is obstruction of the bile ducts, the bile passes into the blood-stream, and is distributed all over the body, producing the yellowish tint in the skin termed jaundice (q.v.).

BILHARZIA. Parasitic worm of the fluke group (*Trematoda*), chiefly found in tropical Africa, especially Egypt. The male carries the female about with him in a fold of the skin. The parasite invades the veins of the

bladder in man, and sets up haematuria, a condition sometimes known as bilharziosis. It may be cured by the use of antimony. It is named from Theodor Bilharz, who discovered the parasite in 1851.

BILL (late Lat. *billa*, a writing). Word used in commerce in various senses. It originally meant a sealed written paper, but to-day, in its simple form, it is generally used for an account of goods bought. The more complex kinds of bills are each distinguished by words explaining their nature.

BILL OF EXCHANGE. This is a document by which debts, especially foreign debts, are discharged. They are divided into inland and foreign bills, and a considerable business is carried on in them by bankers and firms called bill brokers.



Bill of Exchange. Example of document extensively used to finance purchases of goods, more especially when such purchases are made in foreign countries

A bill is usually drawn thus :

Due May 4.
£100. London, Feb. 1, 1930.
(Impressed stamp)
Three months after date pay to me or to my order the sum of £100 for value received.
Henry Robinson.
To Mr. John Smith,
159, High Street, Kensington, W.

If he undertakes to pay this bill, Smith will accept it. That is to say, he will write across it from top to bottom the words :

Accepted, payable at Barclays Bank, Lombard Street, E.C.

John Smith.

Drawn on Feb. 1 and payable three months after date, this bill naturally be due on May 1; but by custom an extra three days, called days of grace, are allowed, bringing the date of maturity to May 4. Where the bill, with days of grace added, falls due on a Sunday, Christmas Day, or Good Friday the bill is payable on the preceding business day. When it falls due on a bank holiday, it is payable on the next business day. Before it is due, however, the holder can obtain money by discounting it with a bank or bill broker.

Bills of exchange must be stamped. For inland bills the stamp is 2d. for one not exceeding £10, rising to 1/- for one between £75 and £100. Bills above £100 pay 1/- for every additional £100 or fraction of £100. Foreign bills pay 2d. if not exceeding £10, 6d. if between £25 and £100, and 6d. for every additional £100 or fraction of £100.

BILL OF LADING. This is a document enumerating the goods taken on board ship, thus forming a receipt. It also contains the conditions upon which they are carried. Usually a bill of lading is signed by the ship's master, and three copies of it are prepared, one for the consignee, one for the consignee, and one for the master himself. Each bill must bear a 6d. stamp. A bill of lading can be transferred from one person to another, and thus, if properly endorsed and due value received, it carries with it ownership of the goods named therein. A bill of lading resembles somewhat a bill of lading.

BILL OF SALE. In English law, a document whereby the legal ownership of personal chattels is transferred from one person to another, either absolutely or as security for a debt. Bills of sale are usually in the nature of mortgages of goods, being security for money lent.

A bill of sale to be valid must be attested by credible witnesses. It must be registered in the office of the High Court of Justice within seven days of its execution, but particulars of it need not now appear in *The London Gazette*. It must exceed £30.

BILL OF SIGHT. This is a statement made by an importer about the value and nature of his goods. It is for the use of the custom house and as soon as it has been accepted as correct the importer can remove his goods.

BILL. Name given to a measure introduced into any Parliament of the British Empire. On introduction bills, which may be either public or private, are printed. If they succeed in passing through both Houses of Parliament they become law and are known as Acts. See Act of Parliament.

BILL OF RIGHTS. The most famous bill of this kind is perhaps the Bill of Rights, which retains this name, although it became an Act. After the flight of James II in 1688, a declaration, or Bill, of Rights was drawn up stating the terms on which the crown was offered to William and Mary. This passed through Parliament and is a document of great constitutional importance. It declares that the king cannot suspend a law, or raise money, or do other things done by the Stuarts, without consent of Parliament, and forbids any Roman Catholic from ascending the throne. The full text of the Bill is printed in *Select Charters*, W. Stubbs, 1898.

BILL. In English legal procedure a document of indictment against a person charged with crime. The bill giving particulars of the charge is presented to the grand jury. If the jury are not satisfied with the evidence they throw out the bill and the accused is discharged. If, however, they are satisfied that a case against him has been made out they return a true bill. The prisoner is then put on trial at the assizes or quarter sessions.

BILL CHAMBER. This is part of the Scottish Court of Session. It deals with cases of a summary nature and with certain non-contentious business, and is therefore somewhat analogous to the sittings of the judges and masters in chambers in the High Court of Justice in London. The chamber is open all the year round. Usually the junior judge is its president. See *Session*, Court of.

BILL (A.S. *bil*, sword or axe). Name of a weapon used in the 15th century by soldiers who were called billmen. It is a light form of battle axe with a curved blade. A double bill has two edges. Some patterns have a spike at the top and also at the back; others somewhat resemble a halberd. The billmen usually wore a shirt of mail and a helmet. The word is still used for an implement of similar nature to cut hedges and the like. Another use of the word is that for the beak of a bird.

BILLABONG. Word used in Australia for a blind channel leading out of a river, something like an English backwater. It is of native origin, but is officially used in this sense by the public works department.

BILLAUD-VARENNE, JEAN NICOLAS (1756-1819). French Revolutionist. Born April 23, 1756, he was a member of the Jacobin Club. He demanded a republic, put forward a like suggestion in the National Convention—of which he was president—and called for the death of the king. He helped to overthrow Robespierre, but his own accusation and arrest followed in 1795. He was deported to French Guiana, and after visiting New York retired to Haiti where he died, June 3, 1819.

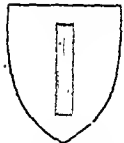
BILLBERGIA. Genus of perennial plants of the order Bromeliaceae. Natives of S. America, chiefly Brazil, they have rigid, channelled leaves, overlapping at the base, and light clusters of showy tubular flowers, red, yellow, blue, or green.



Billbergia nutans, the flower and leaves

BILLERICAY. Market town of Essex and the centre of a rural district. It stands on high ground, 5 m. E. of Brentwood, on the L.N.E. Ry. The ancient church of S. Mary Magdalene has a tower which is considered one of the finest examples of brick architecture extant. It dates from the time of Edward IV. There is a grammar school which was founded in 1634. Pop. 24,157.

BILLET (Fr. billette, small log). In building, a short cylindrical member projecting from a moulding, its axis being parallel to the general surface. More loosely, the word is used for any projection of any kind of section.



Billet, figure in heraldry

In heraldry, a billet is a small oblong figure, which may be borne horizontally or vertically. When a shield is strewn with billets it is said to be billeted.

BILLETING (French billet, note, ticket). Quartering of troops upon the inhabitants of a country. In time of peace this only occurs at manoeuvres, and then only to the extent of lodging for the night, the food being supplied by the military. In Great Britain the rights of civilians in this respect have always been jealously guarded by the Army Act, so that in practice innkeepers only became liable to this inconvenience, for which they were paid. In 1909 it was enacted that, in the event of the Territorial Force being embodied, troops might be billeted in dwelling houses, barns, stables, warehouses, and public buildings. This law came into operation in 1914, and during the Great War many soldiers were billeted in private houses in Great Britain.

In 1917 the Billeting of Civilians Act made provision for the billeting of persons engaged on work of national importance, but this lapsed when peace was made.

BILLIARDS (Fr. bille, billiard ball). Game played with three balls, two white and one red, upon a flat, oblong table with a slate bed measuring 12 ft. by 6 ft. 1½ ins.

The table and the rubber cushions surrounding it are covered with a smooth green cloth of very fine texture, and there are pockets, six in all, at the corners and in the middle of the longer sides. Usually the players are two in number, but the game can be played by four or more. Each player is provided with a cue to strike his own ball. The balls, of ivory or some substitute, should be of a certain equal size and weight.

Each player or combination of players has a white ball, one distinguished from the other by means of a spot, while the red ball is an object free to all players, except under conditions laid down in the rules. A balk line is drawn across the table 29 ins. from the face of the bottom cushion and parallel thereto, and the spot or initial position of the red ball

is marked on the table 12½ ins. from the centre of the face of the top cushion. There is also a centre spot and half-way between this and the top of the table a pyramid spot. At the balk or bottom end of the table a half-circle, having a radius of 11½ ins. inside the balk line, is marked, and this is usually termed the D.

The red ball having been placed upon the spot at the top of the table, the first player plays from any point inside the D on to the red, or gives a miss, sending his own ball out of balk. The opponent is then forced to play at the red or give a miss in his turn. A player continues so long as he succeeds in scoring, the total points in an innings being known as a break. The break includes a variety of strokes possessing different values. They include a cannon, made by the striker's ball coming into contact with the other two balls; and striking a ball with the player's ball and so driving into a pocket. The ordinary game is to make 100 points.

In 1928 the Billiards Association Control Board altered the rules in order to prevent the excessive use of the pendulum stroke. Not more than 35 direct consecutive cannons can now be made. In 1927 Reece had made a record break of 6,417 by means of pendulum cannons. In 1927 Thomas Newman retained the professional championship, but in 1928 and 1929 it was won by Joseph Davis of Chesterfield. In 1928 A. Wardle, of Manchester, won the amateur championship, and in 1929 it was won by H. Coles. See Lindrum, W.

BILLINGHAM.

Urban district of Durham. On the river Tees, 2 m. N.E. of Stockton-on-Tees on the L.N.E. Ry., it has extensive iron works. Since the War great developments have taken place. Imperial Chemical Industries has large works, the nucleus of which were factories created by the Government during the Great War. Other industries include shipbuilding yards. In 1930 the pop. was estimated at over 12,000.

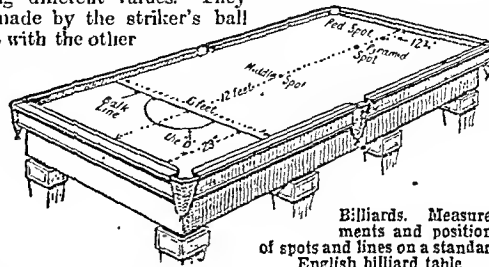
BILLINGS, Josu (1818-85). Pen-name of an American humorist, Henry Wheeler Shaw. Born April 21, 1818, in 1858 he settled at Poughkeepsie, New York, as a land agent and auctioneer, and began writing humorous articles for the local journal, subsequently contributing many papers to The New

York Weekly and The New York Saturday Press. These sketches, by reason of their quaint phonetic spelling and dry point and humour, became popular and were collected in Josh Billings: His Sayings, 1866; Josh Billings on Lee, 1868; Everybody's Friend 1876, and Josh Billings's Spice Box, 1881. He died in California Oct. 14, 1885.



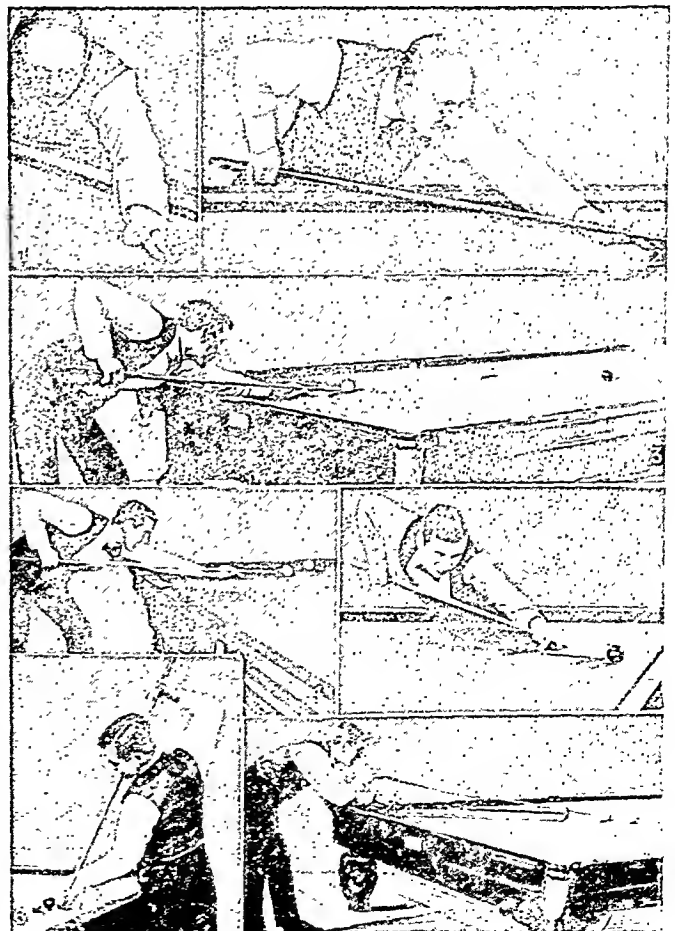
Josh Billings, American humorist

BILLINGSATE. Fish market and wharf on the N. side of the Thames close to the Custom House and just below London Bridge. The oldest market in London, Billingsgate became a free and open market for all sorts of fish in 1699. In 1830 a building was erected for the market by the city corporation. This was superseded by a larger structure in 1877. The vernacular of Billingsgate has become synonymous for abuse. See London.



Billiards. Measurements and positions of spots and lines on a standard English billiard table

BILLINGTON, ELIZABETH (1768-1818). British singer. Born in London, her maiden name was Weichsel, and both her parents were musicians. She made her first public appearance in Dublin, and, after studying in



Billiard positions for various strokes. 1. How to make the bridge. 2. Taking aim. 3. A drop cannon. 4. Top of the table cannon. 5. S. rewing into top left-hand pocket. 6. Massé stroke. 7. Using the rest

Nos. 1 and 2 from "Billiards Simplified," by Wallace Ritchie (Barroughs & Watts, Ltd.)

Paris, achieved great success in London and various cities in Italy. Bianchi's opera, *Inez de Castro*, was written for her, and Reynolds painted her portrait as *S. Cecilia*. Her first husband was a musician, James Billington, and her second husband a Frenchman named Felissent. She died in Italy, Aug. 25, 1818.

BILLITON, BLITONG, OR BILETON. Island of the Dutch E. Indies, between Borneo and Banca. Circular in shape, it is about 52 m. long by 50 m. broad; area, including many islets, is 1,873 sq. m. It is rich in tin, iron, and timber, and exports rice, trepang, edible birds' nests, tortoise-shell, wax, and spices. Pandang is the capital. Pop. 65,584.

BILLON (Fr. copper or bronze coin). In metallurgy, alloys of gold or silver with copper in which the base metal largely predominates, also coins made from such alloys. There is rarely more than one part of gold or silver to three of copper.

BILSTON. Urban district and market town of Staffordshire. It is 2½ m. S.E. of Wolverhampton on the G.W. and L.M.S. Rlys. A centre of the hardware trade, it has extensive iron foundries, smelting works, and potteries. Bilston is noted for grindstones. Market days, Mon. and Sat. Pop. 27,565.

BIMETALLISM. Name, first used in 1869, for a monetary system in which two metals, usually gold and silver, are employed as currency standards. The foundation of the system is that the two metals shall be coined freely at the mints and that both shall be legal tender to any amount. Great Britain, the U.S.A., and most other great countries do not allow this, gold alone being coined freely and being, except for very small amounts, the only legal tender, except in times of special stress.

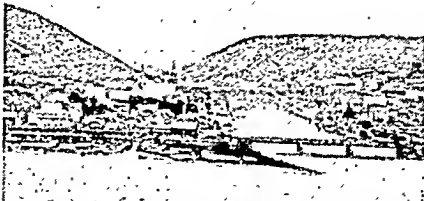
The agitation for an international system of bimetalism raged between about 1870 and 1900. It was strongest in the U.S.A., where it was an issue at presidential elections, but it was also strong in Great Britain and France. The agitation was led by producers of the silver, anxious to maintain its value, and those interested financially in India and the East, where its price in gold was rapidly falling, leaving them with heavy losses on the exchange.

BINCHE. Town of Belgium. On the Haine, about 10 m. E. by S. of Mons, it manufactures glass, cutlery, and leather, and trades in coal and marble. At the battle of Mons, Aug. 1914, the extreme right wing of the British army rested on Binche. On the retreat it was occupied by the Germans. See Mons.

BINDWEED (*Convolvulus arvensis*). Perennial herb of the order Convolvulaceae. It has a long underground root-stock, from which arise many trailing or twining stems. The leaves are spearhead-shaped; the flowers fragrant, funnel-shaped, pink or white, an inch across. A native of Europe, N. Africa, and Asia, it is a weed in cornfields and gardens. The hedge bindweed (*Volulus sepium*) has much larger leaves and inodorous white flowers. Black bindweed is a variant name for the black bryony (*Tamus communis*).

BINET. ALFRED (1857-1911). A French psychologist. He was born at Nice, July 8, 1857, and became director of the laboratory of psychology at the Sorbonne. He aimed at securing a standard by which to measure intelligence, and was in favour of the application of hypnotism in certain conditions. The results of his work are seen in the Binet-Simon Tests of 1905 and 1908, probably the best yet devised. He died in Paris, Oct. 18, 1911.

BINGEN (anc. Bingium). Town of Hesse, Germany. On the left bank of the Rhine at its junction with the Nahe, it is 17 m. W. of



Bingen, Germany. The town on the left bank of the Rhine, near the entrance to the Rhine gorge

Mainz. It has a 15th century church, an old town hall, and a technical school. The chapel of S. Roch is a pilgrim resort; in the Mouse Tower Hatto II, archbishop of Mainz, is said to have been devoured by mice. It manufactures starch, leather, and tobacco, and trades in wine, grain, cattle, and coal. It was a Gaulish and later a Roman settlement. Long the territory of the electors of Mainz, it became part of Hesse in 1815. Near it are the famous rapids, the Bingerloch. Pop. 9,146.

BINGLEY. Urban district and market town of Yorkshire (W.R.). It is on the river Aire, 5 m. N.W. of Bradford, on the L.M.S. Rly., and has worsted, woollen, cotton, and paper manufactures. Pop. 18,942.

BINH-DINH. Town of Annam, French Indo-China. It is 275 m. N.E. of Saigon, and about 11 m. N.W. of Qui-Nhon or Kwinhon, its port on the China Sea. It trades in cereals, cotton, cinnamon bark, etc. Pop. 74,400.

BINNACLE. Stand in which a compass is carried aboard ship. The compass is so fixed that the motion of the vessel does not affect its working. The older form of the word is *bittacle*. See Compass.

BINNEY, THOMAS (1798-1874). British divine. He was born at Newcastle-upon-Tyne, and after serving as a bookseller's apprentice became a Congregational minister. After being at Bedford and Newport, I.W., he moved to London, where from 1829 to 1869 he was minister of the King's Weigh House Chapel. Twice chairman of the Congregational Union, he gained great popularity as a preacher. Died Feb. 24, 1874. Binney wrote *Is it Possible to Make the Best of Both Worlds?* 1853.

BINNIE, SIR ALEXANDER RICHARDSON (1839-1917). British engineer. Born in London, March 26, 1839, he was educated privately and became a civil engineer. He was engaged on rly. construction in Wales, 1862-66, and in the Public Works Department in India 1868-74. From 1875-90 he was municipal engineer at Bradford, and from 1890-1901 he was chief engineer to the London County Council. The Blackwall tunnel was his work. Knighted in 1897, he died May 18, 1917.

BINOCULAR (Lat. bini, two together; oculus, eye). Term for special forms of micro-

scopes and telescopes. The arrangement of the lenses is such as to enable the eyes together to receive the impression of a single image, though each eye receives the impression through a distinct set of lenses. See Microscope; Telescope.

BINOMIAL (Lat. bis, twice; nomen, a name). In mathematics, a binomial expression is one which is composed of the sum or the difference of two terms, as $(x + y)$ or $(x - y)$. The binomial theorem, enunciated by Isaac Newton, expresses in the form of a mathematical series the result of raising a binomial to a given power, by multiplying it successively into itself.

BINTURONG (*Arctictis binturong*). Small animal, related to the civet, found in southern Asia. It is the size of a small cat, and is covered with coarse black hair.

BINYON, LAURENCE (b. 1869). British poet. Born at Lancaster, Aug. 10, 1869, he was educated at S. Paul's School, London, and Trinity College, Oxford. He entered the British Museum in 1893 and became assistant keeper in the department of Oriental prints and drawings in 1909. At Oxford Binyon won the Newdigate prize, and his first volume of poetry was published in 1894. Several additional volumes appeared subsequently.



Laurence Binyon, British poet
Elliott & Fry

BIOBIO. Longest river of Chile. Rising in the Andes, and flowing N.W. through Biobio province for some 230 m., it enters the Pacific below Concepción, where it is 2 m. wide. It is navigable for small craft up to Nacimiento, nearly 100 m. from its mouth. It gives its name to an inland province of Chile.

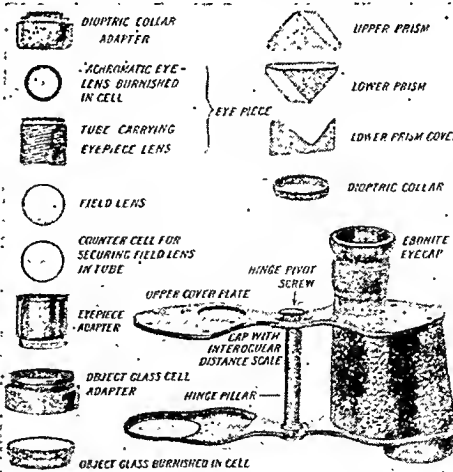
BIO-CHEMISTRY. Branch of chemical science which deals with the structure of the constituents of living objects. Apart from the mineral components of plants and animals, bio-chemistry concerns itself with the highly complex bodies found in living matter, their constitution, and how they are utilised in the tissues. In 1927 a school of bio-chemistry was opened at Oxford. The building is the gift of the Rockefeller Trustees. See Biology.

BIOGENESIS (Gr. bios, life; genesis, generation). Theory of the origin of life, according to which all living cells and organisms must arise from a pre-existing

living cell, i.e. life cannot be generated from non-living matter. See Biology.

BIOGRAPHY. Name applied to all books relating the lives of individual men or women. Bayle's *Dictionnaire Historique* and the *Biographie Universelle* were issued between 1811 and 1828. The *Dictionary of National Biography* is confined to Britishers. A notable collection is *Plutarch's Lives*.

Among the records of single men, Boswell's *Johnson* still stands easily head of the list; though Carlyle's *John Sterling* and Southey's



Binocular. Diagram showing the component parts and arrangement of prismatic binocular

Nelson are models of compact narrative; while the Goethe of George Henry Lewes, the Life of Charles Darwin by his son, and John Morley's Gladstone rank high among what may be called standard biographies.

The 19th and 20th centuries saw an enormous output of biographical work, as a life was written about almost every one who had any claim to fame. Some of these were inordinately long and most were wholly laudatory in tone. In addition there were short biographies of great writers and others, of which Mark Pattison's Milton in the English Men of Letters series is a good example. In the 20th century another kind of biography had a considerable vogue. This consisted of works which were frankly critical, such, for instance, as Lytton Strachey's Queen Victoria.

BIOLOGY (Gr. *bios*, life; *logos*, discourse). The science of life and the living; the branch of human knowledge which deals with the phenomena characteristic of and peculiar to living organisms. In a more restricted sense, biology means the science which deals with plants and animals and everything connected with them, its two great divisions being botany and natural history, to which must be added the science of bacteriology.

The two great aspects of the study of plant and animal life are those of structure and function; how living creatures are made, and how they perform their functions. A biologist who described a species of animal new to science would begin by stating in what part or parts of the world the animal was found. This section of biology is known as geographical distribution or zoo-geography. Next he would proceed to describe the form and appearance of the species; its shape, size, colour, position of limbs, wings, fins, and other external structures, or the absence of these. This involves that part of biology known as the science of structure or morphology. It is only by such study that the biologist can state accurately whether he is dealing with a mammal, a bird, a reptile, a fish, an amphibian, an insect, and so forth. Having completed this phase the biologist would turn to a study of the functions of the various structures, e.g. nutrition; reproduction and development; and those involving the relationship of the animal with the world around it.

The relationship of the new species to animals of past ages, as represented by their fossil remains, is dealt with by another branch of biology—palaeontology. There is still one other point of view, which may be called the philosophical aspect of animal life, the connexion of the species with other species; its relationship, its origin, its association, and its future. This is the study of evolution.

From time immemorial speculations about the origin of life have been made and theories advanced. The modern view may be stated to be that of a reserved scepticism, which does not actually deny the possibility of living matter arising from non-living, but tends to the belief that to-day at least life only springs from pre-existing life.

The great biological problems of variation, natural selection, and heredity are focused round the fact that life is continuous from one generation to another, through the material substance known as protoplasm. Accuracy of thought and discussion upon these difficult topics dates from Darwin's time. Much has been done since to throw light upon many facts which he was the first to discover, but the fact remains that it was to Darwin that the world owes its present conception of the science. See Animal; Botany; Cell; Evolution; Heredity; Mendelism; Zoology.

BION (2nd century B.C.). Greek bucolic or pastoral poet. Born near Smyrna, he spent most of his life in Sicily, where he is said to have been poisoned by a jealous rival. His

most famous poem is the Lament for Adonis, imitated in Shelley's Adonais.

BIONOMICS (Gr. *bios*, life; *nomos*, law). Branch of biology which deals with the study of the external life of plants and animals as opposed to their internal structures or other aspects of organic life. Bionomics studies the habits, manners, and customs of living creatures, noting how their external configuration is adapted to the environment in which they live. See Biology.

BIOT, JEAN BAPTISTE (1774-1862). French mathematician. Born in Paris, he became professor of physics at the Collège de France, 1800. He was a prolific writer on astronomy and geodesy, and undertook with Arago the measurement of an arc of meridian in Spain, 1806. He published an analysis of Laplace's *Mécanique Céleste*, 1801, accompanied Gay-Lussac on the first scientific balloon ascent, and did good work in optics, especially with regard to the polarisation of light. A brown variety of mica is named Biotite after him.

Biplane. Acroplane with two pairs of wings, set one above the other. See Acroplane.

BIRCH (*Betula alba*). Slender tree, 40 ft.-60 ft. high, with peeling white bark, native of Europe, N. Asia, and N. America. The leaves are wedge-shaped or oval. The male flowers grow in pendulous catkins, the female in a shorter, more erect spike. Birch has a light and graceful appearance; yet it grows in exposed situations at high elevation. It is short-lived and quick-growing, reaching maturity in 50 years.

There are several varieties. The silver birch has rough bark at its base, the branches drooping, and twigs warty. Common birch has smooth, often reddish bark at the base, branches closer and more horizontal, and twigs and leaves hairy. Dwarf birch (*B. nana*) is a mere bush with small, round leaves.

Birch bark is used for tanning, and contains a fragrant oil which gives its characteristic aroma to Russia leather. Birch tar is a thick oil obtained from birch wood and bark. It is used in medicine and, mixed with essential oils, is employed to keep off mosquitoes.

BIRCHINGTON. Seaside resort in Thanet, Kent. It is 2 m. W. of Margate, on the Southern Rly., has good bathing facilities, and an 18-hole golf course. Pop. 3,503.

BIRD. Birds may be defined as warm-blooded feathered bipeds which lay eggs. The fore-limb has become in almost all cases a wing capable of flight, while the heart is four-chambered. Along with mammals, birds are the highest backboneed animals, but the two classes have evolved on divergent lines, and are not related except in having a common ancestry among reptiles.

The oldest known bird, *Archaeopteryx*, whose well-preserved remains have been found in Jurassic rocks, had many reptilian features; it has been placed in a special sub-class, *Saururæ*. In contrast, all other birds are usually called *Neornithes*, and often divided into a small section of flightless birds (*Ratitæ*), with raft-like breastbone, and an enormously larger section (*Carinatae*) of flying birds, having a keeled breastbone. The flightless birds include the ostriches, the emus and cassowaries, and the kiwi.

The more important orders of flying birds may be arranged in groups: (a) penguins, grebes, divers, and petrels; (b) ducks, geese, and swans; (c) storks and herons; (d) birds of prey; (e) pelicans, gannets, and cor-

morants; (f) game-birds and mound-birds; (g) rails and cranes; (h) pigeons and sand-grouse; (i) gulls, auks, and plovers; (j) cuckoos, parrots, woodpeckers, kingfishers, owls, swifts, and humming-birds; and (k) the great tribe of perching-birds or *Passeres*.

Birds have acute senses of sight and hearing and a relatively large brain: the power of accommodation or rapidly altering the focus of vision is greater than in any other creatures. The well-developed brain is the seat of considerable intelligence, and also of numerous inborn capacities or instincts.

Birds play an important part in checking the multiplication of small mammals (such as mice and voles), slugs and snails, and injurious insects. Some birds destroy useful animals, such as edible fishes; others destroy crops and fruits, and others distribute weeds, but the activities of birds are of value to mankind.

In most civilized countries official protection is given to game birds and birds useful in agriculture; also to rare, migratory, and plumage birds. In Great Britain protection is afforded by Acts of Parliament, which forbid the shooting, taking and selling of certain birds during stated seasons. Cruelty to birds is also an offence against the law, and there is a Royal Society for the Protection of Birds at 82, Victoria Street, London, S.W.1. Bird sanctuaries, areas set aside wherein birds can live unmolested, are another form of protection, and of them there are a number in Great Britain, including one in Hyde Park, London. See Lark; Partridge; Pheasant, etc.

BIRD, EDWARD (1772-1819). British painter. Born at Wolverhampton, he started a drawing school at Bristol, painting in his spare hours. Good News, shown at the Academy in 1809, Chevy Chase, and Queen Philippa and the Burghers of Calais are conspicuous among his works. He became an A.R.A. in 1812 and R.A. 1815. He died in Bristol, in Nov., 1819.

BIRDCAGE WALK. London thoroughfare on the S. side of St. James's Park. It was so called from the aviaries beloved by Charles II.



Birdcage Walk, St. James's Park, London. Wellington Barracks stand behind the trees on the right.

Its largest and most prominent building is Wellington Barracks, opened in 1814. See London.

BIRD CHERRY (*Prunus padus*). Shrub or small tree of the order Rosaceae. It grows wild in the woods of Northern England and Scotland and is cultivated in gardens. The flowers are small, white in colour, and borne in pendulous racemes. The ovoid black berries are bitter and unpalatable, though eaten by birds. The leaves are egg-shaped.

BIRDLIME. Sticky substance which draws out into long tough strings. It is smeared on trees or netting to snare small birds. Birdlime proper is made from the inner bark of the holly-tree, mistletoe berries, the woolly-stemmed distaff thistle, and other trees and plants. A similar substance can be obtained from the gluten of wheat flour.

BIRD OF PARADISE. Member of a family of passerine birds, *Paradisæidae*, closely related to the crows and famed for their

beautiful plumage. There are over fifty species, all natives of the E. Indies and N. Australia. The males in the breeding season put on a dress of extraordinary magnificence.

BIRD OF PARADISE FLOWER. (*Strelitzia reginae*). Perennial herb of the order Scitamineae, a native of S. Africa. The fine, oval-oblong leaves, on long, erect stalks, spring direct from the root-stock, and stand about 5 ft. high. Each flower consists of slender sepals and petals brilliantly coloured with orange and purple.



Bird of Paradise flower Bloom of this S African plant

BIRDOSWALD. Site of the Romano-British station of Amboglanna, Cumbria. The largest fort on Hadrian's Wall, its masonry ramparts enclose 5½ acres and it held 1,000 men. Important excavations were made in 1929, Roman coins, pottery, and inscriptions being found. It was proved that the fort was built by Hadrian about 125 A.D. and, after destruction by the Picts, was restored by Severus. In 306 Constantine again restored it, and it was finally abandoned in 383. See Hadrian's Wall.

Bird's-Eye. Variant name of the pheasant's-eye (*Adonis annua*). See Pheasant's-eye.

BIRD'S-FOOT (*Ornithopus perpusillus*). Small annual leguminous herb, native of Europe and N. Africa. Its branching stems lie on the ground. The leaves consist of many pairs of narrow leaflets, and the tiny white flowers, veined with red, are borne in heads of three to six blossoms. The three curved seed-pods springing from a common stalk look like the claws of a small bird.



Bird's-foot, *Ornithopus perpusillus*

The Bird's-foot Trefoil, or lady's slipper (*Lotus corniculatus*), another leguminous herb, is a perennial valuable in pasture and meadow.

BIRD'S-NEST (*Hypopitys monstrosa*). Rare plant, a root parasite, which grows hidden among other vegetation at the base of heech and fir trees. It has no leaves, but its juicy stem is sheathed with scaly bracts. The brownish yellow flowers grow in a drooping terminal cluster. Another leafless parasite found growing in like situations in dark heech woods is the Bird's-nest Orchis (*Neottia nidus-avis*). The stem is clothed with bracts. The flowers are greyish-brown and small in size.

BIRDWOOD, SIR WILLIAM RIDDELL (h. 1865). British soldier. Born in India, Sept. 13, 1865, a nephew of Sir George Birdwood, he belonged to a family long connected with the government of India. He joined the Scots Fusiliers in 1883, transferring to the 11th Bengal Lancers in 1886. He saw service on the Indian frontier between 1891-98, and in the South African War served on the staff, and returned to India in 1902 as military secretary to Kitchener. He acted as chief staff officer on the Mohmand expedition, and in 1912 was appointed quarter-master-general in India, and afterwards secretary to the Indian Government for military affairs. In 1914, then a knight, he was selected to command the Australian corps, which he led in Egypt and in Gallipoli. On Sir Ian Hamilton's retirement he assumed command of the army in Gallipoli. He



Sir W. R. Birdwood. British soldier. Surname

remained at the head of the corps when it was moved to the western front, and in May, 1918, took over the command of the Fifth Army. Birdwood was created a baronet in 1919 and a field-marshal in 1925. He was commander-in-chief in India from 1925 until his retirement in 1930.

BIRETTA (Italian herotta; O.E. harret-cap). Form of headdress for men, once worn as a mark of honour by scholars and others. The word is usually applied to the square or three-cornered cap of silk or other stuff worn by Roman Catholic and High Anglican ecclesiastics. It is regarded as the non-episcopal form of the mitre, the cap for cardinals being red, for bishops violet or black, for priests black.

BIRKA. Old capital of Sweden. It is on the island of Björkö in Lake Mälaren and can be reached by steamer from Stockholm. Here, about 830, S. Ansgar built the first Christian church in Sweden. Birka is now only a village, but is much visited by pilgrims.

BIRKBECK, GEORGE (1776-1841). British philanthropist. The son of a Yorkshire hanker, he was educated at Edinburgh University, where he graduated in medicine in 1799. As professor of natural philosophy at the Andersonian University (later Anderson's College), Glasgow, 1800-4, he lectured to a class which in 1823 developed into the Glasgow Mechanics' Institution. Later he practised medicine in London, where he died Dec. 1, 1841.

Birkbeck College, which he helped to found, is a constituent college of the university of London. The buildings are in Bream's Buildings, Chancery Lane, W.C.

BIRKBECK BANK. Offshoot of the Birkbeck Building Society, which was founded in 1851, and soon became one of the largest of the kind. The society began to receive deposits from the general public, and this branch of the business was popularly termed the Birkbeck Bank. In June, 1911, the bank suspended payment. The total liabilities were over £10,700,000. Eventually, all the assets being realized, shareholders and depositors received 16s. 9d. in the £.

Birkdale. Formerly an urban dist. and market town of Lancashire. Since 1911 it has been part of the borough of Southport.

BIRKENFELD. Province and town of Oldenburg, Germany, not far from Trèves and Luxembourg. The province has an area of 194 sq. m., and is politically part of Oldenburg, although geographically widely separated from it, being entirely surrounded by parts of the Rhine province. It was formed as a principality in 1815 and given to the grand duke of Oldenburg. Pop. 55,649.

BIRKENHEAD. British troopship. On the night of Feb. 25, 1852, she struck a sunken reef off Cape Agulhas, the southernmost point of Cape Colony. At the time the vessel had on board 500 soldiers and 134 crew, with a number of women and children. The women and children were put into the boats. The men fell in and stood to their ranks as firmly as though on parade, while the ship went down under them. Only 192 people were saved.

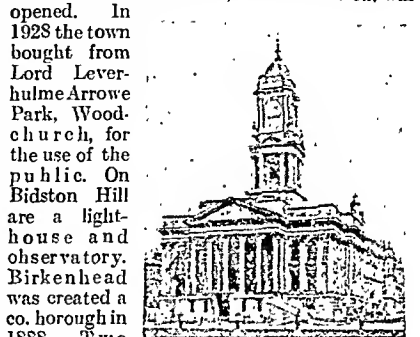
BIRKENHEAD. Borough, seaport, and market town of Cheshire. Opposite Liverpool on the W. bank of the Mersey estuary, it is 194 m. N.W. from London, on the Birkenhead

(L.M.S. and G.W. Joint) and Wirral rlys. The opening of the first dock at Wallasey Pool in 1847 was the beginning of Birkenhead's rise to prosperity. The docks now cover an area of 171 acres, and are controlled by the Mersey Docks and Harbour Board. The principal docks are the Egerton, Morpeth, Morpeth Branch, Wallasey, and Alfred, and the 9½ m. of quays are equipped with large warehouses. Shipbuilding is the most important industry.



Biretta, or three-cornered cap, worn by ecclesiastics

Birkenhead has ferry and rly. connexion with Liverpool, the latter by the Mersey tunnel. The buildings include a town hall, market hall, hospital, public abattoir, free libraries, and museum. In 1929 an art gallery, called after its founders, the Williamson, was opened. In 1928 the town bought from Lord Leverhulme Arrowe Park, Woodchurch, for the use of the public. On Bidston Hill are a light-house and observatory. Birkenhead was created a co. borough in 1888. Two members are returned to Parliament. Market days, Tues. and Fri. Pop. 162,000.



Birkenhead. The Town Hall, which overlooks Hamilton Square. Valentine

BIRKENHEAD, FREDERICK EDWIN SMITH, EARL OF (h. 1872). British lawyer and politician. Born at Birkenhead, July 12, 1872, the son of a barrister, he was educated at Wadham College, Oxford, where he had a brilliant career. Called to the bar, he lectured on law at Oxford, but soon moved to London, where he quickly made a reputation as an advocate. He became a K.C. in 1908.



Earl of Birkenhead. British lawyer. Bassano

In 1906 Smith was returned to Parliament as Conservative member for the Walton division of Liverpool, and there his rise was as rapid as at the bar. He proved an able debater, and in 1911 was made a privy councillor. In 1915 he joined the Coalition as solicitor-general, and was knighted.

He was attorney-general 1916-19, and in 1919 was made lord chancellor and a peer. In 1921 he was created a viscount and in 1922 an earl. In 1924 he became secretary for India, but in 1928 he left political life for business, becoming chairman of a large undertaking concerned with the supply of electricity and director of other concerns. His eldest son is called Viscount Furneaux, this being the maiden name of his wife.

Birkenhead has written a great deal. Many of his hooks possess only a temporary value, but his writings on international law, like some of his judgements in the House of Lords, have a high and permanent value. His work in drafting the laws of 1922 and 1925 affecting real property is also notable.

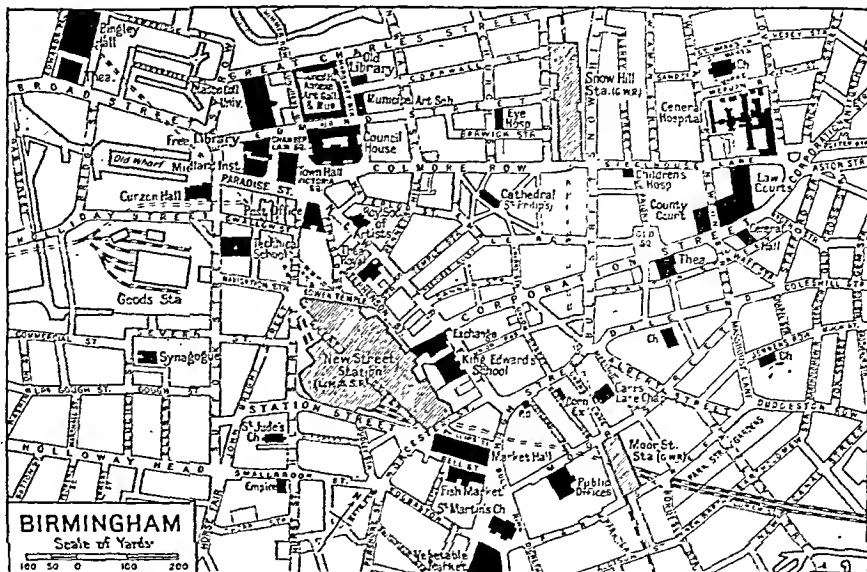
BIRKETT, WILLIAM NORMAN (b. 1883). British lawyer. Born at Ulverston, Sept. 6, 1883, he went to Emmanuel College, Cambridge, where he was president of the Union. Admitted a barrister in 1913 and made a K.C. in 1924, he became one of the most popular advocates in the country. In 1923-24 he was Liberal M.P. for E. Nottingham, and he was again elected for that constituency in 1929.



Norman Birkett,
British lawyer
Mabel Robey

BIRMINGHAM. British light cruiser. Of the Chatham class, she was 460 ft. long and displaced 5,400 tons. On Aug. 9, 1914, she sank a German submarine, and she was present in the Heligoland and Jutland battles.

BIRMINGHAM. Largest provincial city of England and the third largest city of Great Britain. In Warwickshire and Worcestershire, it is 111 m. from London, and has a population of 952,800. It is governed by a lord mayor and an elected council, and returns 12 members to Parliament. The city covers 68 sq. m. Birmingham was the first large town in England to adopt a comprehensive town planning scheme, and its corporation established the first municipal bank



Birmingham. Plan of the metropolis of the Midlands and third largest city in Great Britain

machine tools and other engineering products, scales and weighing machines, edge tools, screws, nails, coinage, buttons, military ornaments, medals, japanned, galvanised, and enamelled ware, motor vehicles of all kinds, bicycles, tires and other rubber goods, chemicals and glass ware, sporting guns and rifles, military rifles, cartridges and cartridge cases of all sizes, jewelry, gold, silver, and plated goods, and leather goods. Near is Bournville, with its chocolate and cocoa works. The city is served by the L.M.S. and G.W. Rlys. In 1929 the first part of an enormous power station for supplying a great area in the midlands with electricity was opened.

Since 1904 Birmingham has been an episcopal see. The mother church, S. Martin's, dating from the 13th century, was rebuilt in 1874. S. Philip's church, now the cathedral, built in 1719 and since enlarged, is in the Palladian style. Four large windows are by Burne-Jones. Birmingham became a Roman Catholic bishopric in 1850, and an archbishopric in 1911. S. Chad's, the Roman Catholic cathedral, by Pugin, is in Bath Street. Of Nonconformist places of worship the oldest and best known is Carr's Lane chapel. The Central Hall is the Wesleyan Methodist centre. There is a Jewish synagogue in Blucher Street.

The town hall, in the style of a Greek temple, the scene of the first production of Mendelssohn's *Elijah*, has a fine organ, and is used for the triennial musical festivals, dating from 1778. In Colmore Row, near the town hall, is the council house, begun in 1874. In Edmund Street

there are extensive additions. The corporation museum and art gallery is in the upper part of the council house. The newer part is the Feeney Galleries. The city's art treasures include one of the finest pre-Raphaelite collections and the largest collection of the works of the local artist, David Cox. The Central Free Library contains the Shakespeare memorial library. Birmingham Library is in Margaret Street.

Chamberlain Square has a marble Gothic fountain commemorating Joseph Chamberlain's municipal services. New Street, the oldest street of modern Birmingham, contains, besides King Edward's Schools, the Theatre Royal, the gallery of the Royal Society of Artists, and the Exchange. Aston Park contains Aston Hall, a fine Jacobean mansion, used as a branch museum and art gallery. The corporation purchased Canwell Hall and estate, near Sutton Coldfield, for small holdings for ex-soldiers. A large area has been acquired in the centre of the city for a new civic centre. The Hall of Memory, a war memorial, was opened in 1925. In 1928 a new Stock Exchange was opened. The Birmingham



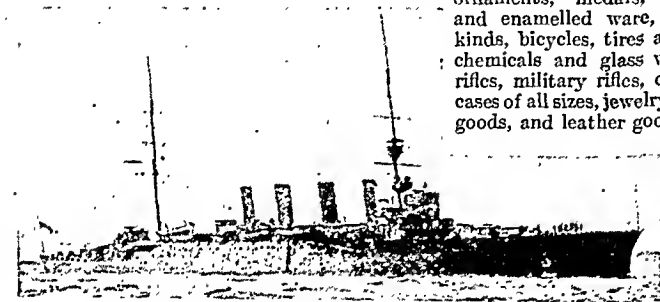
Birmingham. The Stock Exchange, which was opened in 1928

Daily Post, founded in 1857, is one of the leading dailypapers in the Midlands.

The university grew out of Queen's College, founded as a school of medicine in 1828 and afterwards merged in Mason College. The site

at Edgbaston was presented by Lord Calthorpe, and thereon extensive buildings have been erected, these including a science block, opened in 1927. Joseph Chamberlain was the first chancellor and Sir Oliver Lodge the first principal. In 1919 Sir C. Grant Robertson became principal. Other educational centres are the technical school, the gun trade school, and the school of art.

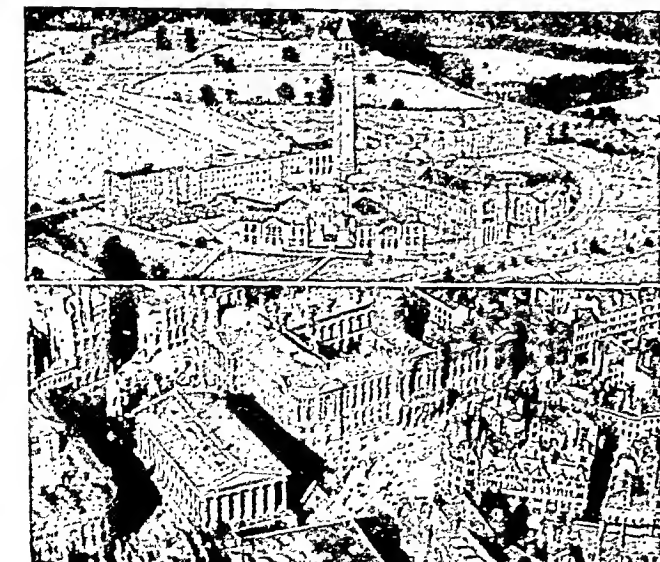
BIRMINGHAM. Largest city of Alabama, U.S.A. It lies 97 m. N.W. of Montgomery. Birmingham Southern College was created in 1918 by consolidating Birmingham College



H.M.S. Birmingham, a British light cruiser completed in 1914
Cribb, Southsea

in the country, in 1919. After the Great War it adopted Albert

The city is the chief centre of the brass and other non-ferrous metal industries. Among its manufactures are railway carriages and wagons, steam engines, electrical machinery,



Birmingham. Above, air view of the University buildings. Below, the centre of the city showing, left, the Town Hall, and, right, the Council House
(Top) Aero Hire, Ltd.; (Bottom) Surrey Flying Services

and Southern University. Birmingham owes its origin to the discovery of coal and iron. Its iron and steel manufactures are of first importance, and cotton and lumber products, flour, and cotton-seed oil are other interests. Birmingham was founded in 1871, and was named after the English city. Pop. 178,806.

BIRMINGHAM, GEORGE A. (b. 1865). Pen name of the Rev. James Owen Hannay, Irish novelist. Born July 16, 1865, the son of a clergyman, and educated at Haileybury and Trinity College, Dublin, he was ordained in 1888. From 1892-1913 he was rector of Westport, Mayo, and from 1924 of Mells, Somerset. He has written a number of novels, dealing in a humorous, farcical way with Irish life. Among these are *Spanish Gold*, 1908, *The Simpkins Plot*, and many others. His humorous survey of modern Irish affairs, contained in *An Irishman Looks at his World*, appeared in 1919. Later works include *Goody Pearls*, 1926, and *Fidgets*, 1927. His plays include *General John Regan*, 1913.



G. A. Birmingham,
Irish novelist
Russell

BIRNAM. Village and tourist resort of Perthshire, Scotland. It is on the river Tay, 15 m. N.N.W. of Perth by the L.M.S. Rly. The church of S. Mary is in the Early English style. To the S. is Birnam Hill (1,324 ft. high), with the remains of a fortified camp where King Duncan is said to have held his court. Of the Birnam Wood of Shakespeare's *Macbeth* no traces are visible.

BIRON, ERNST JOHANN DE (1690-1772). Russian statesman. The son of a landed proprietor in Courland, named Bühren, he became the favourite of Anna Ivanovna, and on her accession as empress, 1730, he took the name of De Biron and was made duke of Courland. For ten years (1730-40) he was the real ruler of Russia. He assumed the regency on the death of Anna, but a conspiracy overthrew him after three weeks, and he was exiled to Siberia. He returned in 1741, and Catherine II restored him to the duchy of Courland. He died Sept. 28, 1772.

Birr. Old name of the Irish town known as Parsonstown (q.v.).

BIRRELL, AUGUSTINE (b. 1850). British author and politician. Born near Liverpool, Jan. 19, 1850, son of a Nonconformist minister, he graduated at Trinity Hall, Cambridge, 1872, and was made a fellow of his college. Called to the bar at Lincoln's Inn, from 1896-9 he was Quain professor of law at University College, London. In 1889 he entered Parliament as Liberal M.P. for West Fife, but lost his seat in 1900. In 1905 he was made president of the Board of Education, and at the general election he was returned to Parliament for North Bristol. From 1907 until April, 1916, he was secretary for Ireland, and he retired from Parliament in 1918.

As a man of letters, Birrell's writings, especially his essays, are marked not only by knowledge and critical insight, but also by grace and humour. He began with *Obiter Dicta*, 1884, followed by a second series in 1887. Other similar volumes are *Res Judicatae*, 1892; *Essays about Men, Women, and Books*, 1894; *Collected Essays*, 1899; and *Miscellanies*, 1901. He also wrote biographies of Charlotte Brontë (1887) and Andrew Marvell (1905). His recollections were written in 1930.

BIRSAY. District of Mainland, Orkney Islands. It includes a loch known by the names of Birsay, Kurbuster, and Boardhouse. There are many standing stones and other antiquities. Marwick Head, in Birsay Bay, was chosen as the site for a monument to Earl Kitchener, who went down in H.M.S. Hampshire close to this spot on June 5, 1916.

BIRSTALL. Urban district and market town of Yorkshire (W.R.). It is 7 m. S.W. of Leeds on the L.M.S. Rly., and has worsted and cotton manufactures, iron foundries, and coal and ironstone mines. It was the Brinfield of Charlotte Brontë's *Shirley*. Pop. 7,086.

BIRTH. Act of bringing forth young or being born. A child is born in the legal sense when every part of it has been extruded from the mother, but it is not necessary that the umbilical cord which attaches the child to the mother through the placenta should have been cut. A child is born alive if, after complete birth, it shows the smallest sign of life, even if only momentary. Where inheritance of property or a title may turn on the birth, a muscular movement or a gasp for breath, even if the child does not respire, is sufficient to establish live birth.

In England and Wales a birth must be registered with a registrar of births, marriages, and deaths within 42 days, and in Scotland within 21. This duty falls in the first instance upon the father; failing him, upon the occupier of the house, or the doctor or midwife who was present at the event. The birth of a stillborn child must also be registered. A birth at sea is recorded by the captain of the ship, and one of a British subject abroad by a consul. Certificates of birth, which are required for many purposes, can be obtained at the General Register Office, Somerset House, London, or from any registrar.

BIRTH CUSTOMS. In primitive society birth customs may spring from animistic speculations upon the mystery of being, or from a presumptive physiological sympathy between man and wife. Sympathetic magic accounts for the care exercised by expectant mothers to avoid the sight of a long-nosed monkey, as with Borneo Kayans, or to eat a trumpet-shell, as in Murray Island. To avert the evil eye, salt may be sprinkled, or the house mirrors shrouded, as in the Aegean islands. To placate the spirits, animals may be sacrificed. The mother may place the babe in a hen coop and cluck to attract the baby soul.

Birthmark. A birthmark is any mark on the skin, such as a mole, that is present at birth. Such are often useful for identification.

BIRTH RATE. This may be measured in several ways, but the most common is by the number of infants born in the year per

Year	Births per 1,000 Living	
	England & Wales	Scotland
1885	32.9	32.7
1890	30.2	30.4
1895	30.3	30.0
1900	28.7	29.6
1905	27.3	28.6
1910	25.1	26.2
1915	21.8	23.0
1916	21.0	22.0
1917	17.8	20.3
1918	17.7	20.5
1919	18.5	22.0
1920	25.5	28.1
1921	22.4	25.2
1922	20.4	23.8
1923	19.7	22.8
1924	18.8	21.9
1925	18.3	21.3
1926	17.8	20.9
1927	16.6	19.8
1928	16.7	—
1929	16.3	—

Birth Rate. Table showing declining rate over a period of 43 years

the difference is the change of population per thousand, assuming that

there has been neither emigration nor immigration. Consideration, however, will show that when birth rates are employed for comparing one country with another, or the same country in two different years separated by an appreciable interval, the use of crude birth rates may lead to erroneous conclusions, since the number of infants born depends not only upon the actual fertility of mothers, but upon the proportion of women of child-bearing age in the population, the proportion of these who are married, and the proportion of illegitimate births.

BIRTHRIGHT. Word indicating the privileges of the first-born son of a Hebrew family. These included a right, if fit, to the priesthood, a double portion—probably twice as much as any other son—of the father's property, and succession to the father's authority. Conditions varied in the patriarchal age, and later the law was given through Moses (Gen. 25, 48, and 49; Deut. 21; 1 Chron. 5; 2 Chron. 21). See Esau; Family; Primogeniture.

BIRTLEY. Village of Durham. It is on the L.N.E.R., 5 m. S.E. of Gateshead, on the Durham coalfield. During the Great War a national projectile factory was built here. Here also was established a colony known as Elisabethville, which contained about 6,000 Belgian exiles. Pop. 11,279.

There is another Birtley, in Northumberland, 5 m. S.E. of Bellingham, with an interesting Early English church and sites of British or Roman camps.

BISCAY, BAY OF (anc. Sinus Aquitanicus or Sinus Cantabricus). Opening of the Atlantic, along the coast of N. Spain and W. France. Measuring some 325 m. from Brittany to Galicia, its depth varies from 20 to 200 fathoms. The Spanish coast is bold and rocky, but much of the French shore is low and sandy, with lagoons. It receives the waters of the Loire, Garonne, Adour, and other French rivers, but only a few unimportant ones from Spain. With winds from the N.W. it may become dangerous to navigation. The Spanish province of Biscay or Vizcaya borders the bay. It lies between Guipúzcoa and Santander, and is 836 sq. m. in extent.

BISCEGLIE (anc. Vigiliæ). City and seaport of Italy. On the Adriatic, 15 m. by rly. S.E. of Barletta, it has a 12th century cathedral and remains of a Norman castle. Pop. 35,000.

BISCOE SEA. Part of the S. Atlantic Ocean within the Antarctic Circle, between Weddell Sea and Enderby Land. It is named after John Biscoe, who explored it in 1837. Biscoe Islands, discovered by Biscoe in 1832, lie W. of Graham Land.

BISCUIT (Lat. bis, coctus; Fr. bis, cuit, twice cooked). Kind of flat cake, baked hard. The principal difference between biscuit and bread or cake is that the former is made either without leaven or with but a small proportion of yeast, and is baked at a higher temperature.

The basis of all hard biscuits is flour and water. Soft biscuits contain butter, sugar, and eggs. In some biscuits a small amount of yeast or baking powder is used, but such biscuits do not keep well.

Biscuit ware is a term applied to fired, unglazed pottery; also to a fine pipe-clay ware, imitating china. See Pottery.

BISHOP (Gr. episkopos, overseer; A.S. biscop). Official of the Christian Church. The word means, generally, a superintendent, civil or religious, and was at first used interchangeably with presbyter or elder. Bishops exist in the Roman Catholic and Anglican Churches all over the world, as well as in the Methodist Episcopal Church of America, the Moravian Church, among the Lutherans of Scandinavia, and in Eastern Churches.

In England a bishop of the Anglican Church is the spiritual overseer of a district or diocese, with his see or chair in the principal church in that district. He takes his title from the town or city in which that church is situated, has power to administer confirmation and ordination, and to consecrate other bishops, churches, churchyards, and memorials. After consecration a bishop takes precedence, as a lord spiritual, above the barons and below the viscounts, but his wife does not rank as a peeress. He signs his name by his title, e.g. A. F. London, sometimes using the Latin name of the see, e.g. T. Winton or St. Clair Sarum. Appointments are made by the sovereign on the recommendation of the prime minister. The 24 senior bishops sit in the House of Lords.

Bishop, Dr. Winnington Ingram, in his vestments

In addition to these diocesan bishops, as they are called, there are in the Church of England suffragan or assistant bishops.

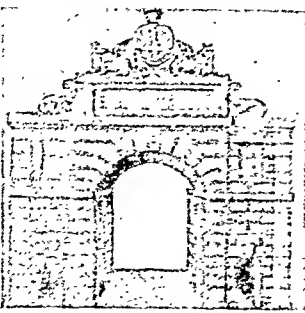
In non-established Churches, such as the Church of Ireland and Church of Wales, the modes of election are various. In the Roman Catholic Church every episcopal appointment needs the pope's sanction. See Anglicanism; Archbishop; Church of England; Diocese; Episcopacy.

BISHOP, ISABELLA (1832-1904). British traveller and writer. Born Oct. 15, 1832, she was the daughter of an Anglican clergyman, Edward Bird. For reasons of health she began to travel about 1854. Her most adventurous journeys were made in Asia, whither she went in 1878. Her books on Asia include *Unbeaten Tracks in Japan*, 1880; *Journeys in Persia and Kurdistan*, 1891; and *Korea and Her Neighbours*, 1898. At the age of 68 she explored Morocco and made long journeys in the Atlas Mountains. In 1881 Miss Bird married John Bishop, M.D., of Edinburgh. She died in Edinburgh, Oct. 7, 1904. Consult *Life*, A. M. Stoddart, 1906.

BISHOP AUCKLAND. Urban district and market town of Durham. At the confluence of the Wear and Gauness, it is 11 m. S.W. of Durham, on the L.N.E. Rly. Auckland Castle, the palace of the bishops of Durham, was founded by Bishop Anthony Bek about 1300. The centre of a mining district, there are also engineering works and cotton factories. Market days, Thurs. and Sat. Pop. 14,480.

BISHOP'S CASTLE. Borough and market town of Shropshire, 22 m. S.W. of Shrewsbury. It is the terminus of a light rly. from Craven Arms. It received its name from the castle of the bishops of Hereford. Market day, Fri. Pop. 1,268.

BISHOPSGATE. Formerly divided into Bishopsgate Street Within and Bishopsgate Street Without, i.e. inside and outside the old city walls, this London street runs N. from Gracechurch Street and proceeds across the E. side of Liverpool Street station. Near the house at the S.E. corner of Bishopsgate Street Without was the old gate, named after Bishop Erkenwald, who is believed to have built it. It was pulled down in 1760. The street contains the church of S. Helen.



Bishopsgate, one of London's City Gates. It was several times rebuilt from an old engraving

BISHOP'S RING. Dusky, reddish ring of about 20° radius, which, for a long time after the eruption of Krakatoa in 1883, surrounded the sun. It is named after George Bishop, who first observed it at Honolulu. The phenomenon, as well as the brilliant sunset and sunrise glows of the years 1883-5 was due to the presence of minute particles of dust from the volcano. It was last seen in June, 1886. Similar rings were observed in 1902, after the eruption of Mont Pelée, in Martinique.

BISHOP'S STORTFORD. Urban district and market town of Hertfordshire. On the River Stort, it is 14 m. N.E. of Hertford, on the L.N.E.R. It trades in grain, cattle, poultry, and lime. Malting is the chief industry. Market day, Thurs. Pop. 8,875.

BISHOP'S WALTHAM. Market town of Hampshire 9 m. S.E. of Winchester. The ancient palace, now in ruins, was erected by Henry of Blois, bishop of Winchester. Here William of Wykeham died. Pop. 2,597.

BISHOP WEARMOUTH. District in Sunderland. Originally it was a settlement on the south bank of the Wear, on land granted to the bishop of Durham in 930. It became a shipping and fishing centre, but about 1500 was merged in Sunderland. The chief church, S. Michael's, is on the site of an old one. See Sunderland.

BISHOPWEED or **GOATWEED** (*Aegopodium podagraria*). Perennial umbelliferous herb, a native of Europe and W Asia. Its root-stock creeps rapidly and extensively underground. The wedge-shaped leaves consist of two or three leaflets. The flowers are small and white,



Bishopweed, an umbelliferous herb

BISKRA. Health resort and oasis in Algeria. In a valley of the Aures Mts., alt. 360 ft., at the head of caravan routes, 140 m. by rly. S.W. of Constantine. It is noted for date palm and olive trees and has hot sulphur baths. Burnous and carpets are made. It was a Roman city. Ad Piscinam, and it was taken by the French in 1844. Pop. 10,000.

BISLEY. Village and common of Surrey. It is 2 m. N. of Brookwood station on the Southern Rly. A branch railway leads to Bisley Camp, which is on ground hired from the War Office by the National Rifle Association. The longest range for shooting is 1,200 yds., the shortest (for revolvers) 25 yds. At the Bisley Meeting, held for a fortnight every summer, competitions for all classes and kinds of rifles are provided. There are also revolver and pistol competitions. The most important competition is for the King's Prize (q.v.). The Ashburton Shield (q.v.) is competed for by the public schools of Great Britain. At other times of the year the ranges are available for private competitions and practice.

BISMARCK, OTTO EDUARD LEOPOLD, PRINCE (1815-98). German statesman. Born April 1, 1815, at Schönhausen, a village on the Elbe, he came of an old Prussian family. After education at Göttingen, where he became known as a duellist, Bismarck took part in the negotiations of 1848; from 1851-59 he was a Prussian member of the diet that, representing all the German peoples, met at Frankfurt. In 1859 he went to St. Petersburg, and in 1862, after a short term in Paris, he returned to Berlin as first minister of the Prussian king, William, a position he held for 28 years.



Prince Bismarck, German chancellor

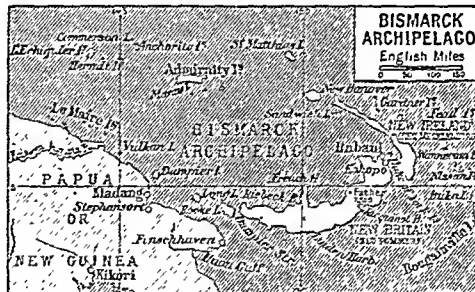
Famous now, owing to a passage in one of his speeches, as the man of blood and iron, Bismarck, by arbitrary methods, reorganized the army, engineered the war against Denmark, and then picked a quarrel with Austria, which ended in making Prussia the dominant German state. Four years later, by an alteration in the famous Ems telegram, he caused, or at least precipitated, the war with France. In 1871 came the foundation of the new empire, with himself now a prince, as its first chancellor.

Bismarck's abilities were then directed to developing the new Empire. He showed no mercy to those who would disturb its foundations, but he took the sting out of much revolutionary talk by his social reforms, which included a great scheme of national insurance, and by his policy of protecting home industries. In 1878, a great European figure, he presided over the Congress of Berlin and a little later formed the Triple Alliance. His last important move was an attempt to secure colonies for Germany. In 1888 William II became emperor, and in 1890 the chancellor was dismissed, being made duke of Lauenburg. After eight years in retirement he died at Friedrichsruh, an estate near Hamburg, given to him by the old emperor, July 30, 1898. His *Reminiscences* were published in 1919-20.

Bismarck's elder son, Herbert (1849-1904), was ambassador in St. Petersburg, 1884-85, and secretary for foreign affairs, 1886-90. He died Sept. 18, 1904. His son Otto inherited the titles and estates given to his grandfather.

BISMARCK ARCHIPELAGO. Group of islands in the Pacific, off the E. coast of New Guinea, acquired and so named by Germany in 1884-5. Captured in 1914 by an Australian force, they are administered by Australia as mandatory of the League of Nations. The largest is New Britain (formerly Neu Pommern); others are New Ireland (Neu Mecklenburg), Duke of York Islands (Neu Lauenburg), and Lavongai (Neu Hanover). The total area is about 15,570 sq. m. Rabaul is the capital. Pop. about 190,000.

BISMARCKBURG. Former name of the district in Tanganyika Territory now known as Ufipa. The port at the S. end of Lake Tanganyika, formerly known as Bismarckburg, is now called Kasanga.



Bismarck Archipelago. Group of islands in the Pacific. They are largely inhabited by Papuans

English Miles
0 10 20 30 40 50 60 70 80 90 100

BISMUTH. Metal, chemically an element, having an atomic weight of 209, atomic number 83, specific gravity at 12° C. 9.823, melting-point 264° C. Bismuth expands on cooling from the liquid to the solid state. The metal is greyish white in colour with a reddish tinge; crystalline, very lustrous, brittle, and easily reduced to powder. It is a bad conductor alike of heat and of electricity, and has a very low tensile strength.

Bismuth is found principally in the native state, but usually associated (not combined) with other metals, chiefly cobalt, copper, nickel, silver, lead, and tin. The principal sources have hitherto been the mines in Saxony and Bohemia; but large deposits of bismuth exist in Bolivia, while it is also found in Great Britain, the U.S.A., Sweden, Siberia, Australia, France, and Mexico.

Bismuth has important uses in medicine. The carbonate, sub-nitrate, and salicylate are used as sedatives in gastro-intestinal irritation and to allay vomiting and diarrhoea. The metal is a valuable element in the production of a number of important alloys, including type metal, fusible metals, and solder.

BISON. Small group of the ox family, comprising two species, the European and the American bison. They are distinguished by the low horns, rounded forehead, and greater height of the forequarters as compared with the hind ones. There is a large hump on the shoulders. A great mane covers the back of the head,

of extinction. It is now strictly protected by the American Government, and since about 1910 its numbers have increased. In Canada also the numbers of the bison have greatly increased. The animals are also protected in Sweden, there being a reserve for them in Vastmanland. See illus. p. 65.

BISQUE. French term, of unknown origin, for the odds given to an inferior opponent in tennis, lawn tennis, croquet, and golf. Bisque also means a thick soup, especially one made of crayfish or other shellfish, or of pigeons, quails or other birds. As a form of the word biscuit, the term is applied to pottery or stoneware after the first firing and before glazing, and to unglazed porcelain.

BISSAGOS or **BIJAGA.** Group of 16 large and many small sandy islands off Portuguese Guinea, W. Africa, opposite the Geba estuary. The climate is unhealthy. The inhabitants are a wild negro race. Products include rice, fruit and cattle. The larger islands, Bolama, Orango, and Gallinhas, contain many good harbours. The chief town is Bolama, with a pop. of about 4,000.

BISSEXTILE (Lat. bis, twice; sextus, sixth). Word meaning leap year, and formerly used as a name for it. This was due to the fact that in the Julian calendar the

extra day now represented by Feb. 29 was obtained by counting Feb. 24, which was the sixth day before the calends of March, twice over. See Calendar.

BISSING. MORITZ FERDINAND VON, BARON (1844-1917). German soldier. Born at Bellmansdorf, Jan. 30, 1844, he entered the German army as a lieutenant of cavalry in 1865, and took part in the wars of 1866 and 1870. In Dec., 1914, he became governor-general of Belgium, where he exercised an iron rule until his death, April 18, 1917. See Belgium.

BISTRITZA. River of Rumania. Rising in the Carpathian Mts., it flows 185 m. through Bukowina and Moldavia, and joins the Sireth near Bacau. From its gold-bearing sands it is known as the Golden Bistrizza.

There is another river of this name in Serbia. A tributary of the Cerna, this was the Bulgarians' second line of defence in front of Monastir when the Allies recaptured that town, Nov. 19, 1916.

BIT. Mouthpiece of a bridle carried by the horse in its mouth so that the driver may cause it to obey his will. It is usually of

metal, and both the cheek straps and the reins are attached to it. A curb bit has a curb chain instead of a bar, and gives the driver a very strong leverage by enabling him to compress the horse's mouth. A snaffle bit is joined in the centre, and is usually provided with cheek pieces so that the reins may not go into the horse's mouth.

BITHYNIA. Ancient division of Asia Minor. It was bounded W. by the Sea of Marmora (the Propontis), N. by the Black Sea, S. by Phrygia, and E. by Paphlagonia. In the 7th century B.C. it belonged to Lydia, but it was conquered by the Persians in 546 B.C. Its princes, however, became independent under Niconides I (d. 246 B.C.), their kingdom lasting until Nicomedes III bequeathed it, in 74 B.C., to the Romans, by whom it was united with Pontus. It was conquered by the Turks in 1298.

BITLIS or **BETLIS.** Capital of the Turkish vilayet of Bitlis in Armenia. It is built in a ravine surrounded by hills, and is 60 m. W. of Lake Van. Bitlis contains many mosques, bazaars, and convents, a palace, and a ruined castle. In 1895 many Armenians were massacred here by the Turks. As a result of fighting between Turks and Russians for its possession in the Great War part of the town was ruined, and its pop., owing to further massacres, fell to about 15,000.

BITON. In Greek legend a son of Cydippe, a priestess of Hera at Argos, and the brother of Cleobis. When oxen were unobtainable to draw their mother's chariot to her temple, they drew the chariot themselves a distance of about five miles. Hera, being asked by Cydippe to reward the piety of her sons, sent them into a sleep from which they never woke. The story is told by Herodotus.

BITONTO (anc. Butuntum). Town of Italy. In a fertile plain, 10 m. by light rly. W. of Bari, and 5 m. from the Adriatic, it retains its medieval walls and palace, has a fine Romanesque cathedral, and trades in olive oil and wine. The Austrians were here defeated by the Spaniards, May 25, 1734. Pop. 33,000.

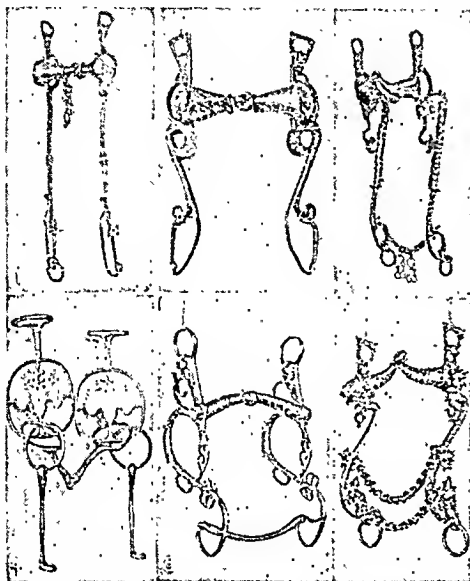
BITSCH or **BITCHE.** Town of France, in Alsace-Lorraine. It stands in a pass of the Vosges, 15 m. S.E. of Saargemünd. Industries include the manufacture of boots and watches. A fortress was constructed by the French on an eminence in the centre of the town. The Prussians failed to take it in 1793 and again in 1815. During the Franco-German war of 1870-71 it

was heavily bombarded, but successfully resisted, and only capitulated after the termination of hostilities. Pop. 3,420.

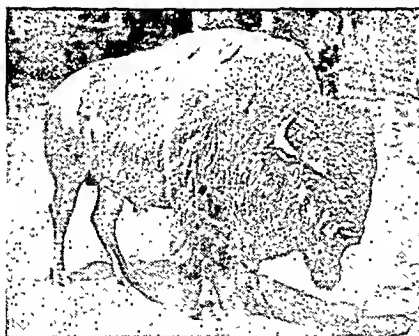
BITTER LAKES. Two lakes of Egypt, known as the Great and Small Bitter Lakes. The Suez Canal was cut through them. When the operations began the lakes were nearly dry. They provide nearly 23 m. of the canal's course, and are divided into two basins, the first 15½ m. and the second 7 m. long. See Suez Canal.

BITTERLING (*Rhodeus amarus*). A small fish of the carp group, somewhat like a roach. Found in parts of Central Europe, it rarely exceeds 3 ins. in length. Its flesh tastes somewhat bitter.

BITTERN (*Botaurus*). Marsh bird, closely related to the heron. There are half-a-dozen species. The common bittern is found in many parts of Europe, and it was formerly plentiful in the fen districts of England. It is a handsome bird, about 28 ins. long, with buff



Bit. 1. German, late 15th century. 2. German, 16th cent. 3. Milanese, damascened with gold, 16th cent. 4. Japanese, 17th cent. 5 and 6. German, 17th cent.



neck, and shoulders. This falls off in patches during the summer. There is a heavy beard under the chin. In former times the bison ranged over a large part of Europe, but it now lingers only in the forests of Lithuania and the Caucasus. The American bison formerly roamed the prairies in vast herds, but the destruction of the animal for its hide brought it to the verge



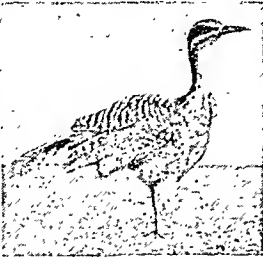
Bison. 1. American bison, Zool. Gardens, San Francisco. 2. European bison, which sheds its mane. Gambler Bolton, F.Z.S.



Bitterling. A fresh-water fish of Central Europe, with a bitter flavour.

plumage barred with brown and black. It feeds upon frogs and small fish.

In the 20th century the bittern was re-established in Norfolk and other parts of England, and orders made under the Wild Birds' Protection Act for its protection.



Bittern. American marsh bird, smaller than the British species

BITTERN.

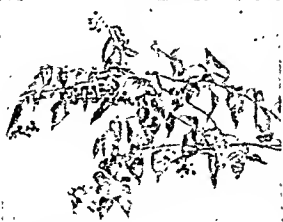
Bitter liquor left after the separation of common salt from sea-water by crystallisation. It contains magnesium chloride and smaller amounts of bromide and iodide, and it was formerly the chief source of bromine

BITTER PIT. Disease affecting apples. Small brown spots appear in the flesh of the fruit, and as they extend deeper into the flesh, the skin sinks into corresponding pits. The brown tissue is found to contain unaltered starch, which often acquires a bitter taste.

BITTER ROOT (*Lewisia rediviva*). Perennial herb of the order Portulacaceae, a native of N.W. America. It has a fleshy tapering root, supporting rosettes of slender succulent leaves. The large rose-coloured flowers open only in sunshine, after the leaves have withered. The root is used as food by the American Indians.

BITTERS. Aromatic, alcoholic beverages, made from infusions of bitter herbs, sugar, and alcohol, and taken as tonics, appetisers, or stomachics. Their usual object is to create appetite or excite the sense of hunger by stimulating the nerves which induce the flow of the salivary and gastric juices. They are drunk usually before meals with gin or sherry. Among substances used in their decoction are angostura, cascarilla, cinchona, gentian, orange peel, quassia, and quinine, while added flavours are given by cloves, peach kernels, caraway seeds, cinnamon, or juniper. Bitters contain a high percentage of alcohol, and when taken medicinally should be diluted

BITTERSWEET OR **WOODY NIGHTSHADE** (*Solanum dulcamara*). Trailing shrub of the order Solanaceae, a native of Europe, N. Africa, and Asia. It



Bittersweet. *Solanum dulcamara*

climbs among hedges and bushes, attaining a height of 5 ft.-6 ft. The leaves are dark green, variable, the lower egg-shaped or heart-shaped, the upper spear-shaped or lobed. The corolla is purple, and the bright yellow anthers cohere to form a cone. The fruit is a berry, first green, then yellow, and ultimately bright red, hanging in loose clusters. Bittersweet is a narcotic.

BITUMEN (Lat.). Name given to a number of natural inflammable pitchy or oily substances consisting of various hydrocarbons. They are believed to originate from organic matter. A classification proposed for bitumens is as follows: (1) solid, (2) semi-solid, (3) liquid, and (4) gaseous. Solid varieties are known as asphalt or mineral pitch; the term maltha (mineral tar) is applied to semi-liquid bitumens; examples of liquids are Rangoon

oil, mineral naphtha, and petroleum. Gaseous hydrocarbons are known as natural gas.

BIVALVES (Latin, bi-, double; valva, door-leaf). One of the main divisions of the Mollusca. All possess a shell composed of two valves, as in the oyster and mussel; thus they are contrasted with the univalves, in which the shell consists of one piece, as in the whelk or snail. Bivalves have no definite head, though a mouth is present. The animal obtains food in the shape of particles of organic matter which are drawn in with the water through the siphon. There is usually a foot, which in many species is protruded to push the animal along. The two valves are united by an elastic hinge, which tends to pull them open. They are closed at the will of the animal by means of two powerful muscles. See Mollusc; Oyster.

BIWA. Largest lake in Japan. In the S. part of Hondo, it is 36 m. long by 12 m. broad, and covers an area of 180 sq. m. Partly enclosed by mts. and dotted with islands, it is remarkable for its exquisite scenery. It abounds in fish, and is traversed by numerous steamers.

BIXA ORELLANA. Evergreen tree of the order Bixineae, a native of tropical America. It has heart-shaped, smooth leaves, and large pale-red flowers in terminal clusters. The fruit is a prickly capsule. The seeds are coated with a waxy substance which forms the colouring matter known as annatto (q.v.).

BIXSCHOOOTE. Village of Belgium. It is situated 6 m. N. of Ypres and E. of the Yser Canal. In 1914 it was an important bastion of the British line. It was captured by French troops on July 31, 1917, in the third battle of Ypres. In April, 1918, the German attempt to recapture it failed. See Ypres.

BIZERTA (Fr. Bizerte). French naval station and seaport in Tunisia. It occupies a strategic position at the head of a bay, and is the most northerly point of Africa, 38 m. N. of Tunis, with which it is connected by rly. It has a wireless station, and during the Great War was a transport base. Bizerta is the ancient Hippo Diarrhytus or Zarytus, and was founded by the Phoenicians. It was occupied by the French in 1881. Behind the city are two large lakes, the lake of Bizerta and the Garaat Achkel. Pop. 20,593.

BJÖRNSON, BJÖRNSTJERNE (1832-1910). Norwegian writer. The son of a Lutheran clergyman, he was born Dec. 8, 1832, and educated at Molde school and at the university of Christiania. In 1855 he wrote his first play, *Between the Battles*, and two years later became director of the theatre at Bergen. He first attracted attention by his stories of peasant life, *Synnöve Solbakken*, 1857; *Arne*, 1858; and *A Happy Boy*, 1860. He spent two years in Italy 1860-2, and during this period composed the drama of *King Sverre*, 1861, and the trilogy of plays entitled *Sigurd the Bastard*, 1862, which are among the finest things in Norwegian literature.

From 1861 Björnson was director of the National Theatre, Christiania, and from 1866-71 editor of the *Norsk Folkeblad*. Among his later plays of note were *The Editor*, 1874; *black*. See Necromancy.



B. Björnson, Norwegian writer

Beyond our Powers, published 1883; staged 1899; *Laboremus*, 1901; and *Dagclannet*, 1904. In 1884 he brought out a remarkable novel, *Flags are Flying in Town and Port*, and in 1889 the not less striking *In God's Way*. In 1903 he was awarded the Nobel prize for literature. He took a prominent part in the proceedings which led to the separation of Norway from Sweden in 1905. He died April 26, 1910. An English translation of his novels, edited by E. Gosse, was published in 1895.

BLACK, ADAM (1784-1874). Scottish publisher. Born in Edinburgh, Feb. 20, 1784. He served as a bookseller's apprentice, and gained some experience in London before returning to Edinburgh in 1808, when he started in business on his own account. In 1827 he acquired the copyright of *The Encyclopaedia Britannica*; in 1851, with his nephew Charles, he founded the firm of Adam and Charles Black. Black was twice lord provost of Edinburgh, and succeeded Macaulay as Liberal M.P. for the city. 1856-65. He died in Edinburgh, Jan. 24, 1874.

BLACK, JOSEPH (1728-99). British chemist. He was born at Bordeaux, the son of a Belfast wine merchant, and spent most of his life in Scotland. Educated at Glasgow University, he became assistant to William Cullen, whom he succeeded as professor of chemistry, 1756-66. From 1766-99 he was professor at Edinburgh, where he had graduated in medicine. He died Dec. 6, 1799.

Black discovered magnesia, previously regarded as a variety of lime. Speculating as to the reason for the slowness with which ice melts when the temperature is raised, he discovered that to produce liquefaction, ice requires to absorb a large amount of heat. The theory of latent heat which resulted was extended to the phenomena of boiling and evaporation.

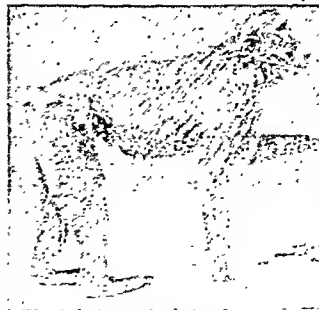
BLACK, WILLIAM (1841-98). British novelist. Born at Glasgow, Nov. 9, 1841, he studied art. In 1866 he was correspondent for *The Morning Star* in the Austro-Prussian war and from 1869-74 assistant editor of *The Daily News*. His novels include *Love or Marriage?*, 1868; *In Silk Attire*, 1869; *Kilmeny*, 1870; *A Daughter of Heth*, 1871; *Strange Adventures of a Phaeton*, 1872; *A Prince of Thule*, 1874; *Madcap Violet*, 1876; *Macleod of Dare*, 1878; and *White Heather*, 1885. He died Dec. 10, 1898. Consult *Life*, T. W. Reid, 1902.

BLACK APE (*Cynopithecus niger*). Species of monkey. A connecting link between the macaques and the baboons, it is found in the island of Celebes. Its hair and skin are a dense black, its face is almost as long as that of a baboon, and its tail is a mere stump. It has a large crest of hair on its head. See Monkey.

BLACK ART. Term applied to magic generally, and also in a narrower sense to necromancy proper, i.e. divination by evoking the spirits of the dead (Gr. nekros, dead body; manteia, divination). The epithet black is largely due to the medieval mistake of using the form nigromantia instead of necromantia, as if the first part of the word were derived from the Latin niger, meaning black. See Necromancy.



William Black, British novelist
Elliott & Fry



Black Ape, a native of the Celebes
Berridge. F.2 S

Black Bass. Fish belonging to the sunfish family (Centrarchidae) and allied to the common perch (q.v.) of British waters

Black Beetle. An alter native popular name for the cockroach (q.v.)

Blackberry. Popular name for the fruit of the bramble (q.v.).

BLACKBIRD (*Turdus merula*). Song bird of Great Britain, occurring also in most parts of Europe and in Africa. The plumage of the black, the beak bright yellow;



Black Bass, a North American fresh-water fish

Asia and N. America. The male is deep blue; the female has dark brown plumage, with beak much duller in hue. The bird feeds mainly on grubs, worms, slugs and beetles, but in the fruit season it works havoc with goose-



Blackbird, *Turdus merula*, one of the most musical of British birds

berries and currants. The eggs are green mottled with reddish brown

BLACK BOOK. Name given to books containing names of delinquents, such as the proctor's book at a university. It is sometimes applied to books printed from black-letter type or with black covers. The reports on alleged monastic offences presented to the English Parliament in 1536 belong to this category, though never published as a book.

BLACK BUCK (*Antelope cervicapra*). Antelope found in India. About 32 ins. high at the shoulder, it has handsome spiral horns ringed from base to tip. The males are blackish brown above and white beneath; the females and the young are fawn coloured above.

BLACKBURN. City, and county borough of Lancashire. It is 211 m. by rly N.W. from London on the Leeds and Liverpool canal and the L.N.E. and L.M.S. Rlys. Blackburn is celebrated for its cotton manufactures, which superseded in the 18th century the checks and greys for which the town was noted. It made rapid progress from 1767, when James Hargreaves, a native, invented the spinning jenny. There are also engineering works.

The Gothic cathedral church of S. Mary dates from 1826. Secular buildings include the town hall and the exchange. There is a grammar school, established by Queen Elizabeth in 1567, and a technical institute. Two



Blackburn. The cathedral of S. Mary, previously the parish church. It was rebuilt in 1826

members are returned to Parliament. Blackburn became a mun. borough in 1851 and a county borough in 1888. In 1926 it was made the seat of a bishop. Market day, Wed. Pop. 124,500.

BLACKBURN ROVERS. Association football club. Founded in 1874 by a few residents of Blackburn, it acquired a ground in 1878 and soon became widely known. The Rovers soon became a professional organization and were among the first to import Scotsmen into the team. In 1882 they reached the final round for the Association Cup, and in 1884 won it for the first time, repeating their success in 1885, 1886, 1890, 1891, and 1928. They secured the Football League championship in 1912 and 1914.

BLACKBURN, JOSEPH HENRY (1842-1924). British chess player. Born at Manchester, he became a master of the game at an early age. In 1862 Blackburne gave the first of his many notable exhibitions of blindfold play, winning ten games simultaneously without seeing a board. After 1868, when he won the English championship cup, he was prominent at tournaments, and he was British champion, 1885-6. He died Sept. 1, 1924.

BLACKCAP (*Sylvia atricapilla*). British song bird of the warbler group. It is brownish grey on the back and lighter on the under parts, and the cock has a patch of black on the head. Common in Great Britain in spring and summer, it migrates south in autumn.

Blackcock (*Tetrao tetrix*). Name given to the black grouse, though the female is often known as the grey hen. See Grouse.

BLACK COUNTRY. Name applied to a manufacturing district of England which is mainly in S. Staffordshire and partly in Worcestershire and Warwickshire. Extending between Birmingham and Wolverhampton, it includes Smethwick, West Bromwich, Dudley, Tipton, Bilston, Walsall, and other industrial centres.

BLACK DEATH. Epidemic which spread over a large part of the world in the 14th century. The disease was the same as the modern bubonic plague, and as the great plague which visited England in the 17th century. One symptom was the occurrence of haemorrhages into the skin, hence the name.

The Black Death appears to have originated in the East, probably in China, and spread to Europe along the great trade routes, culminating in a devastating outbreak in 1348-9. The S. European countries were first attacked, and the disease spread to Norway and Sweden. It has been estimated that at least one-fourth of the population of Europe perished, while in London more than 50,000 persons died.

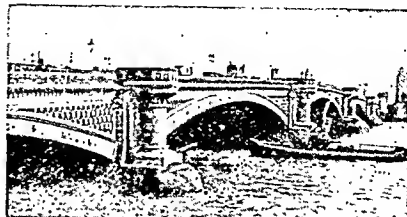
BLACK EAGLE, ORDER OF THE. Order instituted by the elector of Brandenburg on his coronation as Frederick I of Prussia in 1701. Only persons able to prove noble lineage for four generations on each side were eligible. The badge was a blue Maltese cross having in each angle a crowned black eagle, and the ribbon was orange.

BLACKFEET. N. American Indian tribe of the Western Algonquins. Their native name Siksika, or black feet, may refer to their

black moccasins. The English name is commonly derived from the discoloration of their footgear by prairie-fire ashes.

Black Fish. Variant name for the dolphin known also as the ca'ing whale (q.v.).

BLACK FOREST. Name of the district in Baden and Württemberg known to the Germans as the Schwarzwald. It stretches for about 100 m. from N. to S. parallel to the Rhine, which forms its southern boundary



Blackfriars Bridge, London. Five-arched iron structure over the Thames. It was built in 1865-69

It varies in breadth from 12 m. to 36 m. Its area is about 1,900 sq. m., with an average height of from 2,000 to 3,000 ft. Between the hills are lovely valleys. Its inhabitants are famous for their skill in making toys, others are engaged in felling and moving timber. The Forest figures in legend and romance.

BLACK FRIARS. Term applied to the Dominican Friars. It is due to the black cloak and hood worn over their white habit.

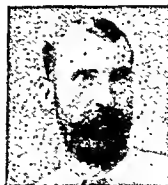
At the dissolution of the religious houses under Henry VIII, the chief Dominican priory in London stood between Carter Lane and Queen Victoria Street, and the district is still known as Blackfriars. It has a station on the District Rly., and a bridge over the Thames, widened in the 20th century. In 1596, on the site now roughly represented by The Times office in Printing House Square, James Burbage built the first covered theatre in London, hence the name Playhouse Yard which it now bears. See London; Monasticism; Shakespeare.



Black Friar. Priest of the Order of Preachers

BLACK FRIDAY. Name given to Friday, May 11, 1866, from the financial panic in England which became most acute on that day. It was caused by the suspension of payments by the famous banking house of Overend, Gurney & Co., which failed for £11,000,000. The name was earlier given to Dec. 6, 1745, when the news that the Young Pretender was at Derby caused a panic in London business circles.

BLACKHAM, MCCARTHY (b. 1855). Australian cricketer, the greatest wicket keeper of his time. He accompanied the first representative Australian eleven to England in 1878 and several later elevens, and captained the seventh Australian team in 1893. His skill behind the wicket was chiefly responsible for the disappearance of the long-stop.



McC. Blackham, Australian cricketer

BLACK HAND. Name often taken by criminal organizations, from the symbol employed by them. In Spain towards the end of the 19th century an anarchist Black Hand society, recruited from the working classes, gave much trouble. One of the most dangerous

Black Hand societies is the Italian black-mailing organization in the U.S.A., whose outrages led to the formation of White Hand societies to collaborate with the police.

BLACK HAWK (1767-1838). Chief of the Sac Indians. He took the side of the British in the American War of 1812. In 1831-2, owing to a dispute about territory, he went to war with the United States, but after two defeats was compelled to surrender. He was kept a prisoner until 1833, and died in the reservation near Fort Des Moines, Oct. 3, 1838.

Blackhead. Small mass of dried secretion which blocks the sweat glands and leads to inflammation of the skin. See Acne.

BLACKHEATH. Residential suburb of S.E. London. It is in the boroughs of Lewisham and Greenwich, 5 m. S.E. of S. Paul's, on the Southern Rly. Its heath of 267 acres, adjoining Greenwich Park, was traversed by Watling Street. Here Henry V was welcomed after Agincourt, and Henry VIII met Anne of Cleves. Here also James I is reputed to have introduced golf into England, 1608. Near the heath is Morden College, a beautiful house left with the grounds by Sir John Morden as a home for decayed Turkey merchants.

BLACKHEATH FOOTBALL CLUB. One of the oldest Rugby football clubs in England, it was founded in 1860 by boys of Blackheath Proprietary School, and adopted its present name in 1862. At first its games were played on the heath, but in 1877 a private field called Richardson's was obtained. In 1883 the club removed to the Rectory Field in the Charlton Road. See Football.

BLACK HOLE. Dungeon at Fort William, Calcutta, in which on June 20, 1756, after the surrender of the fort to Suraj-ud-Dowlah, 146 prisoners were confined. The dungeon was 22 ft. square, and during the night the victims suffered from lack of ventilation and fought for air at the two small windows. In the morning only 23 were alive.



Black Hole. The railings enclose the site of this terrible dungeon

BLACKIE, JOHN STUART (1809-95). Scottish scholar. Born at Glasgow, July 28, 1809, he was the son of a hank manager. He was educated at Marischal College, Aberdeen, at the university of Edinburgh, and in Germany. He was intended for the ministry, but this he abandoned for the law and then for literature. In 1834 he published a verse translation of Faust, and he contributed to Blackwood's Magazine. From 1841-52 he held the chair of humanity (Latin) at Marischal College, Aberdeen, and from 1852-82 was professor of Greek in Edinburgh. He died March 2, 1895.



John Stuart Blackie, Scottish scholar
Edwin A. Frey

Black Lead. Popular name for plumbago and graphite (q.v.).

BLACKLEG. Word used for a workman who acts against the interest, real or supposed, of his fellows. A word of unknown origin, it was first applied to swindlers on the Turf and elsewhere. See Strike.

BLACK LETTER. Name of a type used in the earliest printed books. Also called Gothic, it was modelled on the handwriting

in vogue in the Netherlands and Germany in the middle of the 15th century. It was first used about 1445; in England first by

Here beginneth the booke of the subtyl histories and fables of Elope which were translated out of frenche in to Englyshe by wylliam Caxton at westmynstre In the yere of oure lord. M. CCCC. lxxxij.

Black letter. The opening lines of Caxton's Aesop, showing the date 1483

Caxton about 1480. Although generally superseded by Roman type in the 16th century, it was long used for Bibles, prayer books, and proclamations, and still occurs occasionally in headlines and ornamental printing. Two of the founts designed by William Morris for the Kelmscott Press are Black Letter. In the modern printing trade Black Letter is called Old English or Elizabethan. See Printing.

BLACK LIST. Popular name for a list of persons frequently convicted of drunkenness and whom licensed victuallers are forbidden to serve with drink. In practice the list is obsolete, owing to the difficulty of enforcing the prohibition.

During the Great War the British Government issued statutory black lists containing the names of enemy firms in neutral countries with which British merchants were prohibited from trading. In May, 1919, the Government issued a black list of contractors ineligible to receive orders for the public service, in consequence of offences in connexion with the supply of war material.

BLACKMAIL. Popular name for the crime of demanding money with menaces. The menaces may be of personal violence, or of exposure of a crime, or of exposure of a questionable transaction. It is a crime to say or write, "Unless you pay me so much, or give me some other advantage, or do something, or refrain from doing something, I shall shoot you"; or "I shall tell your wife you have been unfaithful"; or "I shall write of you in the financial press that your business is unsound." The word is derived from black and mail (Fr. maille, a piece of copper money), and signified rent paid in baser coin as opposed to that paid in white money or silver.

BLACK MARIA. Slang name given to the covered van used in conveying prisoners to or from a prison or the court of trial. The name is said to have been first used in Philadelphia about 1838, one explanation being that a powerful negro woman, named Maria Lee, who kept a lodging-house for seamen at Boston, was frequently called upon to help in getting refractory prisoners under lock and key, and that her name afterwards became attached to the special conveyance employed. The last horse-drawn Black Maria was taken off the road in London, Nov. 18, 1924.

BLACKMORE, RICHARD DODDRIDGE (1825-1900). British novelist. Born June 7, 1825, at Longworth, Berkshire, the son of a clergyman, he was educated at Blundell's School, Tiverton, and at Oxford. His first novels, Clara Vaughan, 1864, and Cradock Nowel, 1866, were unsuccessful, but Lorna Doone, 1869, his great romance of Exmoor, brought him fame, and before his death passed into more than forty editions. He wrote many other novels, including The Maid of Sker, 1872, Cripples the Carrier, 1876, Christowell, 1882, and Springhaven, 1887. He died at Teddington, Jan. 20, 1900.



R. D. Blackmore, British novelist

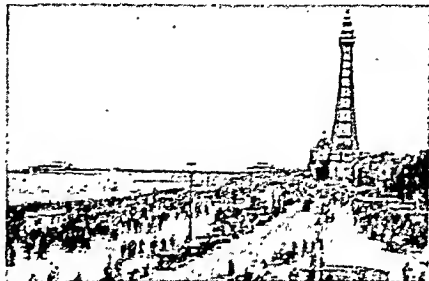
BLACK MOUNTAINS. Range of hills partly in Herefordshire, England, but mainly in Brecknockshire, Wales. They form a

branch of the range which traverses Carmarthenshire and Brecknockshire. The highest peak is Pen-y-Cader Fawr, 2,624 ft.

The Black Mountains of N. Carolina, U.S.A., are a division of the Appalachian system, and contain the highest peaks E.

of the Rockies. They are a favourite tourist resort. The highest points are Mount Mithell, 6,711 ft.; Hairy Bear, 6,681 ft.; and Balsam Cone, 6,671 ft.

BLACKPOOL. County borough, seaport, and watering place of Lancashire. Between Morecambe Bay and the mouth of the Ribbles, it is 223 m. N.W. from London by the L.M.S. Rly. The place has extensive sands, splendid



Blackpool. Central promenade and the tower, 520 ft. high, a smaller imitation of the Paris Eiffel.

Dixon Scott

bathing accommodation, excellent promenades, three piers, a pavilion, winter gardens, an aquarium, and a tower (500 ft.). These and other attractions, added to its wonderful air, have made it the most popular pleasure resort in the north of England. It is connected by tramway with St. Anne's-on-Sea and Lytham, and also with Fleetwood. There is an aerodrome at Hardhorn. Blackpool was incorporated in 1876 and became a county borough in 1904. It sends one member to Parliament. Market day, Sat. Pop. 93,160.

BLACK PRINCE. Popular name of Edward, eldest son of Edward III of England. It was given him from his black armour. See Edward, the Black Prince.

The British armoured cruiser Black Prince, of the Duke of Edinburgh (q.v.) class, was sunk by German gunfire at Jutland (q.v.).

BLACKROCK. Urban dist. and summer resort of co. Dublin, Irish Free State. It is on the Gt. Southern Rlys., 5 m. S.E. of the city of Dublin. Pop. 9,080.

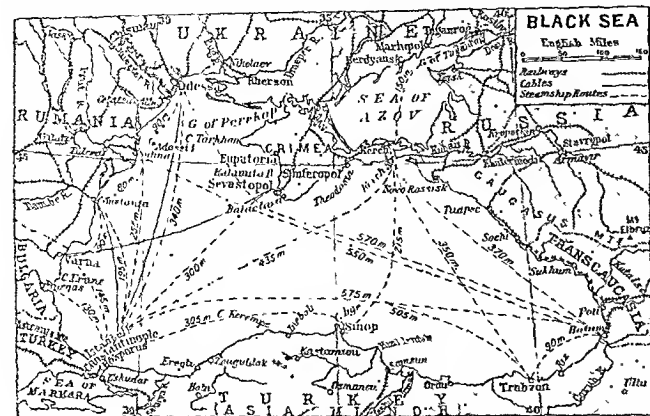
BLACK ROD. Officer of the House of Lords; in full, the gentleman usher of the black rod. He is in the lord chamberlain's department of the royal household, and is usher of the order of the Garter. Besides arranging for the maintenance of order and arresting peers for breaches of privilege, he summons the Commons to the House of Lords when a royal speech is read or the royal assent given to bills, and on the occasion of the opening and prorogation of Parliament.



Black Rod. Officer of the House of Lords

BLACK SEA, THE. Inland sea of Europe. The ancient Pontus Euxinus, and still known as the Euxine, it is surrounded by Russia

and Ukraine on the N., Transcaucasia on the E., Turkey on the S., and Bulgaria and Rumania on the W. It communicates with the



Black Sea. The tideless inland sea of Europe, which receives the waters of the Danube and those of the great southward flowing rivers of Russia

Sea of Azov by the strait of Kerch, and on the S.W. with the Aegean and the Mediterranean by the Sea of Marmara and the Dardanelles. It is 720 m. long from E. to W. and about 350 m. wide from N. to S., its area being 150,000 sq. m. Its depth in the centre is about 7,360 ft.

The sea has no tide, and the only island is Adassi, at the mouth of the Danube. The chief ports are Sulina, Odessa, Sevastopol, Batum, Trabzon (Trebizond), and Varna.

The Black Sea was the scene of naval operations in the Great War. In Oct., 1914, German and Turkish vessels attacked Odessa and sank three Russian ships, and next month a Russian squadron damaged the Goeben. In 1915 the Russian fleet shelled Varna, and in June, 1916, destroyed 54 enemy sailing vessels. Rumania's entry into the war in Aug., 1916, gave the Russian fleet bases on the Danube. During 1917 the revolution paralysed the Russian fleet. Allied warships entered the Black Sea after the surrender of Turkey on Nov. 20, 1918, and interned the Goeben. In 1919 a British squadron helped Lenin to expel the Bolsheviks from the coast of the Black Sea, but was withdrawn early in 1920.

BLACKSMITH. Term for a smith who works in iron or black metal, and makes axes on horseshoes. A worker in tin or white metal is called a whitesmith. This term is also applied to a Brazilian bellbird and to a blackfish occurring on the S. coast of California. The Blacksmiths' Company is a London livery company. It was united with the carriers and its first charter granted in 1571. Its offices are 65, Lower Thames Street, E.C.

BLACKSOD BAY. Inlet on the W. coast of the Irish Free State. In co. Mayo, it is one of the finest natural harbours on the coast, penetrates about 10 m. inland, and is 4½ m. wide at the entrance. On Blacksod Point is a lighthouse. It was once proposed to make the bay a main port for the Atlantic traffic.

BLACKSTONE, Sir William (1723-80). English jurist. He was born in London, July 10, 1723, the son of a silk reeler, was educated at Winchester and Pembroke College, Oxford, became a barrister. He was then a Fellow of All Souls College, Oxford, and in 1758 was appointed first Vinerian professor of law at Oxford. His great work, *Commen-*



Sir W. Blackstone, British jurist

taries on the Laws of England, 1765-69, a reproduction of his professorial lectures. It contains the first comprehensive survey of the English legal system. Blackstone sat for some years in the House of Commons, and in 1770 was made a judge. He died Feb. 14, 1780.

BLACKTHORN

or SLOE (*Prunus spinosa*). Shrub of the order Rosaceae, with many stiff branches and twigs which usually end in hard spines. The small white flowers are produced before the egg-shaped leaves, and are succeeded by small black drupes. The sloe is restricted to Europe; the bullace, an allied species, is a native of Europe and N. Africa, extending E. to the Himalaya mountains.

BLACK VARNISH TREE (*Melanorrhoea usitatissima*). Large Indian evergreen tree of the order Anacardiaceae. Growing to a height of 100 ft., it has large, undivided, leathery leaves and panicles of red flowers. The heavy dark-coloured wood is known as lignum vitae of Pegu. A thick white juice obtained from the tree is used for lacquering.

BLACKWALL. District of London, on the N. side of the Thames. It contains the E. India Docks. Blackwall Tunnel, for pedestrians and vehicles, connects it with E. Greenwich. Opened in 1897, the tunnel is 6,200 ft. long, 1,220 ft. being under the Thames. The district is in the borough of Poplar. A tablet shows where, on Dec. 19, 1606, the first permanent settlers embarked for Virginia.

BLACK WATCH (ROYAL HIGHLANDERS). Highland regiment, which originated in independent companies raised in 1739 to preserve order in N. Scotland. These

men formed a watch, and from the dark colour of their tartan came to be known as the Black Watch. In 1740 the regiment was added to the British army, and was numbered the 43rd, later the 42nd. A second battalion became a separate regiment, the 73rd, or Perth-shires, in 1786. The record of the Black Watch began with their famous charge at Fontenoy in 1745, and they gained the distinctive red backle badge for conspicuous bravery at Geldermalsen in 1795. They served through the Peninsular War, were in the Highland Brigade in the Crimea, and fought hard during the Indian Mutiny; later they stormed the entrenchments at Tel-el-Kebir. In the South African War they led the disastrous attack on Magersfontein. During the Great War the regiment gained further battle honours. The depot is at Perth.

BLACKWATER. Name of several rivers in Great Britain. The largest, the Blackwater of Munster, Irish Free State, issues from the border hills of Cork and Kerry, and flows 100 m. to Youghal Bay. Another Irish Blackwater rises in co. Tyrone and flows 50 m. to Lough Neagh. The principal Blackwater of England has its source near Saffron Walden in Essex, and enters the North Sea at Mersea Island, after a course of 40 m.

BLACKWATER FEVER. Disease of hot countries, particularly tropical Africa, the southern states of America, and Central America. The most characteristic symptom is the presence of blood pigment in the urine. The exact cause of the disease is not ascertained. See Malaria.



Blackthorn, or Sloe, *Prunus spinosa*

BLACKWELL, ELIZABETH (1821-1910). Anglo-American woman doctor. Born at Bristol, she was taken to America when a child. In 1838 she opened a school at Cincinnati, but, deciding to study medicine, then a closed profession to women, was admitted to the medical college at Geneva, New York, where she took her degree in 1849, being the first woman to take a medical degree in the U.S.A. In 1851 she settled down to practise in New York, where she worked until 1863, when she made London her home and taught medicine. She was placed on the British medical register in 1859. She died May 31, 1910.



Elizabeth Blackwell, Anglo-American woman doctor

BLACKWOOD. Timber of three Indian leguminous trees. *Dalbergia latifolia* has leaves with roundish leaflets and pea-like white flowers. It is common on the coasts of Coromandel and Malabar, and its dark-purplish, close-grained timber is valuable for building, furniture, and carvings. *D. sissooides* is a smaller tree. *D. sissoo* is found in Bengal and the Punjab, and produces a durable dark brown timber known as sissoo or sissoom.



Blackwood. Flower and leaves of *Dalbergia latifolia*

BLACKWOOD, ALGERNON (b. 1869). British novelist. He was son of Sir Arthur Blackwood, and as a novelist he began his career in 1906 with *The Empty House*, but his reputation was made with his powerful book, *John Silence*, 1908. Other novels include *The Human Chord*, *No Edible Adventures*, and *The Wave*. The three-part novel *A Prisoner in Fairyland*. In *The Vanishing Tongues of Fire*, and in 1929 *Darkness and Gildery*.

BLACKWOOD, WILLIAM (1776-1834). Scottish publisher. Born at Edinburgh, Nov. 20, 1776, he was apprenticed to a local bookseller. He became manager to a bookseller in Glasgow, and after some London experience started business in Edinburgh in 1804. With John Murray, he issued the first series of Scott's *Tales of My Landlord*. He died Sept. 16, 1834.

In 1817 Blackwood established Blackwood's Magazine, as a Tory rival to the *Quarterly Review*. The number containing the famous satire of *The Chaldee* Mr. (by James Hogg, J. G. Lockhart, and John Wilson) and a bitter attack (by Lockhart) on the Cockney School of Poetry laid the foundation of its prosperity. Among the distinguished contributors of its early years may be named Sir Walter Scott, De Quincey, John Galt, Bulwer Lytton, George Eliot, and Anthony Trollope.

BLADDER. Hollow organ which serves as a reservoir for the urine before it is discharged in the act of micturition. When empty the bladder lies entirely in the pelvis, but as it becomes distended it rises into the abdomen.

The bladder may be attacked by various diseases, the most frequent of which is inflammation of the bladder wall, or cystitis.

BLADDER CAMPION (*Silene cucubalus*). Perennial herb of the order Caryophyllaceae. A native of Europe, N. Africa, and W. Asia, it is common in cornfields and waste places. The whole plant is glaucous, and grows to a height of 2 ft.-3 ft. The leaves are egg-shaped or oblong, in pairs, their bases joined around the stem; the flowers are drooping.



Bladder Campion,
Silene cucubalus

BLADDER POD. (*Vesicaria utriculata*). Perennial cruciferous herb of S. Europe. It bears clusters of yellow flowers, the seed vessel being a small, round, inflated pod.

BLADDER SEED (*Physospermum cornubiense*). Perennial umbelliferous herb, a native of S. Europe and parts of Britain (Cornwall and S. Devon). The erect branching stem grows to a height of 2 ft.-3 ft., with large leaves. The small white flowers grow in compound umbels, and the fruits are tiny bladders, each with a single loose seed.

BLADDER SENNA (*Colutea arborescens*). Leguminous shrub with purgative leaflets which are often mixed with those of the true senna. It grows in S. and central Europe, attaining a height of about 10 ft., and bears pea-like flowers, about six in a spray. The seeds are contained in inflated pods.

BLADDER-NUT TREE (*Staphylea pinnata*). Shrub of the order Sapindaceae, a native of S. Europe. Its leaves are divided into smooth, oblong, leaflets. The flowers are small and white, in drooping sprays. The seeds are contained in a bladder-like capsule, and are round and white, with the flavour of pistachio. They are also purgative.

BLAIR. Name given to the life history of the tape, after being swallowed by into a round embryo which into the stomach to the blood- to the muscle tissues.

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BLAGOVESHCHENSK. Town of Siberia. On the left bank of the Amur at its confluence with the Zeya, it is some 615 m. by steamer from Khabarovsk, and is connected with Vladivostok by rly. Iron founding and flour milling are important, and a large trade in cereals, tea, and cattle is carried on; but the prosperity of the town is chiefly due to the gold mines. Pop. 61,161.

BLAIR, HUGH (1716-1800). Scottish divine. Born at Edinburgh, April 7, 1718, he graduated at the university. From 1754 until his death he was one of the chief preachers in that city, his Sermons, which were published in five volumes, being famous. In 1759 he began a course of lectures in the university on composition, which became so popular that in 1762 a regius professorship of rhetoric was founded for him. He died Dec. 27, 1800.



Hugh Blair,
Scottish divine

BLAIR ATHOLL OR ATHOLE. Parish and village of Perthshire. It is at the junction of the Tilt and Garry, 3 m. N.W. of the Killiecrankie Pass and 35 m. N.W. of Perth by the L.M.S. Rly. Blair Castle, a fine specimen of Scottish baronial architecture, is the seat of the duke of Atholl. Built in 1269 and restored in 1872, it was occupied by Montrose before the



Blair Castle, the historic Perthshire seat of the Duke of Atholl. The oldest part dates from 1269
F. W. Hardie

battle of Tippermuir, and was partly destroyed in 1653 by Cromwell's troops. Pop. 1,824. See Atholl, Duke of.

BLAIRGOWRIE. Burgh of Perthshire, Scotland. On the river Erich, 5 m. by rly. N.W. of Coupar Angus on the L.M.S. Rly., it has linen and jute factories, and is a fruit-growing centre. It holds six fairs yearly. Market day, Tues. Pop. 3,072.

BLAKE, EDWARD (1833-1912). Canadian statesman. He was born at Adelaide, Ontario, Oct. 13, 1833. In 1867 he became a member of the first Parliament of the Dominion, and in 1871 prime minister of Ontario. From 1873-8 he was a member of the Liberal Cabinet, and in 1880 leader of the Opposition in the Dominion Parliament. In 1891 he left Canada and settled in England, being Nationalist M.P. for South Longford, 1892-1907. He died in Toronto, March 1, 1912.

BLAKE, ROBERT (1599-1657). English admiral. Born at Bridgwater, Somersetshire.



Robert Blake,
English sailor
William C. Bayly, Oxford

in Aug. 1599, he was M.P. for that town, 1640 and 1645. He commanded troops in the parliamentary armies, and distinguished himself by the capture and the defence of Taunton, 1644-5, which he held for nearly a year. In 1649 Blake was given command of the fleets of the Commonwealth.

Blake drove the royalist fleet under Rupert into the Mediterranean and destroyed many ships. He successfully commanded the fleet in the Dutch war (1652-4), and achieved his most brilliant feat in 1657, when he annihilated a Spanish squadron at Tenerife. He died four months later, Aug. 7, 1657, as his ship was entering Plymouth Sound.

BLAKE, WILLIAM (1757-1827). British artist and poet. Third son of a London hosier, he was born in London, Nov. 28, 1757, and was a visionary and mystic from early childhood. He trained as an engraver, and for a time studied at the Royal Academy. In 1782 he married Catherine Boucher, an illiterate girl whom he taught to read and write. From 1784-87 Blake kept a print shop in Broad Street, Golden Square, London. He exhibited at the Royal Academy in 1784, and in 1789 was writing and decorating his immortal Songs of Innocence. These were followed in 1794 with the Songs of Experience. He was also at work on his Prophetic Books, evolving that complete symbolism, the key to which is largely lost.

In 1790, the year of his Song of Liberty, Blake was a republican, but the September Massacres cured him of revolution. From 1793-1800 he lived in Lambeth, but about 1800 the poet Hayley persuaded him to go down to Felpham, in Sussex, where he lived for three years, doing a considerable amount of hack-work for Hayley. Blake died at 3, Fountain Court, London, Aug. 12, 1827.

His 114 designs for Gray's poems, lost for more than 100 years, were found in the possession of the duke of Hamilton in Nov., 1919. His works were edited by E. J. Ellis and W. B. Yeats, 1893, and by J. Sampson, 1905 and 1913. Consult William Blake the Man, C. Gardner, 1919.

BLANC, JEAN JOSEPH LOUIS (1813-82). French politician and historian. He was born at Madrid, Oct. 29, 1813, went to Paris in 1830, and adopted journalism as a profession.

The Revue du Progrès, started by him in 1839, contained his articles on social reorganization, published in book form in 1840 as L'Organisation du Travail. This was followed by L'Histoire de dix ans, 1830-40, published 1841-44, a damning indictment of Orleanist rule. During the revolution of 1848 the workers offered him the dictatorship, which he refused. The national workshops advocated in his writings were put into operation, but in a few weeks they were closed. Blanc then fled to England, where he devoted himself to literary work. After the fall of Napoleon III he was elected to the National Assembly, 1871. He died at Cannes, Dec. 6, 1882.

BLANCHING. Improvement of the colour and flavour of vegetables by excluding light from the growing subject. Sea kale is covered with pots; celery, as it grows, is hidden by earth so that nothing but the heads of the plants are visible; rhubarb plants are covered with inverted barrels, while lettuces are tied around with bast to save the centre leaves.

BLANC NEZ. Cape on the N. coast of France. In the department of Pas-de-Calais, 6 m. W. of Calais, and the northernmost promontory on the French coast, it is the site of an obelisk to mark the services of the Dover Patrol in the Great War.



William Blake,
British artist and poet
T. Phillips, B.A.



Louis Blanc,
French socialist



John Stuart Blackie
Scottish scholar
Elliott & Fry

BLANDFORD OR **BLANDFORD FORUM** Borough and market town of Dorset. On the river Stour, 16 m. N.E. of Dorchester by the L.M.S. and Southern Rlys., it has a 16th century grammar school transferred from Milton in 1775. There is also a blue coat school, founded 1729, and a church built in 1732 to replace one destroyed by fire in 1713 Market day, Thurs. Pop. 3,194.

Marquess of Blandford is the title of the eldest son of the duke of Marlborough.

BLAND-SUTTON, SIR JOHN (b. 1855). British surgeon. Born at Enfield Highway he entered the Middlesex Hospital in 1878, and was demonstrator and lecturer on anatomy, and later a surgeon there. From 1886 to 1891 he was professor and lecturer at the Royal College of Surgeons. The Bland-Sutton institute of pathology commemorates his connexion with the Middlesex Hospital. He was made a baronet in 1925.

BLANESBURGH, ROBERT YOUNGER, BARON (b. 1861). British lawyer. Born Sept. 12, 1861, he was educated at Edinburgh Academy and Balliol College, Oxford. A successful harrister, he was made a judge in 1915, a lord justice of appeal in 1919, and a lord of appeal and a life peer in 1923. In 1925 he was appointed chief British delegate on the Reparations Commission in Paris and he presided over the committee that inquired into the working of unemployment insurance.

BLANKENBERGHE. Watering-place of Belgium. On the North Sea, 9 m. by rly. N.W. of Bruges, it has a digue or parade over a mile long, an excellent bathing beach, and a casino. There are some fine hotels. Originally a fishing village, it has become a rival of Ostend as a bathing resort. Occupied by the Germans in Oct., 1914, it was re-occupied by British troops, Oct. 18, 1918. Pop. 6,522.

BLANKET (Fr. blanc, white). Term commonly used for a warm bed covering. The name is also applied to coarse-spun woollen cloth. Inferior kinds of blanket are made with an admixture of cotton and hair, and some are wholly of cotton.

The chief varieties of wool blanket are: (1) the raised blanket of the type made at Witney, Oxfordshire, and elsewhere, in which a soft spun and long-fibred weft is employed. In the process of finishing, the ends of these fibres are scratched to form a furry pile upon the surface; (2) the cloth or Bury blanket made in Bury, Lancs, and elsewhere, denser, of shorter wools and finer spun; (3) the twilled or Ayrshire blanket, woven in a diagonal twill pattern. Wool blankets are bleached by stoving in sulphur fumes.

Blankets are manufactured for mechanical use in paper making, printing, paper staining, calico-printing, and other trades. Noils and wastes, the by products of the worsted industry, skin wools removed from slaughtered sheep, and various Asiatic wools are employed for blanket-making. The chief centre of manufacture is Dewsbury.

BLANKNEY. Village of Lincolnshire, 8 m. from Sleaford. The hall was long the seat of Henry Chaplin, called the squire of Blankney. There is a station on the L.N.E. Rly. The village gives its name to a hunt founded in 1871. The kennels are at Blankney, and its country extends from Sleaford to Newark.

BLANK VERSE. Term applied in English literature to unrhymed verse written in iambic decasyllabic measure, i.e. in lines of ten syllables, in which every alternate syllable from the second to the tenth is stressed. The term is also used loosely sometimes of all verse the lines in which have blank or unrhymed endings.

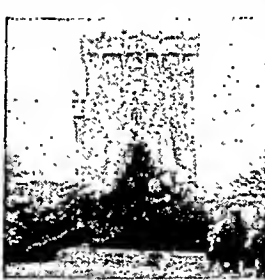
Apart from the drama, blank verse did not make any progress in English until the

appearance of Milton's *Paradise Lost*, 1667, the first great poem to be written in the form. In the 19th century Wordsworth, who used it in *The Prelude* and *The Excursion*, was perhaps the greatest master of this measure. Tennyson wrote his *Idylls of the King* in blank verse. Robert Browning adopted it in *The Ring and the Book*, and Elizabeth Barrett Browning in *Aurora Leigh*. Walt Whitman in *Leaves of Grass* devised a new irregular kind of blank verse in variations of which, under the name of "free verse," many experiments were made. See Poetry: Verse.

BLANTYRE. Parish of Lanarkshire, Scotland. It is 3½ m. N.W. of Hamilton on the L.M.S. Rly. The parish contains High Blantyre, Low Blantyre or Blantyre Works, Stonefield, and other villages. Coal mining is an important industry. Low Blantyre, on the Clyde opposite Bothwell, has a church and statue in memory of David Livingstone, who was born and worked in a mill here. In 1929 his birthplace and nine acres of land were set aside as a memorial. Pop. 18,154.

BLANTYRE. Chief town of Nyasaland Protectorate, British Central Africa. In the Shire Highlands, it is 300 m. by river N.W. of Chinde. It is connected by a narrow gauge rly. with Chindio, on the Zambezi, in Portuguese East Africa, and is in direct rly. communication with Beira via Murraça. Founded in 1876 by Scottish missionaries, it was named after Livingstone's birthplace. Pop. 6,000.

BLARNEY (Ir. blairne, small field). Village of co. Cork, Irish Free State, it is 7 m. by rly. N.W. of Cork, on the Great Southern Rlys.



Blarney Castle. The famous Blarney stone is on the south side

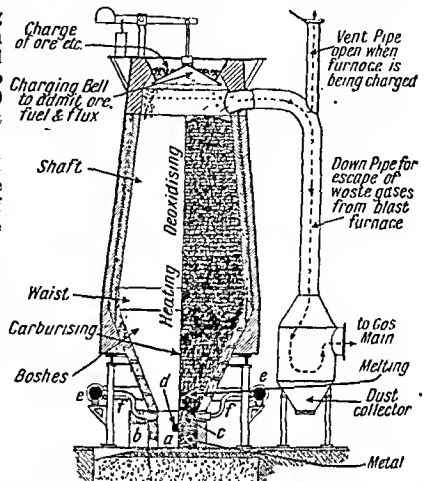
BLASCO-IBÁÑEZ, VICENTE (1867-1928). Spanish author and politician. A native of Aragon, his novels are contemporary docu-

ments of Spanish life, chiefly in Valencia, Malaga, and the southern provinces. They are realistic and analytical in treatment, with strong portraiture of modern types, and present the ideals of the intellectual and progressive Spaniard. He was an ardent revolutionary reformer. Notable among his novels are *The Cathedral* (1903), Eng. trans. Mrs. W. A. Gillespie, 1909; *Blood and Sand* (1908), Eng. trans. Gillespie 1913, the story of a bull-fighter's career; his remarkable novel of the Great War, *The Four Horsemen of the Apocalypse* (1916), Eng. trans. C. B. Jordan, 1918; and *Onr Sea*, 1918, trans. 1920. He died Jan. 28, 1928.

BLASUS (d. 316). Saint, bishop, and martyr. According to the legend he was a bishop of Sebaste, Cappadocia, who suffered martyrdom under Licinius. He is traditionally beloved by all wild animals, and is patron saint of weavers and woolcombers. Three churches in England are dedicated to him. He is commemorated in the Western Churches on Feb. 3, and in the Greek Church on Feb. 11.

BLASPHEMY (Gr. blasphemia, evil-speaking). In English law, the publication of anything ridiculing or insulting Christianity, or the Bible, or God in the shape of any Person of the Holy Trinity. Its criminality consists in its likelihood to promote a breach of the peace and to subvert the government of the realm as a Christian community. At one time the courts were much more strict, and were apt to hold that unorthodox arguments constituted blasphemy. A bill to make prosecution for blasphemy illegal was introduced into Parliament, 1930, but was dropped.

BLAST FURNACE. Tall, cylindrical structure in which iron ores and certain classes of lead and copper ores are smelted.



Blast Furnace. Diagram of a modern furnace capable of a weekly output of 2,000 tons of pig-iron. a, hearth on which molten metal collects; b, tap hole through which molten metal is withdrawn; c, slag and cinder zone; d, slag hole at side through which slag and cinder are withdrawn as required; e, e, blast main from which air under pressure is forced into furnace through tuyeres, f, f.

It is a furnace supplied with air under pressure from some mechanical appliance, as distinguished from a furnace that depends upon a draught induced by some form of chimney. As the blast furnace is now constructed, with a long, straight, or somewhat tapering internal body part between the base and the rim, it is classed as a shaft furnace; while the newer forms, from their resemblance to the cupola of the ironfounder, are called cupola blast furnaces. See Furnace; Metallurgy.

BLASTING. Operation consisting of breaking rocks by means of explosives which, when exploded in a confined space, suddenly generate a large volume of gas, thus exerting a tremendous pressure. The larger the area of free face the more easily a rock can be blasted, so that a rock free on all sides is the easiest to deal with. By simultaneously detonating small charges in holes bored close together in the desired direction, large blocks are excavated. Two types of explosives are used—a low explosive fired by simple ignition and a high explosive which must be fired by a detonator. Special explosives, called safety explosives, which have a lower temperature of detonation, are used in collieries.

Blasting gelatine is a powerful detonating explosive consisting essentially of nitroglycerine gelatinised with nitrocellulose. It was discovered by Nobel in 1875. See Explosives.

BLASTODERM (Gr. blastos, germ; derma, skin). Term used in embryology referring to the early stages of the segmentation of a cell and meaning the layer of cells which arises from the germinal disk. It is the portion of a segmenting egg which undergoes division. See Biology; Embryology.



V. Blasco-Ibáñez, Spanish author

BLATCHFORD, ROBERT (b. 1851). British journalist and author; pen-name, Nunquam. Born at Maidstone. March 17, 1851, he drifted



Robert Blatchford,
British journalist
Elliott & Fry

into journalism and joined the staff of *Bell's Life* in 1884 and of *The Sunday Chronicle* in 1885. In 1891 he left the latter to found and edit *The Clarion* as an organ of socialism. By his writings—notably *Merrie England* and *Britain for the British*—he made many converts to socialism. He early foresaw the German menace, and in 1910 contributed a series of articles on the subject to *The Daily Mail*. His other publications include a number of army stories and volumes of controversial secularism, *God and My Neighbour*, 1903, and *Not Guilty: a Plea for the Bottom Dog*, 1905.

BLAVATSKY, HELENA PETROVNA (1831-91). Founder of the Theosophical Society. Born at Ekaterinoslav, Russia, July 31, 1831 (O.S.), she married Nisphore Blavatsky, a Russian official in Caucasia, much her senior, from whom she was soon separated. During the next twenty years, according to her own account, she travelled in Canada, Texas, Mexico, and India, and made two attempts to penetrate into Tibet. In 1870 she became a prominent spiritualist in the U.S.A., founding in 1875 the Theosophical Society in association with Colonel Olcott, who became its president and edited *The Theosophist*.



Helena P. Blavatsky,
Russian theosophist

She wrote extensively on esoteric subjects, and persuaded her followers that she was inspired by communications from spiritual beings of Tibet called mahatmas. She died in London, May 8, 1891. See *Theosophy*.

BLAYDON. Urban dist. and market town of Durham. It stands on the Tyne (navigable to this point), 5 m. W. of Newcastle by the L.N.E.R. A suspension bridge spans the Tyne, connecting the town with Newcastle. In a colliery district, it has manufactures of chemicals, hottles, etc. Market day, Sat. Pop. 33,052.

BLAZON (Fr. blason, shield, coat of arms). The art of describing in proper heraldic terms a coat of arms or a complete achievement. The tincture of the field must be mentioned first, then the principal charges, ordinaries and sub-ordinaries, followed by common charges and their respective tinctures. See *Heraldry*.

BLEACHING. Process of whitening materials, especially fabrics, by washing and exposure to light, or by chemical means. The natural method is to expose the article to the action of air light, and moisture, as in the industrial process for whitening linen. The chemical process is much quicker, the chief agents employed being sulphur, chlorine, oxygen, and ultra-violet light. Sulphur is used in the form of gas, or as sulphites and hydrosulphites. Chlorine is generally used as bleaching powder (usually prepared by impregnating cold slaked lime with the gas) or as a solution of chlorinated soda. Ozone, hydrogen peroxide, sodium peroxide, and oxidising agents such as permanganates are methods of employing oxygen.

BLEAK (*Alburnus lucidus*). Small fish, often called the fresh-water sprat. About 5 ins. long, it may be seen in most rivers playing in shoals at the surface. It is rather delicate eating, but too small to be of much value except as bait in fishing.

BLEDISLOE, CHARLES BATHURST, 1ST BARON (b. 1867). British politician. A member of Earl Bathurst's family, he became a harrister, practised for some years, and from 1910-18 sat in the House of Commons as M.P. for a Wiltshire division. Here and outside he became a spokesman of the agricultural interest, and at his seat, Lydney Park, Gloucestershire, he put some of his ideas into practice. From 1924-28 Bledisloe, who was made a peer in 1918, was parliamentary secretary to the Ministry of Agriculture, and earlier he had filled a like office at the Ministry of Food. In 1929 he was appointed governor of New Zealand.



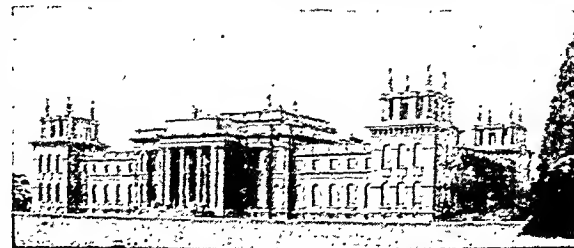
Lord Bledisloe,
British politician
Russell

BLEEDING. Treatment at one time largely adopted for all kinds of complaints of the body. It is now occasionally found useful when there is much engorgement of the lungs with blood and consequent difficulty in breathing, and in certain conditions of the heart in which that organ is not sufficiently powerful to maintain the circulation. The blood is usually drawn from a vein at the bend of the elbow, the median basilic vein. Other names for bleeding are blood-letting, venesection, or phlebotomy. The word is now more usually applied to a spontaneous escape of blood. See *Haemorrhage*.

BLLENDE. One of the principal ores of zinc, chemically a sulphide of that metal. In nature it is found both crystalline and massive, and sometimes in a soft amorphous form. When pure the crystals are colourless and transparent, but they are usually coloured by traces of iron or other metals. Blende generally occurs as a yellowish brown or black mineral with a somewhat resinous lustre, associated with ores of lead. The rare elements, indium and gallium, were first discovered in blende. Other names for blende are black jack, sphalerite, false galena, and mock lead. See *Metallurgy*; *Zinc*.

BLENDING. Process of combining different types of the same article to produce a desired mixture. Such commodities as tea, whisky, sherry, tobacco, and snuff are blended with a view to imparting flavour or aroma and also uniformity. See *Tea*.

BLLENHEIM. Seat of the duke of Marlborough, in Oxfordshire. It is near Woodstock, on the river Glyme, with a station on the G.W.R. Blenheim Park received its name when granted to the duke of Marlborough as a reward for his victory at Blenheim in 1704. The magnificent mansion was designed by Sir John Vanbrugh. It was famous for its valuable paintings (many the work of Rubens), and its splendid collection of gems, most of



Blenheim. The Duke of Marlborough's seat in Oxfordshire, built by Sir John Vanbrugh, and at one time famous for its collection of paintings

which were sold towards the end of the 19th century. The park has an area of 2,503 acres, and is 12 m. in circuit.

BLLENHEIM, BATTLE OF. Victory gained Aug. 13, 1704, by the English, Austrians, and their allies over the French and Bavarians.

The former were under Marlborough and Prince Eugene; the latter under Tallard and Marsin. The rival armies met around a village near Höchstädt, known as Blindheim, but more commonly to-day as Blenheim. The French right rested on Blenheim itself, which they had fortified.

The battle opened about 1 p.m., and before nightfall the English and their allies had won a total victory. The Franco-Bavarians numbered about 50,000, of whom 15,000 were cavalry. The English and their allies were about equal to this strength, but they had at least 25,000 cavalry. They lost about 11,000, the French and Bavarians many more.

BLNNY (*Blennius*). Genus of small fishes, including some 40 species, mostly of very small size and common in many parts of the world. Most are marine, but a few inhabit fresh waters. They have tentacles above the eyes and slime-covered skins.



Blenny. Spiny-rayed fishes, notable for their slime-covered skins

BLÉRIOT, LOUIS French airman. In 1909 Blériot flew across the English Channel on a monoplane built to his own design, winning a £1,000 prize offered by *The Daily Mail*, and in 1912 a Blériot machine of similar pattern looped the loop. See illus. page 27.



Louis Blériot,
French airman
Elliott & Fry

Captain Farmer. After his death she married the earl of Blessington, and with him, Count D'Orsay, and others, set out on a Continental tour in 1822. At Genoa she met Lord Byron and became his intimate friend. Returning to London, the countess gathered at her soirées the most distinguished men of the time. After her husband's death she lived in London with Count D'Orsay. She died in Paris, June 4, 1849. Her *Conversations with Lord Byron* (1834) provides the most authentic account of Byron's opinions to be found outside his own Journals and Letters.



Countess of Blessington,
Irish author and wit
After A. E. Chalon, R.A.

Blessington is a little market town in co. Wicklow, Irish Free State.

Bletchingley. Village of Surrey, 4½ m. E. of Reigate. A picturesque place, until 1832 it returned two members to Parliament. Pop. 2,190.

BLEWITS (*Tricholoma peronatus*). Species of mushroom which appears in late autumn. The smooth, flat cap is bistre-coloured, and the thick stem and gills are stained with violet. It is an edible fungus, but should not be gathered in wet weather.

BLICKLING. Village of Norfolk. It is on the Burc near Aylesham. The hall, built

early in the 17th century, etands in a fine park. It is a seat of the marquess of Lothian. Anne Boleyn lived in the carlier house.

BLIDA. Town of Algeria. It stands at the foot of the Little Atlas Mts., 32 m. by rly. S.W. of Algiers. Noted for its orange gardens, it has corn mills and trades in flour, cork, cedar, raisins, cotton, and tobacco. The site of a Roman station, Blida was built in the 16th century, and is an important French military centre. Pop. 24,758.

BLIGH, WILLIAM (1754-1817). British admiral. Of an old Cornish family, he entered the navy. In 1787 he commanded the *Bounty* (q.v.), when it was sent to the South Seas to fetch specimens of the bread-fruit tree. As a result of Bligh's harsh treatment, the crew mutinied and set him adrift with 18 men on April 28, 1789, in the Indian Ocean. Appointed governor of New South Wales in 1805, he came into collision with his civil and military subordinates, and was imprisoned for two years. He died in England, Dec. 7, 1817.

BLIGHTY. Soldier's word for home. Long used by the army in India, the word came into general use during the Great War. It has been explained as a corruption of Hindustani vilayati or bilayati, meaning near the borders of a district, hence foreign, the adjectival form of Arabic vilayat, province, a term often used by a foreigner for his native province, and hence for home.

BLIMBING. Acid fruit resembling a small cucumber. It is produced by a small tree (*Averrhoa bilimbi*) of the order Geraniaceae, much cultivated in the hotter parts of India. The fruits are preserved in syrup, pickled, or candied. An allied species, the caramba, is larger.

BLIND, KARL (1826-1907). German writer and revolutionist. He was born at Mannheim, Sept. 4, 1826, and studied law at Heidelberg. Filled with revolutionary ideas, in 1848 he took part in the revolution in Baden. Later, the temporary government in Baden sent him to Paris as its representative. His association with extremists led to his expulsion from France, and from 1852 onward he made London his home. He died May 21, 1907.



Karl Blind,
German revolutionist
Elliott & Fry

His step-daughter, Mathilde Blind (1841-96), accompanied him and received an English education. She wrote several volumes of poetry, lives of George Eliot, 1883, and of Madame Roland, 1886, and translated the *Journal of Marie Bashkirtseff*, 1890. She died in London, Nov. 26, 1896.

BLIND HOOKEY. Card game of chance for an indefinite number of persons. The dealer, chosen by cutting, gives a packet of cards to each player and to himself. The players lay their stakes on their cards, and the dealer turns up the bottom card of his own packet. The others do the same and pay or receive the amount of their stake according as their bottom card is higher or lower than the dealer's. Quits pay the dealer.

BLINDNESS. Loss of perception of light, colour, and form. It may be congenital, due to imperfect development of the eyeballs, or acquired. Acquired blindness may be due to injuries or to diseases of the globe. The majority of the latter are inflammatory, and caused by infection of the conjunctiva. Ophthalmia neonatorum, or ophthalmia of the newly born, the commonest cause of blindness, is caused by infection during or shortly after birth, and almost invariably is of gonorrhoeal origin. It can be prevented by careful cleansing of the eyes immediately after birth.

Other causes of blindness are glaucoma, characterised by increase of the intra-ocular pressure; embolism (plugging) or thrombosis (clotting) of the central artery of the retina; degeneration of the retina. Loss of useful vision may be caused by ulceration and subsequent scarring of the cornea (leucoma), or by opacity of the lens (cataract).

Atrophy of the optic nerve is usually preceded by optic neuritis (inflammation of the nerve), and may arise from many causes, principally tumours of the brain. Severe haemorrhages from the stomach or other organs may give rise to incurable blindness. Bright's disease or diabetes may cause considerable loss of sight, due to changes in the retina. Vision may be affected seriously by the excessive use of tobacco or alcohol (toxic amblyopia). A serious form of blindness may accrue from the drinking of methylated spirit or from inhaling its fumes. Functional loss of vision occurs in some cases of hysteria. Night blindness is the result of long-continued exposure to very bright lights, and a debilitated constitution may be a predisposing cause.

The blind spot or optic disk is the name given to a circular patch on the retina of each eye which is insensible to light and colour. It is situated at the entrance of the optic nerve. The part of the retina most sensitive to light is called the yellow spot. See Eye.

TRAINING OF THE BLIND. The training of the blind deals usually only with those who have been blind from earliest childhood. In the case of those who lose their sight in, or when nearing, adult life, the process may be more properly called re-education. Only in 1918 was the first establishment for normalising blind babies started. In it blind children are received in their earliest days, and there they are kept until at the age of five they can enter one of the many schools for the blind. Here the three R's are taught by Braille. Arithmetical processes require a special apparatus, but they are easily accomplished.

Workshops for the blind have apprenticeship departments in which pupils are taught trades, the period of tuition often lasting five years. The principal trades taught to young men are basketry in most of its varieties, brush and broom making, the weaving of mats and rugs; and, in the case of girls, machine knitting and cloth weaving. Other trades which have some special relation to the locality in which they are practised are also taught. It is becoming more and more generally recognized that the blind are the best teachers of the blind. See Braille; Eye; St. Dunstan's.

BLIND STOREY. Building term implying generally a storey or any horizontal division of a building that contains no windows or other openings admitting a fair quantity of light. In medieval architecture, it is the middle storey of a church, placed between the clerestory above and the ground floor below. Used in this sense, the term is synonymous with triforium.

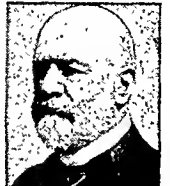
BLINDWORM OR SLOW-WORM (Anguis fragilis). Limbless lizard of the family Anguidae. The body is worm-like, and the eyes are so small that the animal is popularly supposed to be blind. The blindworm occurs throughout Europe, N. Africa, and W. Asia. It is about 1 ft. long, of brownish colour, has a very brittle tail, and feeds on slugs and insects, usually by night. Its bite is harmless.

BLISS, TASKER HOWARD (b. 1853). American soldier. Born at Lewisburg, Pennsylvania, Dec. 31, 1853, he graduated at the U.S. military academy. Professor at the Naval War College, 1885-8, he was chief of the staff at

Porto Rico during the Spanish-American War. From 1903-17 he was commandant of the Army War College, and general in the Philippines and on the Mexican border. He was chief military representative of the U.S.A. at the Peace Conference in Paris, 1919.

BLISTER. Vesicle containing watery material produced beneath the cuticle or superficial layer of the skin by scalding or application of an irritant substance. Blistering is employed in medicine to relieve pain and congestion in the deeper part, the drugs most often used in this connexion being cantharides and turpentine.

BLOCH, JEAN GOTTLIEB DE (1836-1902). Polish financier, economist, and writer on war. Born at Radom, Russian Poland, he became eminent as a railway contractor and administrator, banker, agriculturist, and controller of the sugar and lumber trades of Russia. Bloch's best known book is the *Future of War*, 1898, an encyclopedic work translated into English in abridged form as *The War Now Impossible?*, 1899. In this he fore-



Jean de Bloch,
Polish economist
Elliott & Fry

casted the results of the Great War. He drew up an elaborate scheme for peace propaganda, and created a museum of war and peace at Lucerne. He died Jan. 7, 1902.

BLOCK. Word with various meanings. As a part of the rigging of a ship used for raising sails, etc., it comprises one or more grooved pulleys mounted in a frame, usually of hard wood, fitted with a hook or eye by which the block may be suspended or secured. When complete with a rope the whole is known as a tackle. Iron and steel blocks are commonly used by engineers and others, the rope being replaced by a chain.

In printing, a block is the engraved plate, or a stereotype or electrotpe taken therefrom, used in the illustration of books, periodicals, etc. Blocks are of two kinds, those, in line, of pen-and-ink drawings and similar originals consisting only of black and white, and those, in half-tone, of photographs, wash drawings, and like originals consisting of various tones. See Printing; Stereotyping.

In geology, an erratic block is a mass of rock transported by glacier or ice-sheet, and left on retreat of the ice remote from its source. A perched block is such a mass left in some relatively unstable position on hill-top or hill-slope.

The block system on railways is a method by which a line is divided into sections or blocks. Each is protected by signals, which forbid a train to enter while another train is therein. (See Railways; Signalling.) Block tin is an inferior grade of tin, so-called because it is made in the form of blocks. See Tin.

BLOCKADE. Term used in international law to denote the interception by a belligerent of access to territory or to a place which is in the possession of his enemy. International law is chiefly, if not exclusively, concerned with blockade by sea, for here the rights of neutrals are involved.

All the problems of a blockade turn upon the question how far the necessities of the blockading belligerent can override the equal rights of neutrals to enter and leave, and to carry their merchandise to and from enemy ports. A blockade ceases if the blockading squadron is driven off, even temporarily, or is diverted to other



Blindworm or slow-worm (*Anguis fragilis*), a limbless lizard

purposes. The right of egress to neutral vessels caught unawares in a blockaded port is governed by special rules. The penalty for the breach of a blockade by a neutral is that the ship is always liable to be confiscated and the cargo as well if it belongs to the same owner. A neutral violates the blockade, according to the decisions of the English and American courts, if he sails after the blockade has been notified to his Government, or if its existence is notorious at the port of departure.

In Feb., 1916, a British Government department, known as the ministry of blockade, was formed to deal with questions concerning the blockade of enemy countries. It disappeared soon after the end of the war.

BLOCKHOUSE. Wooden hut built for occupation and defence by a small garrison in countries where materials for a masonry fort are not available and where artillery fire is not to be feared. Blockhouses were used in the S. African War (1899-1902), corrugated zinc being substituted for timber. In N. America they were used as a protection against Indians.

BLOCKSHIP. Vessel filled with concrete and used for blocking a port or a channel, as at Zeebrugge (q.v.). At the beginning of the Great War blockships were sunk at Portland and other British naval harbours to prevent U-boats from getting in. Preparatory to the raids upon Ostend and Zeebrugge, April 23, 1918, the obsolete cruisers, *Brilliant*, *Sirius*, *Intrepid*, *Thetis*, and *Iphigenia* were loaded with concrete and used as blockships. On May 9-10, 1918, an obsolete cruiser was used as a blockship to close Ostend harbour.

BLOEMAERT, ABRAHAM (c. 1564-1651). Dutch painter. Son of the sculptor, Cornelis Bloemaert, he was born at Gorkum, and studied painting at Utrecht and Amsterdam. Bloemaert was a prolific and versatile painter of history, genre, and portraits, and was the master of many of the Dutch artists. He died Jan. 27, 1651.

BLOEMFONTEIN. Capital of the Orange Free State and judicial capital of the Union of S. Africa. On the Modder river, 4,518 ft. above sea level, and 450 m. by rly. from Port Elizabeth and 750 m. by rly. from Cape Town, it was founded in 1846. It is the seat of an Anglican bishop. Grey University College is a constituent college of the University of S. Africa. It



Bloemfontein. House of the Provincial Assembly or Parliament

is largely a residential town, and its congenial climate attracts many invalids. An important live stock market, it has an annual agricultural show. Near the city is the observatory erected by Harvard University. Bloemfontein was occupied by Lord Roberts on March 13, 1900. Pop. 39,034. See Orange Free State; South Africa.

BLOIS. City of France, capital of the department of Loir-et-Cher. It lies on the right bank of the Loire, 35 m. by rly. S.W. of Orleans. The cathedral of S. Louis dates from the 17th century. The magnificent château was from time to time the residence of the French court, and within its walls Louis XII was born, and Henry, duke of Guise, assassinated. The abbey church of S. Nicholas dates from the 12th century. Pop. 19,323.

BLOMFIELD, SIR ARTHUR WILLIAM (1829-99). British architect. He was the fourth son of Rev. C. J. Blomfield (1786-1857), who was bishop of London 1828-57; he was born March 6, 1829. As a designer and restorer of churches and a specialist in modern Gothic, he enjoyed a large practice. He became a fellow of the R.I.B.A., 1867, and was knighted in 1897. His work included the churches of S. Barnabas, Oxford, S. Mary, Portsea, and S. George, Cannes, and the restoration of S. Saviour's, Southwark. He died Oct. 30, 1899.



Sir Arthur Blomfield, British architect Robinson

the restoration of S. Saviour's, Southwark. He died Oct. 30, 1899.

BLOMFIELD, SIR REGINALD THEODORE (b. 1856). British architect. Born Dec. 20, 1856, he was a grandson of Rev. C. J. Blomfield. He specialised in civil architecture and also in garden design. Elected A.R.A. 1905 and R.A. 1914, he was president of the R.I.B.A. 1912-14, and was knighted April, 1919. He was the author of *The Formal Garden in England*, 1892; *History of Renaissance Architecture in England*, 1897; *History of French Architecture*, 1494-1661, 1911; etc.

BLOMMERS, BERNARDUS JOHANNES (b. 1845). Dutch painter. Born at The Hague, Jan. 30, 1845, he first studied lithography with his father, but later decided to take up painting. In 1869 he became the pupil of Joseph Israels. Blommers painted landscapes and seascapes and the genre of the middle and lower class industrial life. His chief works are *Le Petit Moulin*; *Bonjour, Père*; *Le Repas des Pêcheurs*, and *Joie Maternelle*.

BLONDEL. French 12th century minstrel. Born at Nesle, Picardy, he accompanied Richard I to Palestine in 1190. He is said to have discovered Richard's place of detention by singing outside the walls of the castle of Dürrenstein, Austria, a love song which they had composed together. The poems which have come down to us under Blondel's name, published at Reims in 1862, are of little merit.

BLONDIN, CHARLES (1824-97). French acrobat. Born at St. Omer France, Feb. 24, 1824, his real name was Jean François Gravelet. An acrobat at the age of five, he gained notoriety and a fortune in 1859 by crossing Niagara Falls on a tight-rope. This feat he accomplished several times, performing many daring tricks while crossing the rope. Blondin afterwards settled in England, and gave exhibitions in London at the Crystal Palace and elsewhere. He died Feb. 19, 1897.

BLOOD. Fluid which circulates through the body and conveys food material and oxygen to every part of the organism. It also carries away waste products from the tissues to be discharged from the body through the excretory organs. Blood consists of a fluid part called plasma, in which are floating a number of minute blood cells or corpuscles. These are of two classes, namely, red and white.

A cubic millimetre of blood contains about 5,000,000 red corpuscles. Their chief function is to take up oxygen from the air in the lungs and thence to carry it to the tissues.

The white corpuscles, or leucocytes, average only about one to every 500 of the red. Several varieties are recognized. An important function of the white blood corpuscles is to take up minute foreign particles, such as bacteria, which they digest and destroy, a process known as phagocytosis. See *Anaemia*; *Artery*; *Heart*; *Lung*; *Vein*.

CIRCULATION OF THE BLOOD. The discovery of the circulation of the blood was made by the English physician, William Harvey, in 1628. The circulatory system consists of the heart, arteries, veins, capillaries, and the lymphatic vessels. Starting from the left ventricle of the heart, the blood passes through the aorta to the arteries and is distributed all over the body. The finest ramifications of the vessels are termed capillaries, and from these the blood passes into the veins, eventually reaching two great veins, the inferior vena cava and the superior vena cava, which open into the right auricle. From here it passes into the right ventricle, and from the ventricle into the pulmonary arteries, one of which passes to each lung. In the lungs the pulmonary arteries break up into smaller vessels, eventually passing into fine capillaries, in which the blood is brought in contact with the air in the lungs and thus is oxygenated. From these capillaries the blood is collected up into the pulmonary veins, which enter the left auricle, whence the blood passes to the left ventricle.

TRANSFUSION OF BLOOD. Blood may be transferred from one person to another who has suffered a severe haemorrhage. Human beings can be divided into four classes, depending upon certain qualities in their blood, and the blood of a person in any one class can be safely injected into another person of the same class. By means of tests, the class of the donor and the recipient can be determined before the operation is effected.



Thomas Blood, Irish adventurer From a print of 1791

BLOOD, THOMAS (c. 1618-1680). Irish adventurer, better known as Colonel Blood. Deprived at the Restoration of the Irish estates assigned to him by Henry Cromwell, he took part in an unsuccessful plot to surprise Dublin Castle and carry off Ormonde, the lord-lieutenant. He then fled to Holland, and after intriguing with Covenanters and Fifth-Monarchy Men, came under the protection of the duke of Buckingham. On May 9, 1671, he stole the crown jewels from the Tower, but was pardoned by Charles II. His forfeited Irish lands were subsequently restored to him. He died in London, Aug. 24, 1680.

BLOOD FEUD.

Primitive institution imposing upon a family, clan, or tribe the right and duty of retaliation when one of its members is robbed of life or honour by a member of a corresponding group. By restricting to a single person, specially appointed and known as the avenger of



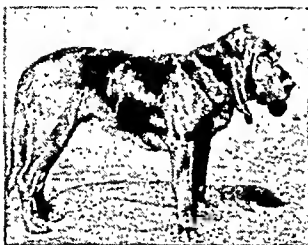
Blondin carrying a man across Niagara Falls on a rope 160 ft. above the water

blood, the fulfilment of this right and duty, it placed a check upon intertribal warfare. Established in Neolithic times, the institution survives in various forms of vendetta among the Afghans, Albanians, Corsicans, etc.

Blood money is the name given to the fine formerly paid either by a homicide to the relatives of his victim to secure himself against their vengeance, or as compensation for crimes of violence other than murder. The term also denotes money earned by bringing or successfully supporting a capital charge.

BLOOD FLOWER (*Haemanthus sanguineus*). Perennial bulbous herb of the natural order Amaryllidaceae, a native of S. Africa. It has only two leaves, which are oblong-elliptic in shape. The fine scarlet flowers are gathered into dense umbels.

BLOODHOUND. One of the oldest breeds of British dogs, formerly known as the sleuth-hound. Its name is derived from the persimmon with which it follows the scent of blood, especially in the case of a wounded animal. The bloodhound was formerly much used for hunting, in England as late as 1887. Its use in tracking criminals has proved disappointing in most cases. The animal is now valued mostly for its ornamental qualities and its affectionate and intelligent disposition. Its high-peaked forehead, deep square muzzle, low-set ears hanging in long folds close to its face, and deep-set eyes give it a grave and aristocratic air. The coat is close, black and tan or tawny in colour, and the animal stands about 24 inches high at the shoulders.



Bloodhound. Fine example of this breed once famed for tracking

BLOOD POISONING. Popular term for the three morbid conditions, sapraemia, septicæmia, and pyæmia.

Sapraemia (Gr. *sapros*, rotten; *haima*, blood) is a condition produced by absorption into the body of poisonous products formed by bacteria in a suppurating wound or abscess. It is the least serious form of blood poisoning. Septicæmia (Gr. *septikos*, rendering putrid) is a form in which bacteria as well as their toxins have found their way into the circulation. Pyæmia (Gr. *pyon*, pus; *haima*, blood) is a condition in which multiple abscesses form in various parts of the body owing to pus organisms entering the blood-stream from a local source of infection.

BLOOD RAIN. Reddish coloured rain which sometimes falls in Italy and along the Mediterranean shores. A microscopic examination shows that this phenomenon is due to the formation of raindrops on dust blown from the Sahara. On rare occasions this "red rain" is experienced in the British Isles.

BLOOD ROOT (*Sanguinaria canadensis*). Perennial herb of the order Papaveraceae, native of N. America. Its long, branched rootstock is filled with orange-red juice. In spring two short stalks arise from each branch of this rootstock, one bearing a single rounded leaf, the other a large white flower. The root has been used in medicine and as a dye-stuff.



Blood Root, *Sanguinaria canadensis*

Bloodstone or **Heliotrope**. A dark green variety of chalcedony with red spots. Opaque and moderately hard, it takes a high polish, and is much used for signet rings and seals.

BLOOMER COSTUME. Woman's dress consisting of a skirt long enough to reach just below the knees, worn over wide trousers gathered in at the ankle, and a fairly close fitting jacket. It was introduced in 1851 by

Mrs Amelia Jenks Bloomer, of New York, an ardent advocate of women's rights.

BLOOMFIELD, ROBERT (1766-1823). British poet. Born of humble parentage at Honington, Suffolk, Dec. 3, 1766, he came to London, where he lived in great poverty, but lost no opportunity of self-education, and began to write verse, one of his compositions, entitled *The Milkmaid*, appearing in *The London Magazine*. In 1800 he published *The Farmer's Boy*, of which 26,000 copies were sold in three years. Bloomfield died Aug. 19, 1823.



Robert Bloomfield, British poet
From a cont. engraving

BLOOMSBURY. District of London. Part of the parish of S. Giles-in-the-Fields, it lies between Holborn and New Oxford Street on the S.; Tottenham Court Road, W.; Euston Road, N.; and Southampton Row, E. The original lord of the manor was William de Blemont, about 1203, and for 200 years the district was known as Blemont's. Once a fashionable quarter,

its streets and squares are a later ground landlord, the duke of Bedford. Once a fashionable quarter, it now contains many private hotels and boarding houses. In Great Russell Street is the British Museum; in Gower Street are University College and University College Hospital. A site has been bought by the University of London on which to erect buildings for its headquarters.

BLOOTELING. ABRAHAM (c. 1634-98). Dutch engraver. Born at Amsterdam, he produced a vast number of etchings, line engravings and mezzotints after contemporary and older masters, some of which have suggested his association with the school of Cornelis and Pieter Visscher.



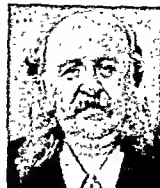
Mrs. Bloomer in her original rational dress
From a daguerreotype

BLOW, JOHN (1648-1708). English composer and organist. First a chorister in the Chapel Royal, in 1669 he was made organist of Westminster Abbey, and in 1676 organist of the Chapel Royal. He was also master of the children at the Chapel Royal and at S. Paul's Cathedral 1687-93, and composer to James II. In 1699 he became composer to the Chapel Royal. He died Oct. 1, 1708, and was buried in Westminster Abbey. His compositions include over 100 anthems.

Blowfly. Variant name of the bluebottle fly (q.v.).

BLOWING ENGINE. Machine for directing air upon burning fuel or through molten metal, in order to increase its temperature. Sometimes called a blowing machine, a similar apparatus is used to supply air in large quantities for ventilating mines, tunnels, etc., and to create a forced draught for steam boilers. The blowing engine consists essentially of an air cylinder with a piston, the piston rod being connected to the piston rod of a steam cylinder. At each stroke of the latter air is drawn into the air cylinder, compressed, and discharged into a container, thence to be delivered at steady pressure to the furnace, etc. See Blast Furnace.

BLOWITZ, HENRI GEORGES STEPHANE ADOLPHE OFFER DE (1825-1903). French journalist. Born at Château Blowsky, Pilsen, Bohemia, Dec. 28, 1825, his first essays as a journalist appeared in two papers published at Lyons, and by his articles he secured the defeat of De Lesseps at the French elections of 1869. Temporary correspondent of *The Times* in July, 1871. He became the chief Paris correspondent Feb. 1, 1875, and remained so until his retirement. He was able to disclose the designs of Germany against France in 1875, transmitted the text of the treaty of Berlin before it was signed in 1878, and was among the first to foresee Russia's progress towards Herat. He died Jan. 18, 1903. Consult his *Memoirs*, 1903.



Henri G. de Blowitz, French journalist

BLOWPIPE. Tube with a small orifice through which a current of air is projected, either by the mouth of the operator or by mechanical means. The object is to direct a flame and concentrate its heat upon a particular spot. Blowpipes are used by goldsmiths, jewellers, and metal workers, for soldering metals, and by glass workers. An intensely hot flame may be obtained by the use of oxygen instead of air. Blowpipes for welding metals are supplied with both oxygen and hydrogen, or acetylene. See Welding.

Another blowpipe is a weapon used by savage tribes in hunting and warfare. It is essentially a long tube through which arrows and similar missiles may be discharged to a considerable distance by blowing with the mouth. Crude sights are often fitted, and the users show skill and accurate shooting up to a range of 50 or 60 yards.

BLUBBER. Covering of thick fat enveloping the body of whales and some other marine animals. Blubber is one of the products for which whales are hunted, and from it comes the valuable sperm oil of commerce. It has also been used as fuel for ships.

BLÜCHER, GEBHARD LEBERECHT VON (1742-1819). Prussian soldier. Born at Rostock, in Mecklenburg, Dec. 16, 1742, he gained his first experience of war in the service of Sweden. Later he joined the Prussian army, and in 1806 fought at Auerstadt and elsewhere, endeavouring to stem Napoleon's advance. In 1813 he took the command in Silesia. He fought at Leipzig (Oct. 16-19), and led the Prussians in the advance on Paris in 1814, being created prince of Wahlstadt. After



Marshal Blücher, Prussian soldier

Napoleon's escape in 1815 Blücher commanded the Prussian forces; and though Napoleon defeated him at Ligny (June 16), he made good his retreat to Wavre instead of to Namur, in order to carry out his promise of supporting Wellington at Waterloo. Marshal Vorwärts—the nick-name of the old warrior—died in Silesia, Sept. 12, 1819. See Waterloo.

Blücher was the name of a German armoured cruiser sunk in action with Sir David Beatty's forces in the North Sea, Jan. 24 1915.

BLUE. In sporting language, a man who has the right to wear the light blue cap and blazer of Cambridge or the dark blue of Oxford. There is a Blues Committee at each university, and blues and half-blues are awarded for most representative inter-university contests. The chief games for which full blues are given are rowing, cricket, and the two forms of football, Rugby and Association. For other games and competitions, athletics, lawn tennis, hockey, and cross-country running, the chief representatives receive blues and the others half-blues. For golf, polo, lacrosse, swimming, boxing, fencing, and billiards only half-blues are given.

BLUEBEARD. Character in Perrault's fairy-tale of Barbe Bleue, 1697. A wealthy ruffian marries and kills six wives one after the other, hanging up their remains in a locked chamber. The seventh wife disobeys Bluebeard's command never to unlock the door of this room, and discovers the horrible secret when he is away from home. She is rescued from the fate of her predecessors by the arrival of her two brothers, who kill Bluebeard. The story occurs in the folk lore of widely different nations. The term bluebeard is given popularly to any man notorious for monstrous crimes against women, particularly one who kills a number of brides after illegally marrying them.



Bluebell or wild hyacinth

bell of Scotland is the harebell (q.v.).

BLUE BIRD (*Sialia sialis*). Common bird of North America, allied to the thrush, often known as the blue robin. Sky-blue in colour, with chestnut throat and breast, it is a little larger than the British robin, which in habits it much resembles.



Blue Bird, *Sialia sialis*, a native of North America

BLUE BOOK. British Parliamentary and consular report bound in blue paper wrappers and issued in folio form. The term is used loosely to cover other official documents, but those referring to foreign affairs are known as White Papers. The public sale of such papers dates from 1836. Government publications of foreign countries have distinctive colours.

BLUEBOTTLE FLY OR **BLOWFLY** (*Musca vomitoria*). Insect of the same family as the common house-fly. It is larger than the house-fly, and has a blue abdomen. Its buzz is loud and insistent. The bluebottle lays its

eggs in meat, and is a common domestic pest. It is often confused with the flesh-fly, which however, rarely comes indoors, and whose hind body is grey and black instead of blue.

BLUE COAT SCHOOL. Name given to certain English schools from the long blue coats worn by the boys. The chief is Christ's Hospital, formerly in London, but now at Horsham, Sussex, where the boys still retain the long blue coats, as worn by their predecessors since the time of Edward VI. They also wear yellow stockings, but no hats, although until about 1850 they wore blue caps. Other blue coat schools for boys are at Birmingham, Nottingham, Westminster and Chester. For girls the chief blue coat school is at Hertford, whence it was moved from London about 1800. There is also one at Greenwich. See Christ's Hospital.

BLUE CROSS. Name given to a British organization, founded in 1912, for the care of horses and dogs in warfare, irrespective of nationality. Run on Red Cross lines and supported by voluntary contributions, it is a branch of Our Dumb Friends' League. Originally concerned with horses only, in 1917 it undertook the sole veterinary charge of the 18,000 war dogs used in the French army. During the Great War it assisted horses of the expeditionary forces. After the armistice the Blue Cross provided quarantine accommodation for war dogs, the Charlton kennels at Shooter's Hill, near Blackheath, London, being the first station opened.

BLUE ENSIGN. Official flag flown by certain vessels auxiliary to the Royal Navy. It consists of a blue ground with the Union in the upper corner next the staff, and may be flown by merchant vessels commanded by retired officers of the Navy or officers of the Naval Reserve, provided that at least 10 of the crew are naval pensioners or belong to the Royal Naval or Royal Fleet Reserve, and that the necessary admiralty warrant has been obtained. Vessels of war in the service of the Dominions have the ensign with the badge of the Dominion in the fly, and use a blue pendant in addition. See Flag.

BLUEFISH (*Temnodon saltator*). Fish akin to the mackerel. Blue on the upper parts and white below, with a black spot at the base of the pectoral fin, it attains a length of 3 ft. or more. The bluefish is common in warm climates, especially on the E. coast of N. America, and is highly esteemed as food. Its size, strength, and swiftness provide a favourite sport for American anglers.



Bluebottle or blowfly

BLUE GRASS (*Poa compressa*). Perennial grass, a native of Europe, N. and W. Asia, possibly of N. America. The name is due to the generally glaucous hue of the plant. The leaves are flat and often rough, and the flowering stems are from 1 ft.-2 ft. in height.

Blue John Mine. Natural cave near Castleton, Derbyshire, England. From it is got the purple fluorspar called Blue John

BLUE LAWS. Phrase used in the U.S.A. for laws which interfere with personal freedom, tastes, and habits, such as sumptuary laws and those regulating private morals. The name was first given to several laws of this kind said to have been imposed in the Puritan days of the 18th century on the inhabitants of New Haven, Connecticut.

BLUE MOUNTAINS. Name given to various ranges of mountains, of which the chief are: (1) A range in Jamaica, running E. and W., the highest point of which is Blue Mountain Peak (7,355 ft.). (2) A branch of the Dividing Range, New South Wales. The peaks, which average about 3,000 ft., are covered with eucalyptus forests; the highest is Mt. Beemerang, 4,100 ft. (3) A range in Oregon, U.S.A. Composed of lava on granite, they are covered with pine and fir forests. Their mean altitude is 7,000 ft.

BLUE NOSE. Nickname given to the inhabitants of Nova Scotia. Found in the novels of T. C. Haliburton, the creator of Sam Slick, the term is probably derived from the effect of the climate on the noses of the inhabitants.

Blue Peter. Blue flag with a white square in its centre which is hoisted in a ship when she is about to sail. See Flag.

BLUE RIBBON OR **RIBAND.** Term for a high distinction of any kind. Its use in this connexion arises from the fact that the ribbon of the Order of the Garter is dark blue. Thus the winner of the Derby is said to gain the blue ribbon of the turf, and the lord chancellorship is termed the lawyers' blue ribbon.

The Blue Ribbon Army, a society of abstainers from intoxicating drinks which flourished in Great Britain during the last quarter of the 19th century, originated in America, the mark of the members being a piece of blue ribbon. In 1893 the society took the name of the Gospel Temperance Union.

BLUESTOCKING. Word applied in a derisive manner to a learned woman. In England its modern use originated about 1750, when certain persons, weary of the usual amusements of London society, began to hold meetings for conversation on books and letters. Mrs. Elizabeth Montagu was a leading figure in this circle, which included Horace Walpole and Lord Lyttelton; and one or two of its male members, to mark their freedom from convention, wore blue stockings instead of the customary black silk. Those who thus met were called bluestockings, but in course of time the term became confined to the women members.

BLUETHROAT (*Cyanecula svecica*). Small bird akin to the redstart. It has a bright

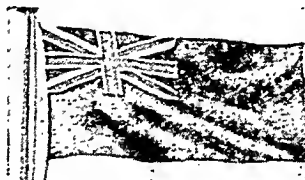
blue throat adorned with a reddish brown patch. It breeds in Scandinavia, Siberia and other northern lands, and in winter migrates to Egypt, Abyssinia, and India. It is also known as the Swedish nightingale, and in Lapland, from its mimicking the notes of other birds, as the bird of a hundred voices.



Bluethroat, a song bird of north Europe and Asia



Blue Coat Boy in school dress



Blue Ensign, flown by vessels auxiliary to the Royal Navy

BLUFF (old Dutch blaf, flat). Name for a low cliff or high bank with a steep face. A port of South Is., New Zealand, the most southerly point of the island, on Foveaux Strait, is called Bluff. It is the first harbour on the south route from Australia to Lyttelton.

BLUNDELLSANDS. Summer resort of Lancashire. It is 6 m. N.W. of Liverpool, on the L.M.S. Rly., near the entrance to the Mersey estuary. Pop. about 4,000.

BLUNDELL'S SCHOOL. Public school at Tiverton. Built and endowed in 1604 by Peter Blundell, a clothier of Tiverton, in time it became well known. In 1876 new buildings were erected outside the town. The number of boys is about 300. R. D. Blackmore and F. Temple were educated here.

BLUNDERBUSS (Dutch donder, thunder; bus, box). Heavy pistol with flint-lock, trigger action and sometimes a bell-shaped muzzle. It was in use in the 18th century, and the length of barrel varied from 14 ins. to 28 ins. See Pistol.

BLUNT, WILFRID SCAVEN (1840-1922). British poet. Born Aug. 17, 1840, the son of a soldier and landowner, whose Sussex estate at Crabtree he inherited in 1872, he was in the diplomatic service from 1858-70. Some years of travel in Asia and Africa followed, during which he became a strong advocate of political freedom for Mahomedan races and an opponent of British policy in the East. In 1888 he was imprisoned for defying the law in Ireland. He was a breeder of Arab horses. A complete edition of his poems appeared in 1914, and he published his Diaries in two series, 1919-20. He died Sept. 10, 1922.

BLUNTSCHLI, JOHANN KASPAR (1808-81). German-Swiss jurist. Born at Zürich, March 7, 1808, he was for a time president of the Swiss council of state. He left Switzerland on the overthrow of the council in 1847, and from 1848-61 was professor of constitutional law at Munich and from 1868 at Heidelberg. He died at Karlsruhe, Oct. 21, 1881. Bluntschli wrote a History of General Constitutional Law, 1864, The Modern Law of War, 1866, and The Modern Law of Nations, 1868. The best known of his other works is his Theory of the State, 1875, Eng. trans. 1885.

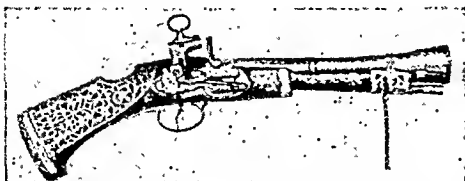
BLYTH. Borough, seaport and watering-place of Northumberland. At the mouth of the river Blyth, 11 m. N.E. of Newcastle by the L.N.E. Rly., it exports coal, has shipbuilding yards, and salmon and herring fisheries, and manufactures ropes, cables, and sails. Its harbour at North Blyth, on the opposite side of the river, has been much enlarged to deal with the increasing export of coal. In 1907 the urban district of Cowpen was incorporated with Blyth. Pop. 34,070.

BOA. Genus of large snakes found in tropical America and in Madagascar. The common boa-constrictor of S. America, which sometimes attains a length of 12 ft., is marked with spots and bars, the prevailing colours being brown, with black and yellowish markings. Coiled on the branches or trunk of a tree, where its colouring serves to conceal it, the boa lies in wait for birds and such animals as rats and agoutis. See Snake.

BOABDIL (d. about 1495). Last Moorish king of Granada. He seized the throne in 1482, from his father, whom he drove into exile and became a vassal of the Spanish rulers. Troubles with his father, who desired to regain

the throne, weakened the kingdom, rendering it easy for the Christians to capture Granada in 1492. Afterwards Boabdil joined his kinsmen in Africa, where he is said to have been killed. His name is a corruption of Abu Abdallah.

BOADICEA (d. A.D. 62). British queen, wife of Prasutagus, king of the Iceni, a tribe of E. Britain. To safeguard his kingdom and family, Prasutagus had bequeathed his property jointly to his daughters and the Roman emperor Nero, but at his death his territory was seized by the Romans, his widow was scourged, and his daughters were ravished. head of a formidable host,



blunderbuss. A 17th century Spanish specimen, with decoration of pierced and engraved silver

Boadicea, at the burned Camalodunum (Colchester) and other cities, but was eventually defeated, and ended her life by poison. A colossal group of Boadicea and her daughters in her war chariot by Thomas Thornycroft stands at the W end of Westminster Bridge, London. The name is more correctly spelt Boudicca.

Boadicea was the former nameship of a class of British light cruisers built in 1909-13. Renamed the Pomone, in 1920, she displaced 3,300 tons, and had engines of 18,000 h.p. giving a speed of 25 knots.

BOANERGES. Term applied by Christ to James and John (Mark 3). It is explained as meaning sons of thunder, but the derivation is doubtful. See James, S.; John, S.

BOAR (*Sus scrofa*). Name given to all the wild members of the pig family, but especially to the wild swine of Europe and

India, progenitors of domesticated breeds. The European wild boar has a high crest on the shoulders, well-developed tusks, and a thick coat of coarse bristles. It stands about 3 ft. in height and is swift and powerful; it inhabits damp forests and marshy districts, where it feeds upon roots, fungi and berries. The wild boar is found in most of the suitable districts of Europe, in N. Africa, and W. Asia, and was formerly common in Great Britain. It has long been a favourite animal



Boar. European wild boar, from which the domestic pig descends
W. S. Berridge



Boa-constrictor, a large snake native to tropical S. America. It is pale brown with darker markings
F. W. Bond

of the chase. The extinction of the animal as a wild species was due to domestication, rather than to extermination.

BOARD. Term often applied to bodies of men responsible for the conduct of businesses, charities, etc., called boards of directors, or to certain public departments, e.g. the Board of Trade, boards of guardians, the root idea being that officials sit round a wooden table in order to discuss their business.

Boarding out is the name given to the system by which destitute orphans and other children are entrusted to the care of private persons, instead of being maintained in workhouses and similar institutions. In England the poor law authorities are allowed to board out the children under their care, the system being supervised by the Ministry of Health.

The elementary schools established and controlled by the School Boards set up under the Education Act of 1870 were called board schools. In 1902 the schools were taken over by the municipal and county councils, and became known as public elementary or council schools. See Education.

BOAR'S HEAD. Tavern in London, famous for its associations with Shakespeare. It was in Eastcheap, and the dramatist makes it the haunt of Prince Henry and Falstaff, and their companions. It was destroyed in the fire of 1666, but a new one was built which was later removed to improve the way to London Bridge. A statue of William IV stands on the site, which is near the Monument.

BOAR'S HILL. Village of Berkshire. About 4 m. from Oxford, it commands beautiful views and, associated with Matthew Arnold's poems, has become a place of residence for Oxford dons and others. Efforts are being made by the Oxford Preservation Trust to prevent any spoliation of its natural charms.

BOAT. Appliance constructed by man to enable him to transfer people and things across water. Two properties are essential to the most primitive of boats—stability in the water and buoyancy. Stability depends upon shape, hence the gradual development of the typical cross section where the portion below water level is narrowest. Increased stability led to the building of platforms with cabins and to the use of a primitive sail.

Buoyancy was attained in primitive lands where timber was scarce by the development of the raft of skins. Wickwork boats waterproofed on the underside are still in use on British rivers such as the Cheshire Dee.

The need to travel against or across a current compelled the use of paddles, or a primitive sail, and in the early forms paddling facing the direction in which the boat travelled led to the development of paddles and guiding sweeps. Facility of control by the mid of a sweep permitted the use of oars and the evolution of rowing boats.

BOAT RACE. Any race between boats, but especially the annual boat race between the universities of Oxford and Cambridge. In this each crew consists of eight oars and a coxswain. It takes place on the Thames over a course of 4½ m. from Putney to Mortlake. Up to 1929 the two universities had each won on 40 occasions. The record time, 18 min. 29 sec., was accomplished by Oxford in 1911. The race was instituted in 1829 and became an annual event in 1856.

BOATBILL (*Cancroma cochlearia*). Species of night heron peculiar to S. America and found chiefly in Brazil. Its broad flat beak suggests the shape of an inverted boat. See illus. p. 271.



Boar's Head Tavern. Sign of the inn at Eastcheap, built 1668. See below

BOAT FLY (Notonecta). Name given to a group of hemipterous insects, of which the water boatman on British ponds is an example. They swim on their backs on the surface of the water.

BOATSWAIN (A.S. swan, lad, servant). Warrant officer in a warship or merchantman who is charged with the supervision of all sails, rigging, tackle, purchases, cables, and similar gear. Boat-swains in the navy are selected from leading seamen and petty officers under the age of 35. After 15 years' service as boatswain the officer is promoted to chief boatswain (commissioned warrant officer). A small proportion of chief boatswains are promoted to lieutenant. Pron. bosun.



Boat Fly or Boatman.
Notonecta glauca

BOCCACCIO, GIOVANNI (1313-75). Italian author. He was the son of a merchant of Florence, and was probably born in that city. At the age of 15 he was sent to study law at Naples, and ten years later fell in love with Maria d'Aquino, supposed to be a natural daughter of King Robert of Naples, who inspired much of his early work.

Some time during the next decade began his friendship with Petrarch, one of whose last literary labours was the translating into Latin of Boccaccio's *Patient Griselda*, and under whose influence he became one of the leading agents in promoting humanistic studies. About 1362, influenced by Petrarch and by a dying priest who almost scared him into renunciation of the world, he changed his moral views and conduct, and afterwards his writings were free from much of the licence which had marked his earlier work. In 1363 he settled at Certaldo, his paternal inheritance some miles from Florence. In addition to *The Decameron* he wrote in Latin some treatises on ancient mythology. He died Dec. 21, 1375. See *Decameron*.

BOCHUM. Town of Prussia. In Westphalia, about 10 m. E. of Essen, it is in the Ruhr district, and is an important coal-mining centre and has large iron and steel industries. There is a school of mining. Pop 211,249.

BOCLAND OR BOOKLAND. Name given in Anglo-Saxon times to land in England granted by the king on conditions laid down in a charter or book. It was usually granted to bishops and monasteries, and the charters were signed by the king and members of the Witenagemot. See *Folkland*.

BOD OR BAUD. Native state of India, in the west of Orissa. It covers an area of 2,064 sq. m., and is watered by the Mahanadi, on which river is Bod, the capital.

BODE, JOHANN ELERT (1747-1826). German astronomer. Born Jan., 1747, at Hamburg, he became astronomer to the Academy of Science, Berlin, in 1772. He was made director of the observatory, 1786, and founded and for many years edited the *Berlin Astronomical Year Book*. His works on astronomy, especially his *Guide to the Knowledge of the Starry Heavens* (1768) and *Uranographia* (1801), had a large circulation. Bode's name is preserved in Bode's law, a sequence of numbers giving approximately the proportional distances of the planets from the sun. It is merely an empirical rule, useful as an aid to memory. He died at Berlin, Nov. 23, 1826.

BODE, WILHELM VON (1845-1920). German art critic. Born at Calverde, Brunswick, Dec. 10, 1845, he became assistant in the Berlin museum in 1872, and in 1890 was given charge of the picture gallery. He was responsible for the foundation of the Kaiser Friedrich Museum, opened in 1904, which soon contained one of the finest collections of paintings in Europe.



Bobsleigh. The start on the Cresta Run of the Grand Sports, St. Moritz



Giovanni Boccaccio,
Italian author
After Van Dalen

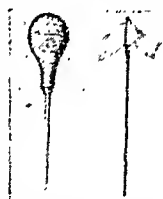
BODIAM CASTLE. Ruin in Sussex, formerly one of the finest moated fortresses in England. It is on the left bank of the Rother, near Robertsbridge. The remains consist of four round towers, a gateway, a portcullis, parts of the hall, chapel, and kitchen, and the moat. It was presented to the nation by the Marquess Curzon in 1925.

BODIN, JEAN (1530-96). French economist, historian, and philosopher. Born at Angers, he settled in Paris as an advocate, and held a post under the crown. His later life was spent at Laon. Bodin was the founder of the philosophy of history in France and the forerunner of Montesquieu. In his work, *Of the Republic*, 1576, he sets forth his ideal of a state and defends the principle of authority.



Bodiam Castle. Remains of a moated fortress in Sussex, considered one of the finest in England
Firth

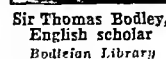
BODKIN. Instrument originally used by Greek and Roman women for keeping up the hair. Resembling a needle with a blunt point and a large eye, it is used for running ribbons or tapes through various materials. A printer's steel instrument for lifting type is called a bodkin. In Shakespeare's time the word was applied to a small dagger, and some connect it with the Welsh word *bidog*, which has the same meaning.



Bodkin. Printer's bodkin and bodkin used in needlework

BODKIN, SIR ARCHIBALD HENRY (b. 1862). British lawyer. Born April 1, 1862, he was called to the bar in 1885. He was treasury counsel at the central criminal court from 1892 until 1920, and director of public prosecutions, 1920-1930. He was knighted in 1917.

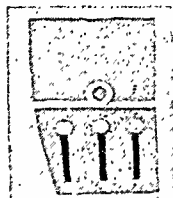
BODLEIAN LIBRARY. Official library of Oxford University. It owes its name to Sir Thomas Bodley (1545-1613), scholar and diplomat, who restored the university library after its destruction by fire in the time of Edward VI. He erected a building, opened in 1602, and later enlarged, and presented a number of books to it. During the 19th century the library took over other buildings, known as the old schools, and the Ratcliffe library became its reading room.



Sir Thomas Bodley,
English scholar
Bodleian Library

Legally entitled to a copy of every book published in the United Kingdom, it contains about 1,000,000 volumes and over 30,000 MSS., some very valuable. In 1929 it was decided to build an additional library near the existing one, and a storehouse at Jordan Hill outside the city. See *Oxford*.

BODLEY, GEORGE FREDERICK (1827-1907). British architect. Born at Hull, March 14, 1827, he became a pupil of George Gilbert Scott, the elder, in 1845. He began to practise for himself about 1860, and was the architect of a large number of churches. From 1869-89 he was in partnership with Thomas Garner,



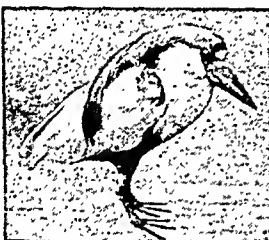
Boatswain's and chief gunner's sleeve badge in British Navy

stood in front of Solomon's temple. Its companion was named Jaclin. They were surmounted with decorated capitals (1 Kings 7; 2 Chron. 3; Jer. 52).

BOBBIN (Fr. bobine). Wooden or other cylinder upon which yarns are spun or wound.

Bobbins are made in many shapes and sizes, a common form being the two-ended bobbin, a hollow wooden or compressed-paper tube with flat disks of wood or metal forming the ends. Others have a disk only at the bottom, the top or nose being rounded. Some, known as pirns or spools, are tapered and grooved, the better to hold their contents.

Bobbin net or bobbinet, invented in 1809, is a machine-made imitation of pillow lace.



Boatbill, South American night heron. See p. 270



Bobolink or reed bird, a N. American migratory song bird

song. It is also known as the reed bird.

BOBSLEIGH OR BOB-SLED. Sporting sledge of simple form, for two or more sitters, used for "coasting." The front part is controlled by a steering wheel or sometimes by ropes, those behind aiding the steering by swaying to either side and by digging into the snow with their heels. See *Tobogganing*.

during which period the bulk of the reconstructive work of Christ Church and Magdalen and University Colleges, Oxford, was done. Bodley became A.R.A. in 1882 and R.A. in 1899. He was one of the assessors in the competition for the design of Liverpool Cathedral, and in that work Bodley himself acted as consulting architect. He died Oct. 21, 1907.

BODLEY, JOHN EDWARD COURTENAY (1853-1925). British historian. Born June 6, 1853 and educated at Oxford, he became an authority on the history of France. Of his many writings the chief is his *France* (2 vols 1898), which he wrote both in English and in French. He died May 28, 1925. Consult *Life* by Sbane Leslie, 1930.

BODMIN. Borough, market town, and co. town of Cornwall. On the river Camel, 30 m. N.W. of Plymouth, on the G.W. and Southern Rlys., it has a large Gothic church and an Elizabethan grammar school. Boots and worsteds are made, and there is trade in livestock. Market days, Wed. and Sat. Pop. 5,526.

BODYSNATCHING. Term given to the secret disinterment of corpses subsequently sold for dissection. In Great Britain before 1832 only the bodies of murderers were allowed to be dissected, and, the supply of bodies becoming insufficient, corpses were stolen by the so-called bodysnatchers or resurrection men. The scandal reached a climax when William Burke and William Hare made a practice of drugging and suffocating persons in order to sell their bodies. By the Anatomy Act, 1832, the supply of bodies for dissection was legalised and a system of licensing and supervision established. See Burke, W.

BOECE or **BOVIS, HECTOR** (c. 1465-1536). Scottish historian. Born at Dundee, he was appointed professor of philosophy in Paris in 1497. About the beginning of the 16th century he became president of the newly founded university of Aberdeen. In 1522 he published in Paris his *Latin Lives of the Bishops of Mortlach and Aberdeen*, and in 1527 his *History of Scotland to the accession of James III.*

BOECKLIN, ANNOLD (1827-1901). Swiss painter. Born at Basel, Oct. 16, 1827, Boecklin studied at Düsseldorf under Schirmer. After visiting Brussels, Paris, Rome, and Munich, he obtained a post at the Weimar Academy (1860-3). Thirty years of prosperous though restless activity followed before, in 1892, he settled in his own house at Fiesole, where he died, Jan. 16, 1901. In Boecklin's pictures landscape is the paramount consideration.

BOEHM, SIR JOSEPH EDGAR (1834-90). British sculptor. Born at Vienna, July 4, 1834, he settled in London in 1862, and was naturalised in 1865. He was elected A.R.A. in 1878, and R.A. in 1880. His work includes statues of Lord Beaconsfield and Dean Stanley in Westminster Abbey, Carlyle on the Thames Embankment, Darwin in the Natural History Museum, London, and of Wellington at Hyde Park Corner. He was made a baronet in 1889, and died Dec. 12, 1890. See illus. p. 131.



Sir J. E. Boehm,
British sculptor
Elliott & Fry

BOEHME, JAKOB (1575-1624). German mystic, best known to English readers as Jacob Behmen. In 1612 he created a sensation with his *Aurora*, which taught the unity of life and man's close relation to the divine. Boehme developed the theory of an eternal self-generation of God, and maintained that from the ground of being within Himself the Divine will or impulse finds expression in the Divine wisdom; and this self-revelation forms itself into the universe. Three kingdoms

of the universe are thus formed, which ascend from the opposition of the material forces of attraction and repulsion to those of light and warmth, and then to those of sense and intellect. His writings, which were rapidly translated into English, were in considerable repute in Great Britain in the 17th century. Boehme died Nov. 17, 1624. See Law, W.; Mysticism.

BOEOTIA. District of ancient Greece Bounded on the E. by the Euripus, on the N. and W. by Locris and Phocis, and on the S. by Attica, Megaris, and the Corinthian Gulf, it covered an area of about 1,000 sq. m. The atmosphere was damp and oppressive, and to climatic conditions was attributed the proverbial dullness of the inhabitants. Yet Boeotia produced such men as Pindar, Epaminondas, and Pelopidas. The most important town was Thebes. All the cities were united in a league, which from 371 B.C. was completely dominated by Thebes.

BOERS. Early Dutch colonists—and their descendants—in South Africa. The Dutch word, meaning originally a tiller of the soil, came to mean farmer. The first settlement was in 1648, and for two centuries the Boers spread N. by trekking. This brought them into contact with the aboriginal peoples, whom they partly repressed and partly compelled to assist in cattle-rearing and agriculture, the incidental result being half-breed populations. The Boer colonists remained faithful to the material culture, Roman law, mental outlook, and religious temperament of 17th century Holland. Their intercourse with the aboriginal peoples and their uniform physical environment produced a simplified vocabulary, protected from disintegration by the Bible.

The war of 1899-1902, between the British and the Boers, is frequently alluded to as the Boer War. See South Africa.

BOETIUS or **BOETHIUS** (c. 474-525). Roman philosopher and statesman. He married Rusticiana, daughter of Symmachus (d. 525), and became consul in 510. Theodoric the Great, whose court was then established at Rome, made him head of the civil administration, and his integrity during his term of office prevented the spoliation of the Italians, but raised enemies. Accused of supporting the Senate against Theodoric, he was deprived of all his offices, imprisoned at Padua and finally executed. The most important of his works, *De Consolatione Philosophiae*, in five books, written from a theistic standpoint, was produced in captivity.

BOETTGER or **BOETTCHER, JOHANN FRIEDRICH** (1682-1719). German porcelain manufacturer. Born in Reuss-Schleiz, he laboured for some years as an alchemist in Saxony, supported by the court at Dresden, in vain search for the philosopher's stone. While experimenting on clay he produced the famous Meissen porcelain, and was appointed supervisor of its manufacture in 1708, the strictest secrecy being enjoined as to the processes.

A hard stoneware resembling jasper, first made by him at Meissen, in Saxony, is known as Boettger ware.

BOG (Gaelic, soft). Name for soft, saturated, and spongy land, in which much decaying and decayed vegetable matter is present. Bogs are common in cool, damp, temperate climates. They are formed in shallow, stagnant lakes, gradually filled by vegetable growth, especially sphagnum, which assumes the appearance of a stiff, fibrous mud, and is known as peat. Machinery for the manufacture of gas has been installed in the Bog of Allen, the largest of the Irish bogs.

The soil of bogs is mostly acid humus, and deficient in the mineral salts which plants require. Bog plants are, therefore, those that have adapted themselves to poor conditions of soil. Rushes and sedges are

abundant. Around the borders grow the bog gentian, ling, cross-leaved heath, cranberry, bog myrtle, creeping willow, and royal fern. Bogs are often covered with bog-moss, and which grow hog asphodel, marsh andromeda, sundews, butterworts, and the bog orchis.

Bog butter is the name given to a peculiar substance of the colour and consistency of butter occurring in masses in Irish peat bogs, known mineralogically as butyrite or butyrelite. It is a form of adipocere.

Bog iron ore is a name for pisolitic ore of iron. It consists of a mixture of hydrated oxides formed by the agency of fresh water algae and bacteria at the bottom of sheets of standing water. See Peat.

Bog OAK. This is the wood and roots of trees, darkened and in a good state of preservation, found beneath peat bogs. Among trees found in these conditions are the oak, beech, hazel, yew, and fir, and the colour ranges from black to dark greyish-green. Bogwood is dense and hard, and is made into furniture, ornaments, and trinkets.

BOG ASPHODEL (*Narthecium ossifragum*). Perennial marsh herb of the order Liliaceae. It is a native of Europe, N. Asia, and N. America. It resembles a small flag (iris), and has a long, creeping rootstock from which the rigid sword-shaped leaves spring. The stem bears a raceme of golden yellow flowers in July. It was once thought that sheep pastured in marshes contracted the rot through feeding on this plant and others growing near it.

BOGBEAN (*Menyanthes trifoliata*). Perennial marsh herb of the order Gentianaceae. A native of Europe, N. Asia, and N. America, its stout, matted rootstocks run through bogs and marshes, sending up large compound leaves resembling those of the broad bean. The flowers are funnel-shaped, pinkish without, white within. The starchy rootstocks have been used for food, and the plant has been employed as a tonic and as a substitute for hops in brewing.

BOGIE. Four-wheeled truck used at the front end of a locomotive, and to carry long railway and tramway cars and carriages. It is attached to the frame by a vertical pivot, which allows the wheels to adjust themselves on curves to the direction which gives easiest running. Bogies are indispensable on tracks with sharp curves for vehicles with more than four wheels. Some bogies, not for locomotives, have six wheels. See Locomotive.

BOG MOSS (*Sphagnum*). Genus of aquatic, rootless mosses, natives of temperate regions, growing in bogs and swamps, and entering largely into the composition of peat.

They differ from other mosses in their spongy structure, which enables them to draw up and hold large quantities of water. The male and female flowers are produced on separate branches. The male branches are densely covered with leaves and look like catkins, while the female branch is more loosely covered with larger leaves, and ultimately ends in a globular red spore capsule on a stalk.



Bog Moss. Peat beds are formed from it

BOG MYRTLE or **SWEET GALE** (*Myrica*). Shrub of the order Myricaceae. A native of W. Europe, N. Asia, and N. America, it grows in bogs and damp moors. It attains a height of about 3 ft., and has lance-shaped yellow-green leaves with downy undersides,

where numerous glands secrete a fragrant wax. The flowers lack sepals and petals, and are protected by brown scales. The two sexes are found on separate branches, usually on different plants. The fruits (eandle berries) are minute drupes, coated with waxy resin.

BOGNOR. Watering place and urban district of Sussex. On the Southern Rly., 10 m. S.E. of Chichester, it has a pier, with pavilion and theatre, esplanade, theatre, and other attractions for visitors, a Norman church, and a Roman Catholic priory. At Aldwick, near Bognor, King George V spent some months in 1929 recovering from a serious illness. He bestowed upon the town the name of Bognor Regis. Pop. 14,000. See Aldwick.



Bog myrtle or sweet gale, a fragrant shrub

BOGOMILI (Slav. dear to God). Greek sect, supposed to have been founded by a Bulgarian bishop named Bogomil in the 10th century. It appeared later in the Balkans and Constantinople, and lingered until the 16th century. Allied to the Cathari, the Bogomili regarded the body as a prison - house of the spirit, and therefore to be subdued by fasting and other forms of asceticism.



Bognor. Part of the sandy beach of this favourite south coast resort

BOGOTÁ (formerly Santa Fé de Bogotá). Capital of Colombia, S. America, and of the department of Cundinamarca. It stands on the San Francisco and San Agustín, tributaries of the Magdalena river, on the E. side of a plateau, 8,760 ft. high, at the foot of the E. Cordillera.

Its chief square is surrounded by the president's palace, the former viceregal palace, the cathedral (1563), and the government buildings. Other buildings are the university, national library, natural history museum, mint, and observatory. Several of the churches are adorned by the works of Murillo and others.

The commercial emporium for the central territories, its trade activities are limited by difficulty of transport. There is wireless communication with all parts of Colombia. The manufacture of carpets, cloth, glass, and matches are among the chief industries. In the locality are large salt mines, and coal, iron, and other minerals are worked. Pop. 166,148.

BOG SPAVIN. Disease of horses. It is an enlarged condition of the hock, and affects cart horses more frequently than hackneys or carriage horses. The treatment in slight cases is irrigation with cold water, or the use

of astringent lotion, but in long-standing and severe cases it may be necessary to draw off the fluid, or to fire or blister the joint.

BOGY OR BOGEY. Indefinite object of terror, or supernatural appearance. Generally used as a vague term to frighten children, it is applied to any merely imaginary evil. Supposed to be derived from the Welsh *bwg*, a ghost, it is connected with bugbear, boggle, and other words denoting vague but real terrors of the imagination.

BOHEA. Variety of black China tea. The plant, classified by Linnaeus as *Thea bobea*, grows in Fukien prov., China, the name being derived from Wu-i (pron. bou-y), the name of the hills where it is grown. The name was used in the 18th century for tea generally, and is sometimes used to day for a poorer late-grown leaf. See Tea.

BOHEMIA. Western portion of the republic of Czechoslovakia, formerly a prov. of the empire of Austria-Hungary. The country has an area of 20,100 sq. m. and a pop. of 6,922,600, two-thirds being Czechs, nearly one-third Germans, and about 400,000 Jews. It forms a province, the most important of the republic. Prague is the capital and the largest town; Pilsen (Pzen) and Budweis (Budejovic) are other populous centres.

HISTORY. Little is known about the early history of Bohemia. It was at one time part of the Frankish kingdom and at another subject to Moravia. Christianity secured a footing about 900 and soon the land had its own rulers, these being the descendants, real or supposed, of a ploughman named Premysl. One of the earliest of these was Wenceslas, the hero of the carol, who was murdered in 938 and became Bohemia's patron saint. These rulers were called kings, but it was not until 1088 that this title was formally given to them by the head of the Holy Roman Empire, of which Bohemia formed part.

Ottokar, who became king in 1253, made it a European power, and the throne remained with his descendants until the family died out in 1306. In 1310 the crown, which was in theory elective, was given to John, who was killed at Crécy. He belonged to the Luxembourg family and his son Charles and his grandsons, Wenceslas and Sigismund, were emperors as well as kings of Bohemia for nearly a century. Charles, who reigned from 1346 to 1378, did much for his country's prosperity. In the next reign John Hus appeared in Bohemia and the wars that followed his execution disturbed the country during the reign of Sigismund.

On Sigismund's death in 1437 the close connexion between Bohemia and the Empire was broken. A national hero, George of Poděbrady was elected king in 1457 and his successors were Polish princes. When the last of these, Louis, was killed in battle in 1526 an arrangement made in 1364 came into operation. This provided for the succession of a Hapsburg if the ruling family died out. Consequently, Ferdinand, a brother of Charles V, who had married a sister of Louis, became king.

Henceforward, until 1918, Bohemia was united with Austria and Hungary, and members of the Hapsburg family, rulers of the Empire in which Austria was the leading partner, were also its kings. In theory each one was elected, but it became a formal proceeding only and was finally abandoned in favour of the hereditary principle. In 1919 Bohemia was the centre round which the new state of Czechoslovakia was formed. See Czechoslovakia.

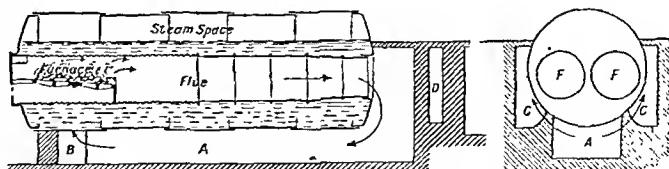
BOHEMIANISM. Term applied specifically to the free and irresponsible mode of life common among students, artists, writers, and actors, and generally to unconventional tastes and habits. When the gipsies first appeared in France in the 15th century, the French, thinking they had come from Bohemia, called them Bobemians. The name was used in France to others who defied the conventions, and was introduced into English by Thackeray in his *Adventures of Philip* (1861).

BOHN, HENRY GEORGE (1796-1884). A British publisher. Son of a German bookseller settled in England, he was born in London, Jan. 4, 1796. In 1831 he started in business in Covent Garden, chiefly as a second-hand bookseller, and in 1841 issued a guinea catalogue of rare books containing over 23,000 entries. In 1846 began the publication of his standard and other libraries of cheap reprints and translations. He died at Twickenham, Aug. 22, 1884.

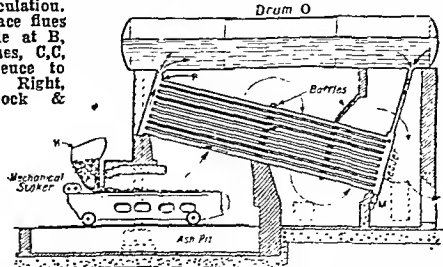
BOHUN. Name of an English family, deriving from Normandy, which became notable in the 13th and 14th centuries. In 1199 Henry Bohun, a nephew of William the Lion of Scotland, became earl of Hereford and was one of the barons chosen to see that the terms of Magna Carta were observed. A later Bohun won fame as one of the two earls who forced Edward I to confirm the charters in 1297. When Humphrey, earl of Hereford, Essex, and Northampton, died in 1373, the male line became extinct.

BOIL (Lat. *bull*, bubble). Small abscess in the skin due to infection of a sebaceous gland or a hair follicle by pus-producing organisms. In the early inflammatory stages a boil should be treated by hot fomentations or the application of ointments. After a few days it opens and the pus is discharged. Frequent appearance of boils usually indicates unsatisfactory general health.

BOILER (STEAM). A steam boiler is a vessel in which, by the aid of fire, water is



Boiler. Above steam boiler, Lancashire type, for all industrial purposes. F.F. two corrugated furnace flues, with hand-fired coal furnaces; large boilers have sometimes three furnace flues. These flues often have Galloway or other cross tubes to promote water circulation. Fire gases pass along furnace flues into bottom flue, A, divide at B, and return along side flues, C, C, to main flue D, and thence to economiser or chimney. Right, water-tube boiler, Babcock & Wilcox land type, with chain grate mechanical stoker. Coal falls from hopper, H, on to the moving grate and is slowly carried forward till ash drops off at end into ash pit. Fire gases follow course of arrows, being deflected to cross and recross water tubes by fire tile baffles. Water circulation is downwards from back of steam and water drum D, then upwards through water tubes back into drum at B. Sediment settles in mud drum, M, from which it is blown out at intervals. A special form is made for marine use.



converted into steam for driving steam engines and other purposes. The fuel burned is mostly coal, which is now often pulverised. Other fuels used are wood, oil, natural gas, etc. The coal may be hand-fired, or may be fed into the furnace mechanically.

Steam boilers are broadly divided into two classes, fire tube and water tube boilers. In the first the furnace is enclosed in an element of the boiler and the fire gases pass first through a tube or tubes. In the "Cornish" boiler there is one large tube, the furnace flue; in the "Lancashire" two or three; in the "Galloway" two joined to a single larger one containing water circulating tubes. In certain vertical boilers there is one large furnace and a continuing, smaller, flue. In other boilers of this class, called multitubular, the tubes are small and numerous, as in the ordinary locomotive boiler, the Cochran and other upright boilers, and the "Dry-back" and the "Scotch" marine boilers. This class has an outer shell, now nearly always cylindrical, the steam and water container, which encloses all other parts.

In the second class the water is inside the tubes, which are many in number, and the fire gases on the outside, the furnace being enclosed in a fire-brick structure external to the boiler structure proper. This class, which includes the Babcock and Wilcox, Belleville, Stirling, Yarrow, Thornycroft, and Niclausse, can raise steam very quickly, and is largely used where the steam requirements are intermittent and large quantities may be wanted suddenly, as in power stations and in warships. The Yarrow, Thornycroft, and Niclausse are only used for marine work. A special type has lately been built as a locomotive for the L.N.E. Ry.

The power of a boiler depends upon the amount of fuel that can be burned in its furnace in a given time: its efficiency upon the relation between the furnace capacity and the heating surface.

Every steam boiler must have a steam valve, safety valve, water gauge, steam gauge, one or more blow-off cocks, water injector, and feed pump. Board of Trade regulations specify two safety valves, so guarded that they cannot be tampered with.

BOILING POINT. The boiling point of a liquid is commonly associated with the application of heat, as when water is said to boil at 100° C. The boiling point depends, however, on pressure as well as on temperature, and must be distinguished from evaporation. Water can be made to boil at much lower temperatures by removing the atmospheric pressure from its surface. Other liquids boil off into vapour at temperatures below the freezing point of water, such as liquid air; and volatile liquids such as ether boil at temperatures well below that of boiling water. The boiling point of carbon dioxide is -79° C. See Heat

BOIS DE BOULOGNE. Park of Paris. It takes its name from the neighbouring town of Boulogne-sur-Seine, and covers 2,250 acres, the Seine flowing along its S. border. It was given by Napoleon III to Paris in 1853. It contains the racecourses of Auteuil and Longchamps, the Jardin d'Acclimatation (a collection of foreign animals and plants), artificial lakes and waterfalls, restaurants and facilities for boating, an amphitheatre, ruins of an abbey, and a château. See Paris

BOITO, ARRIGO (1842-1918). Italian composer and poet. Born at Padua, Feb. 24, 1842, he studied music at Milan, did some journalistic work in Milan and Paris, and fought under Garibaldi against Austria. In 1868 he produced his long opera *Mefistofele* at Milan; but it was not a success until played

in a shortened form in 1875. He finished another opera, *Nerone* (Nero), in 1912, which was produced at the Scala in 1924. As a poet his verses showed marked originality. He died in Milan, June 10, 1918.



Arrigo Boito,
Italian composer

part of the empires of Persia, Alexander, and Bactria, Bokhara passed into the hands of Chinese, Turks, and others, and the amirate came under the suzerainty of Russia in 1873. In 1920 a Bokharan soviet republic was set up.

The town of Bokhara, the capital of the former amirate, lies on a branch of the river Zerafshan, close to the Transcaspian Ry., and is the chief commercial and religious centre of Central Asia, with numerous mosques and fine bazaars. Its chief industries are the manufacture of cotton, silk, hosiery, leather, and cutlery. The bazaar wares include carpets and carnel lambkins. About 9 m. distant is New Bokhara, the residence of many Russian merchants. See Uzbek and Turcoman.

BOKSBURG. Town and pleasure resort of the Transvaal. It is 15 m. by rail from Johannesburg, being at the eastern end of the rand. In the vicinity are the most productive coal mines in the province, and also gold mines. Pop. 12,144.

BOL, FERDINAND (c. 1610-80). Dutch painter. Born at Dordrecht, he became at Amsterdam in 1640 the pupil of Rembrandt, whose art he endeavoured to emulate. His most celebrated painting is *The Four Regents of the Leper Hospital* (1668), in the town hall at Amsterdam. He is represented in the National Gallery, London, the Louvre, and other European galleries. He died at Amsterdam, July 24, 1680.

BOLAN. Pass on the frontier of Baluchistan, leading from Sibi to Quetta. Traversed by the Bolan river, a military road, and a rly. connecting Jacobabad, on the Indus plain, with the Afghan highlands, the pass is some 60 m. long, and from an entrance 800 ft. high rises to a height of 5,900 ft. at the exit. Bolan is also the name of a district.

BOLAS (Span. bola, ball). Strong rope or cord, with a stone or stones at either end, which the operator whirls in the air and then casts at his quarry in such a manner as to wind round and entangle it. It is used by Patagonians and other S. American tribes.

BOLDO. Aromatic shrub of the Monimiaceae family, mostly found in Chile. The leaves and bark are used in medicine, the bark



Bois de Boulogne. One of the avenues for pedestrians in this great park on the outskirts of Paris

also in tanning. A glucoside known as boldine is extracted from the leaves.

BOLDREWOOD, ROSE. Pseudonym of Thomas Alexander Browne (1826-1915), an

Anglo-Australian novelist. Born in London, Aug. 6, 1826, he went with his parents to Australia in 1830. His classic tale of bush-ranging, *Robbery Under Arms*, ran as a serial in *The Sydney Mail*, 1880, but only secured the recognition due to it after it had been published in book form in London, 1888. His other works include *The Miner's Right* and *The Squatter's Dream*, 1890, and *Old Melbourne Memories*, 1884. He died at South Yarra, Melbourne, March 11, 1915.

BOLE (Gr. bólos, clod). Highly aluminous and ferruginous tough red clay. Often runny feet in thickness, it is occasionally found between successive flows of basaltic lava, and is due to the weathering and decay of the underlying basaltic rock. Such beds of clay indicate a pause in the volcanic eruptions.

BOLERO. National dance of Spain. Introduced in the latter half of the 19th century, it is performed by two persons to the accompaniment of the castanets or guitar. The term is also used of the air of the dance.

BOLETUS. Large genus of fungi of the order Hymenomycetaceae, and the family Polyporaceae. The species have



Boletus Satanas

a stout central stem and a convex fleshy cap beneath which the spores are produced in vertical tubes packed closely together, instead of on radiating plates or gills as in Agarics. Many are edible.

BOLEYN. English family, its most famous member being Anne, the second wife of Henry VIII. Sir Geoffrey Boleyn, a wealthy merchant, was lord mayor of London in 1457. One of his descendants, Thomas, was made earl of Wiltshire. He was related to the family of Butler, members of which had been earls of Wiltshire. He was the father of Anne and of George, Viscount Rochford, who was put to death two days before his sister. He left no sons and his title became extinct. See Anne Boleyn; Bickling.

BOLINGBROKE AND ST. JOHN, VISCOUNT. English titles borne since 1712 and 1716 by the family of St. John. Two of its early members were Oliver St. John, created Viscount Grandison in 1625, and his nephew John, made a baronet in 1611. The baronetcy passed through the descendants of John St. John to Sir Henry, who, in 1716, was made Viscount St. John. His son was the statesman who, in 1712, had been made Viscount Bolingbroke. By special remainder his father's viscounty of St. John passed to his younger brother, whose son Francis united the two viscounties on Bolingbroke's death in 1751. This title must be distinguished from the barony of St. John of Bletso, held by a distant branch of the same family.

BOLINGBROKE, HENRY ST. JOHN, VISCOUNT (1678-1751). English statesman and writer. The son of Sir Henry St. John, he was born at Battersea, Oct. 1, 1678, and educated at Eton. He became M.P. for Wootton Bassett in 1701, and at once his eloquence brought him to the front. He acted with the Tories, and was made secretary at war in 1704 and secretary of state for foreign affairs in 1710. In 1712 he was created Viscount Bolingbroke, and in 1713 concluded the treaty of Utrecht.

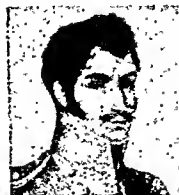
Bolingbroke's plans for a Jacobite restoration were shattered by the sudden death of



Viscount Bolingbroke,
English statesman
Engraving by H. Wallis

the queen in 1714, and he resigned and fled to France. After spending seven years in retirement, Bolingbroke received his pardon in 1723, but through the influence of Walpole he was excluded from the House of Lords, and became the centre of organized opposition to that minister. His later years were spent partly in France and partly at Battersea where he died, Dec. 12, 1751. Among his literary works are his *Letters on the Study and Use of History*, *Letters on the Spirit of Patriotism*, and *The Idea of a Patriot King*, of which the last had its share in forming George III's ideas as to the kingly office. Consult *Life*, W. Sichel, 1901-2.

BOLIVAR, SIMON (1783-1830). Venezuelan patriot, called the Liberator. Born at Caracas, July 2, 1783, he was educated at Madrid. He determined to make his native country an independent republic. His attempt to secure British support for a Venezuelan revolt in 1810 failed, but he was later successful in defeating the Spaniards, and in 1813 was proclaimed dictator. Beaten in 1814, he retired to Cartagena, thence to



Simon Bolivar, Venezuelan patriot

Jamaica and Haiti, rallying the insurgents in the latter island and proclaiming it a republic.

From 1819-21 Bolivar, as dictator of New Granada and Venezuela, now united as Colombia, steadily gained ground, and in 1822 the new republic, with Bolivar as its president, became independent of Spain. Summoned to the assistance of the Peruvians, now in revolt, Bolivar was dictator of Peru, 1824-25. Re-elected president of Colombia in 1826 and 1828, his dictatorship was violently attacked, and in 1829 Venezuela separated from Colombia. Bolivar, driven to resign, laid down his office, and died Dec. 10, 1830.

Bolivar is the name of the largest state of Venezuela, which extends from Colombia to the Atlantic and covers an area of 88,380 sq. m. It produces rubber, drugs, coffee, cocoa, cattle, and gold. Ciudad Bolivar is the capital. Bolivar is also the name of a department in the N. of Colombia, of a small prov. of central Ecuador, and of a silver coin of Venezuela and a gold coin of Bolivia.

BOLIVIA. Republic of S. America. It is bounded N. and E. by Brazil, S. by the Argentine and Paraguay, and W. by Chile and Peru. Estimates of the area vary from about 500,000 sq. m. to over 700,000. The pop. in 1927 was estimated at 2,975,000, of whom over half were Indians. Sucre is the official capital. La Paz the political and commercial capital. Other towns include Cochabamba, Oruro, Potosi, and Santa Cruz. There is no coastline.

Although about three-fifths of Bolivia consists of low alluvial plains, great swamps and undulating forest tracts, the most characteristic, valuable and populous part of the country is the vast central plateau, a bleak, wind-swept region of scanty vegetation, about 500 m. long and 120 m. wide, with an alt. of 12,000 to 13,000 ft. On either side of this the two great chains of the Andes, the Eastern and the Western Cordillera, traverse the country from north to south, containing very high peaks, e.g. Illimani (Sorata) and Illimani. Rivers include the Guaporé, Mamoré, Beni, and Madre de Dios, a tributary of the Beni. Lake Titicaca is the largest lake in S. America.

The country is very rich in minerals, mining being the most important industry. Bolivia produces a quarter of the world's supply of tin. Potosi, once the greatest silver mine in the world, is now worked for tin. Other minerals include antimony, silver, copper, and

lead. Maize, wheat, rice, coffee, and rubber are grown. The llama is the beast of burden. The chief exports are tin and rubber.



Bolivia. Group of typical Indians who are primitive hut-dwellers

thus giving Bolivia an outlet to the sea.

In the 16th century the country was called Bolivia belonged to the Incas. It then became Spanish and under the viceroy of Peru, being called Charcas or Alto Peru. After a long struggle the Spaniards were ousted in 1824, and the country became an independent republic, taking its name from Simon Bolivar. In 1879, with Peru, Bolivia was worsted in a war against Chile, being obliged to surrender some territory when peace was made. There was a serious dispute about boundary land with Brazil in 1903, and another with Paraguay which nearly led to war in 1928.

Bolivia is a member of the League of Nations. The president is elected by direct popular vote for four years. Congress consists of the Senate and the Chamber of Deputies. Each of the two capitals possesses a university. On Sept. 2, 1928, a monetary law came into effect providing for the adoption of a gold standard. The unit of account is the gold boliviano. The silver boliviano, worth 1s. 7½d., is divided into 100 centavos, and 12½ bolivianos represent £1.

BOLLANDISTS. Name given to the body of Jesuit scholars responsible for the preparation of the *Acta Sanctorum* or *Lives of the Saints*. They were named after Jan van Bolland (1596-1665), the first editor. Material had been collected by Heribert Rosweide (1569-1629), and on this Bolland, assisted by Godfrey Henschen, began to work at Antwerp. The first volumes appeared in 1643, and the work was frequently interrupted.

The biographies and stories of the saints in the *Acta* follow the arrangement in the calendar, and by 1794 the series, in 53 volumes, had reached the middle of October. In 1796 the French armies overran the country, and it was not until 1837 that the Bollandists could revive their work. In 1882 a new departure was made, a quarterly journal, the *Analecta Bollandiana*, being issued, and the society really developed into a college for the study of hagiology.

BOLLINGTON. Urban district and market town of Cheshire, 3 m. by rly. N. of Macclesfield on the L.N.E. Rly. The church of S. John the Baptist is in the Early English style. Silk and cotton are manufactured, and stone is quarried. Market day, Fri. Pop. 5,094.

BOLLWORM. Caterpillar pest of plants, especially of cotton. It attacks the boll or seed-pod. The most destructive, the larva of the moth *Heliothis armigera*, is a serious cotton pest, and also attacks Indian corn, tomatoes, and other crops.

BOLO, PAUL (d. 1918).

French adventurer. Born at Réunion, he lived by his wits in various parts of the world. In Feb. 1915, having been made pasha by Abbas Hilmi, ex-khedive of Egypt, he proposed to the latter that money should be obtained from Germany to finance a press campaign for peace in France. In 1915 and 1916 Bolo travelled in America, and it was proved that during that period he received over £300,000 from German sources. Arrested in Paris, Sept. 28, 1917, and brought to trial Feb. 4, 1918, he was shot April 17.

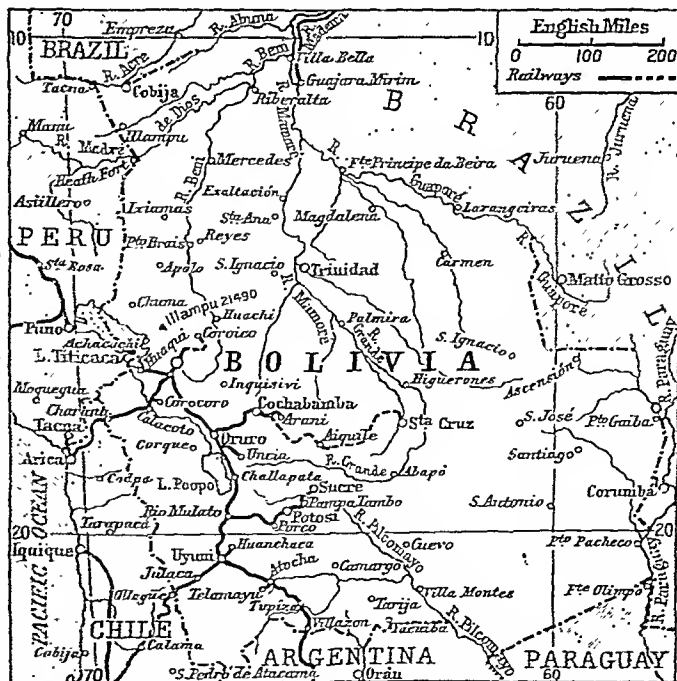


Paul Bolo, French adventurer



Bologna. Torre Asinelli, a leaning tower built of brick in 1109

BOLOGNA (anc. Bononia). City of Italy, capital of the prov. of Bologna. On the rivers Reno and Savena, it is a junction 134 m. by rly. S.E. of Milan. The town is intersected by the Reno Canal.



Bolivia. The third largest country of South America, with the great Andine plateau on the west and low-lying savannah eastwards

Of its many churches, S. Stefano is composed of eight different buildings, the earliest, the former cathedral, dating from the 4th century.

Bologna is the seat of an archbishop; its cathedral of S. Peter is modern. S. Petronio, the largest church, dates from 1390. S. Francesco, 1246-60, is a fine Gothic church with brick bell-tower. Of the leaning towers, that of Asinelli is 320 ft. high and 4 ft. out of the perpendicular; the Torre Garisenda is 160 ft. high and has a 9 ft. inclination. It is a busy industrial city, its establishments including printing and lithographic works.

The university, founded in the 11th century, was only housed in a special building in 1562. It was noted for jurisprudence in the 11th and anatomy in the 14th century. The Academy of Fine Arts has valuable examples of the Bolognese school.

BOLOMETER (Gr. bole, throw, beam; metron, measure). Instrument for measuring radiant heat, e.g. that of the sun. If a body absorbs radiation the energy is converted into heat. No body entirely absorbs all radiant energy, but a surface coated with lamp-black absorbs nearly all. Langley's bolometer, invented in 1881, consisted essentially of a strip of blackened metal connected with a Wheatstone's bridge, used for measuring electrical resistance. When the temperature of the strip of blackened metal rises, as radiant heat is absorbed, the electrical resistance rises; and this increase of resistance can be ascertained by a galvanometer. A change of temperature equivalent to 10^{-5} deg. C can be detected.

BOLSENA (anc. Volsinii). Town of Italy. On the shore of the lake of Bolsena, 9 m. S.W. of Orvieto, its church was the scene of the so-called Miracle of Bolsen, 1263, commemorated in the Corpus Christi festival, in Raphael's fresco, and in the founding of Orvieto cathedral. The miracle was attributed to the incredulity of a priest about the doctrine of transubstantiation. Its truth, so it was said, was proved when drops of blood appeared on the Host. Pop. about 3,500.

BOLSHEVISM. Term adopted to express the views and government of the party called Bolsheviki in Russia. The word is derived from a root meaning "great." The Bolsheviki constitute one of the three branches—social democrats, social revolutionaries, and extremists (Bolsheviki)—which arose out of the old Socialist party, and are so called because at one of the Socialist conferences held about 1905 they were in the majority. The opposite term is men'sheviki.

meaning those in a minority.

Lenin, who with Trotsky was the leader of the movement, declared that terrorism was necessary to carry out his principles, and after the revolution in Oct., 1917, the Bolsheviks began a systematic campaign of destruction, particularly directed against the capitalistic and bureaucratic machinery of the tsarist regime as continued under the Provisional government. They transformed the army from an imperial into a proletarian institution to "safeguard the revolution" and to fight western intervention, as well as the "dark forces" in Russia itself, and this resulted in the atrocities of the Red and White Terrors, the natural result of the work of the Soviets. The Bolsheviks proclaimed that they had solved the land problem, the land having automatically reverted to the peasantry. The church was separated from the state, and the banks were nationalised to suppress exploitation by the forces of capital. One of the doctrines of Lenin was the total destruction of the economic system and of money as the means of exchange. That is why paper

money was so plentiful in Bolshevik Russia. The problem consequent upon the lack of production, still, however, remained to be solved, and this was the chief cause of Russia's condition of famine and impotence.

Bolshevist foreign propaganda, directed by Carl Radek, was a highly efficient and widespread organization, and it was probably due to this that there was so much unrest among the workers in Western Europe, the British Dominions, and even in America. In Hungary an attempt to set up a Bolshevik state had a brief success under Bela Kun. See Lenin; Russia; Soviet; Trotsky; consult also Bolshevism, H. V. Keeling, 1919.

BOLSOVER. Urban district and parish of Derbyshire. It stands 6 m. E. of Chesterfield, on the L.N.E. and L.M.S. Rlys. It has a Norman church and the ruins of a castle. There are large coal mines in the neighbourhood. Pop. 11,481.

BOLT HEAD. Headland on the S. coast of Devonshire, to the W. of the Salcombe estuary. It has a wireless station. In 1928 it became the property of the National Trust. It has an altitude of 420 ft.

BOLTON. County borough of Lancashire. It is 196 m. by rly. N.W. of London, and is served by the L.M.S. Rly. and has canal communication with various places. Bolton is one of the oldest and most important centres of the cotton industry. Besides the manufacture of muslins, fine calicoes, dimities, quilings, etc., it has large dye-works, bleaching and paper mills, foundries, and chemical, steel, and iron works. Coal is worked near by.

Although an old town, Bolton presents a modern appearance, most of its buildings being of recent construction. They include a town hall, the art and natural history museums, the market hall, and several public libraries. The grammar school was founded in 1641. A comprehensive scheme of town planning has been put in hand. Bolton was incorporated in 1838, and since 1832 it has returned two members to Parliament. Market days Mon. and Sat. Pop. 178,300.

BOLTON, DUKE OF. English title held by the family of Paulet or Powlett from 1689 to 1794. It was first given to Charles Powlett, marquess of Winchester, for his services in

promoting the Revolution of 1688. The 3rd duke married the singer, Lavinia Fenton, and when the 6th duke died in 1794 the title became extinct. The marquessate of Winchester descended to a kinsman, George Paulet, whose heirs still possess it.

BOLTON ABBEY. Village of Yorkshire (W.R.), 22 m. N.W. of Leeds. Bolton Priory (often misnamed Bolton Abbey) was founded at Embsay in 1121 and transferred to its present site in 1150. The remains, beautifully situated near the river Wharfe, here crossed by a 14th century bridge, include the nave, now the parish church, and ruins of the choir and transepts. It is a seat of the duke of Devonshire. Pop. 186.

Bolton-upon-Dearne is an urban district of Yorkshire (W.R.). It is on the Dearne, 7 m. from Rotherham, with stations on the L.M.S. and L.N.E. Rlys. Pop. 11,960.

BOLTON WANDERERS. Association football club. Founded in 1887, it soon became a professional organization and a leading member of the Football League. In 1923 and 1926 the Wanderers won the Association Cup. They won it again in 1929 by beating Portsmouth at Wembley.

BOMA or **M'BOMA**. Former capital of the Belgian Congo. On the N. bank of the river Congo and connected with Tshela (73 m.) by the Mayumbe Rly, Boma is a port of entry. It carries on a large export trade in bananas. There is a postal air service between Boma and Elizabethville. Pop. about 6,000.



Bolton. The town hall, a fine building with a classical façade, opened in 1873

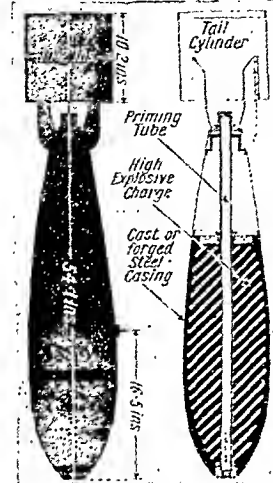
BOMB (Gr. bombos, a deep sound). Term for certain projectiles or missiles containing an explosive or other charge designed to burst on reaching their objective. It was probably first used to indicate projectiles for use from bombardiers (early cannon), later to define the projectiles fired by mortars as distinct from the shell fired by guns. In this navy small two-masted vessels known as bomb-ketches were used for attacking shore positions, and carried heavy mortars for the high-angle discharge of bombs. To-day the word is used popularly for grenades, i.e. explosive missiles thrown by hand, and for explosive or incendiary missiles dropped from aircraft. In 1914 British airmen used 20 lb. bombs, but at the end of the war bombs weighing as much as 3,000 lbs. were in use. Bombs are generally of stream-line shape, with a vaned tail, which is provided to ensure a vertical fall. See Grenade.

BOMB THROWING. Bomb throwing is a method of attack and defence in which explosive projectiles are hurled at the enemy at comparatively short range. It developed during the Great War to a high pitch of efficiency, increasing numbers of men being trained as more ammunition became available, while one officer, three N.C.O.'s and 30 men formed a bombing section attached to each



Bolshevism. Souvenir of the revolution of 1917-18. The names of the Bolshevik leaders from left to right are: Top row, Rykov, Radek, Pokrowsky, Kamenev. Middle row, Trotsky, Lenin, Sverdlov. Bottom row, Encharin, Zinoviev, Krylenko. Mme. Kollontai. Lunacharsky

battalion. Various hand grenades were evolved, and these could be thrown 40 or 50 yds. with a motion like overhand bowling. To increase the range of these missiles, arrangements were made for projecting them from the ordinary military rifle. Trench artillery was gradually evolved, and a range of 2,000 or 3,000 yds. was attained.



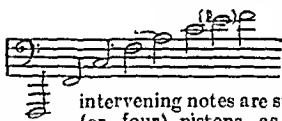
Bomb. Modern type of high explosive aircraft bomb. Royal Air Force Official. Crown copyright reserved.

BOMBA. Nickname given to Ferdinand II, king of the Two Sicilies. The word, an Italian one meaning a bomb, was applied to him because he bombarded the cities of his

kingdom in 1490. See Ferdinand II.

BOMBARDIER. Lowest grade of N.C.O. in the British artillery. He is so called because in former times he handled the bombard, the name by which small cannon were designated.

BOMBARDON. Brass instrument of bass compass used in military and brass bands. One of the Saxhorn family of instruments with wide conical bore, it is commonly used in three pitches, F, E flat, and low B flat. It possesses as open notes the usual Harmonic Scale, the instrument in F giving the following series:



the Arab stables in the Bhendi Bazaar are to be seen some of the finest horses in the East. At Malabar Point is Government House. Between Malabar and Camballa Hills rise the five Towers of Silence, where the Parsis deposit their dead.

Bombay is served by the Great Indian Peninsula Railway, with its terminus at Victoria Station and branch lines to the docks; and by the Bombay, Baroda and Central India Railway, running from Colaba station northwards along the coast of the mainland through Surat. Steamship connexion is furnished by all the well-known lines plying in Eastern waters. The Port Trust, founded in 1873, controls the port. Bombay is the great cotton market of Western India. Dyeing, tanning, and metal work are among the prominent trades, and there is a large export trade.

BOMBAY DUCK. Term applied to the bunnial (*Harporodon ncherens*), a small fish of the Indian and China seas. Salted and dried, it is used in a crumbed form as an accompaniment for curry. Bombay is a centre of trade for the dried fish. See illus. below.

BONA or **BONN.** Seaport and naval station of Algeria. At the mouth of the Seybouse river, 220 m. by rly. W. of Tunis, it has a cathedral and barracks. There are inner and outer harbours. It exports phosphates and other minerals, cork, esparto, barley, and wool, and manufactures tapestry and leather goods. It is connected with Marseilles by cable and steamer, and by rly. with other parts of Algeria. Close by is the ruined city of Hippo Regius. Pop. 51,895.

BONA DEA (Lat. good goddess). Roman divinity. A goddess of fertility, her cult was probably borrowed from that of the Greek Demeter (Ceres). Two festivals were held in her honour, one on May 1, the other on Dec. 3-4. Vestal virgins performed the rites, and no man was allowed to be present. Great scandal was caused (62 B.C.) by Publius Clodius, who secured admission by disguising himself as a woman. Bona Dea is often identified with Fauna, Maia, and Ops, all of whom were connected with rural pursuits.

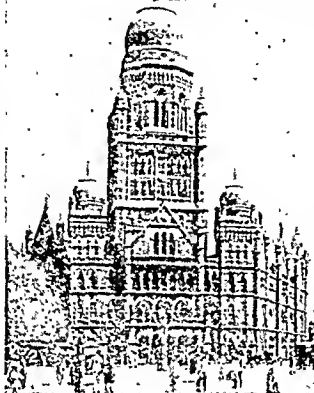
BONA FIDE. Latin phrase meaning in good faith. Chiefly a legal term, it implies that a contract or undertaking of any kind has been entered into without any fraud or misrepresentation. If this is not so there is a case for repudiating the engagement. In certain Acts of Parliament it is expressly stated that a thing is deemed to have been done in good faith when it was done honestly, whether negligently or not.

BONANZA. Spanish and Portuguese word meaning fair weather at sea or prosperity generally. It found its way into English through the miners on the Pacific coast of America, who applied it to a very rich body of ore in a mine. Hence the famous silver deposits of the Comstock Mine in Nevada, U.S.A., were called the Bonanza Mines. A number of American towns are called simply Bonanza.

BONAPARTE or **BUONAPARTE.** Name of the Corsican family to which the great Napo-

leon belonged. Of Italian origin, its connexion with Corsica began early in the 16th century, when Francesco Bonaparte settled there.

Carlo Bonaparte, a descendant of Francesco and father of Napoleon, was an official in the



Bombay. 1. Clock tower of the University Library; it has an octagonal lantern spire. 2. Municipal buildings, a blend of Gothic and Oriental styles.

Canino. His younger son became a cardinal. Lucien's second son, Louis Lucien (1813-91), an authority on the Basque language, was a deputy under the Second Republic.

Louis Bonaparte (1778-1846), king of Holland, was with his brother Napoleon in Italy and Egypt, and was placed on the throne of Holland in 1806. After four years he lost the emperor's favour and fled. He married Hortense Beauharnais, daughter of Josephine, and was the father of Napoleon III.

Jerome Bonaparte (1784-1860), the emperor's youngest brother, was chosen king of Westphalia in 1807 and retained the throne for six years, taking part in the campaign in Russia. Later, under his nephew, Napoleon III, he became a marshal and president of the Senate. The American Bonapartes are descended from Jerome's early marriage with Miss Elizabeth Patterson of Baltimore. Later he married Catherine of Württemberg and became the father of Napoleon Joseph Charles Paul Bonaparte (1822-91), nicknamed Plon-Plon. His elder son, Napoleon Victor (1862-1926), was expelled from France in 1886; in 1910 he married Clementine, princess of Belgium. Jerome's younger son, Louis Napoleon (b. 1864), succeeded as head of the Bonaparte family in 1926. See France; Napoleon I; Napoleon III.

BONAR, HORATIUS (1808-89). Scottish hymn writer. Born in Edinburgh, Dec. 19, 1808, he was minister at Leith and Kelso, and at the disruption in 1843 was one of the founders of the Free Church. He became minister of the Chalmers Memorial church at

Edinburgh in 1866, and in 1883 was moderator of the General Assembly. He edited *The Christian Treasury* and other religious periodicals, and was the author of many popular hymns. He died July 31, 1889.

BONAVENTURE, GIOVANNI FIDANZA (1221-74). Italian saint. He was born at Bagnorea, Tuscany, and about 1240 entered the Franciscan order, of which he was general from 1257-74. In 1273 Bonaventure, who in 1265 had refused the bishopric of York, was made cardinal bishop of Albano. He died at the council of Lyons, July 15, 1274, and was canonised by pope Sixtus IV in 1482. His festal is on July 14. Bonaventure wrote on dogma and on mysticism, and nearly 500 of his sermons are extant.



Horatius Bonar, Scottish hymn writer

BONA VISTA. Cape, bay, and town in the E. of Newfoundland. The cape forms the S.E. limit of the bay, which islands and rocks render difficult of navigation. The town, 75 m. N. of St. John's, with which it is connected by rly., is a port of entry and one of the oldest settlements in the island. Fishing is the chief industry. Pop. 4,052.

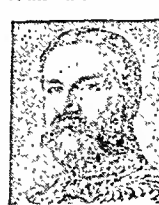
BOND. In business, a written undertaking to pay a sum of money or to perform a certain contract. Bonds are usually sealed, and in this case the statute of limitations does not apply to them until 20 years have elapsed.

Governments, corporations and companies sometimes raise money by the issue of bonds. Such are the Exchequer Bonds and National War Bonds issued by the British Government. Gold bonds are bonds that must be repaid in gold; drawn bonds are bonds drawn for repayment, a kind of lottery; and bearer bonds are bonds transferable without registration.

Persons in responsible positions are sometimes asked to give a bond, or guarantee, for a certain amount, in order to protect the employer against possible loss. (See Guarantee.)

A bonded warehouse is a place where goods that have not yet paid customs duties are stored. The proprietor must give a bond for £1,000 and find sureties that he will not make any improper use of the privilege—one that dates from 1802. See Customs.

BOND, SIR ROBERT (1857-1927). Newfoundland statesman. Born at St. John's,



Sir Robert Bond, Newfoundland politician. Elliott & Fry

Newfoundland, February 25, 1857, he entered public life in 1882 as a member of the legislative assembly, becoming speaker in 1884. Made colonial secretary in 1889 and premier in 1900, his chief work was the negotiation of reciprocity treaties with the U.S.A. in 1890 and 1902. He successfully opposed a union with Canada. From 1909-14, when he retired from public life, he was leader of the Liberal opposition in the assembly. Knighted 1901, and made privy councillor 1902, he died Mar. 16, 1927.

BONDFIELD, MARGARET GRACE (b. 1873). British politician. From 1898-1903, after she had worked in a shop, she was assistant secretary of the shop assistants' union. In 1921 she was appointed secretary of the national union of women workers, and her efforts in



Margaret Bondfield, British politician

Geneva and elsewhere to improve the labour conditions for industrial women made her prominent in the labour movement. In 1923 Miss Bondfield was elected M.P. for Northampton. She lost her seat in 1924, but was elected for the Wallsend division in 1926, and again in 1929. In 1924 she was parliamentary secretary to the Ministry of Labour, and in 1929 was chosen Minister of Labour, being the first woman to sit in a British Cabinet.

BOND STREET. London thoroughfare, the E. boundary of Mayfair. A fashionable shopping centre, it is divided into two parts. Old Bond Street, dating from 1686, runs N. out of Piccadilly, while New Bond Street, built later, is an extension still farther N. to Oxford Street. The street was named after its builder, Sir John Bond, who was Queen Henrietta Maria's comptroller.

BONDU. State of Senegal, French W. Africa. It lies S. of the Senegal river and N. of the Gambia river, and produces cereals, tobacco, cotton, in ligo, gold, and iron. The king of Bondu placed his state under French administration in 1845, and it was annexed by France in 1858. Bulihani, the capital, is on the Falemé river. The inhabitants are Fulas, professing Mahomedanism. See Senegal.

BONE. The hard part of the animal body or skeleton. When dried and freed from water, bone consists of two main constituents, one earthy, consisting largely of lime, and the other animal. Two types of structure are recognized: dense, compact bone, which forms the outer layers, and cancellous or spongy bone, found in the interior. The relative amounts of these vary in different bones and parts of a bone.

Microscopically, the structure of compact and spongy bone is essentially the same. A thin section of bone shows numerous small holes, the cut ends of the Haversian canals, each surrounded by concentric layers, in which are more or less spindle-shaped spaces termed lacunae. During life the Haversian canals are occupied by blood-vessels, and the lacunae by bone cells. The surfaces of bone are covered with a strong, fibrous membrane, the periosteum, the blood vessels of which communicate with those in the interior of the bone through the Haversian canals. Long bones also receive blood through a main nutrient artery.

Bone is developed in two ways: (1) by direct formation within a membrane which afterwards forms the periosteum; and (2) by ossification of cartilage, of which the bone is first formed. After their formation bones grow by deposition of layers beneath the periosteum.

Bone grafting is the operation of replacing shattered or destroyed bone by a graft of healthy, living bone. The best results are obtained when the new bone is taken from the patient himself.

Bone-setting, in the strict sense, consists in placing the parts of a broken bone in position for uniting. Popularly, the term is applied to manipulative surgery, such as the adjustment of deranged joints and displaced cartilages.

DISEASES OF THE BONE. Inflammation of the periosteum (periostitis) and of the bony tissues is most frequently due to injury. When severe and accompanied by suppuration it may lead to necrosis, or death of a part of the bone. Tuberculosis may affect any of the bones, producing a condition termed caries. Various forms of tumour may grow from bone, of which the most serious is sarcoma.

BONE, HENRY (1755-1834). English enamel painter. Born at Truro and apprenticed to the Plymouth Porcelain Works, Bone came to London, where he found employment in enamelling watches and fans. In 1801 he was appointed enamel painter to George III and elected A.R.A., and ten years later R.A. His greatest achievement was the series of 85

Portraits of Illustrious Englishmen, after originals. He died Dec. 17, 1834.

BONE, MURHEAD (b. 1876). British etcher and lithographer. Born at Glasgow, he first attracted attention with black-and-white work in *The Scots Pictorial*, in 1897. Four years later he came to London, where he helped to found the Society of Twelve and became a member of the New English Art Club. His etchings of buildings, docks, wharfs, all symbols of commercial life, established his reputation. In the Great War he held an official appointment with the British army and produced pictures of the western front.

BONE IMPLEMENTS. Tools and weapons made of bone, especially in primitive culture. Generically, the term embraces also horns and teeth, including ivory. Awns, shaft-



Bone Implements. 1. Needles. 2, 3, and 4. Harpoons. 5. Spear-thrower. 6 and 7. Fish hook and method of attachment.

straighteners and spear-throwers—with engraved decoration—harpoons, eyed needles, and daggers mark the course of development in Palaeolithic Europe. Some types persisted through the Azilian into the Neolithic age, during which many others were invented. Combs occur in Danish kitchen-middens, and elsewhere are found chisels, hammers, picks, axe sockets, arm guards, spoons, pendants, and cheek pieces for horse-bits. During the early metal age bone was adapted to sword grips, tool handles, box panels and the like. In early Britain bone and antler objects are numerous in earthworks, crannogs and brochs. Many primal types survive, especially among peoples who preserve the stone-age culture, such as Bushmen and American Indians.

BONHEUR, ROSALIE OR ROSA (1822-99). French painter. Born at Bordeaux, she first exhibited at the Salon in 1841, and her success



Rosa Bonheur, French painter

was won by her animal painting. Her best known works include the famous Horse Fair (a replica of which is in the National Gallery), Ploughing in the Nivernais, Hay-making in Auvergne, The Three Musketeers, and Returning to Pasture. In 1894 the officer's cross of the Legion of Honour was conferred upon her, this being an unprecedented honour for a woman. She died in Paris, May 26, 1899.

BONI. Native state of Celebes, Dutch East Indies. In the S.W. extension of the island, covering an area of about 1,000 sq. m., it produces rice, sugar, coffee, tobacco, sago, and cassia. The people, mainly Bugis, are adepts in metal work. Boni, the capital, is on

the coast. The Gulf of Boni is an inlet formed by the southern peninsulas of the island Pop. (state) about 70,000.

BONI, GIACOMO (1859-1925). Italian archaeologist. Born at Venice, April 25, 1859 he became superintendent of the Venice Academy architectural school, then inspector of antiquities, and in 1898 director of excavations in the Roman Forum and on the Palatine hill. Under his supervision S. Mark's campanile at Venice was rebuilt. He died July 7, 1925.

BONIFACE (680-755). English saint and apostle of Germany. Born at Kirtou or Crediton, Devonshire, his original name being Winfrid or Winfrith, he began, in 716, the evangelisation of the Frisians and the German tribes, and then, summoned to Rome, was consecrated bishop in 723 and archbishop in 732. In 741 he was appointed by the pope to reorganize the Frankish church, and worked as both missionary and reformer. From 746-54 he was archbishop of Mainz, and then returned to his missionary work. He was massacred by pagans, June 5, 755, near Dokkum, in Frisia. He founded the famous abbey of Fulda.

BONIFACE. Name of nine popes of whom only two are noteworthy.

Boniface VIII (c. 1230-1303) was pope from 1294 to 1303. Born at Anagni, Italy, his name being Benedetto Gaetano, or Gaetani, he became a doctor of law, and, created a cardinal in 1281, served as papal legate in France and Sicily. Elected to the papacy in 1294.

on the resignation of Celestine V, his pontificate was characterised by vigorous insistence on the papal authority in civil no less than in ecclesiastical matters. He was taken prisoner by the French, at Anagni, Sept. 7, 1303, but was freed by the populace and died in Rome, Oct. 11 following.

Boniface IX (d. 1404) was pope from 1389 to 1404. Born at Naples, his name was Pietro Tomacelli. He succeeded Urban VI as pope at Rome during Clement VII's pontificate at Avignon, and while his private life was without reproach, financial difficulties drove him to dispose of benefices and dispensations to the highest bidder. He died Oct. 1, 1404.

BONIFACIO. Town on the S. coast of Corsica. It is 87 m. S.E. of Ajaccio and overlooks the strait of Bonifacio between Corsica and Sardinia. Picturesquely situated on a peninsula sheltering a fine harbour, it has a citadel, a cathedral, and a Templars' Church. It exports olive oil, wine, cereals, and cork, and has coral fisheries. Pop. about 10,000.

BONIN (Japanese, Ogasawarajima). Group of 20 volcanic islands in the N. Pacific. They lie N. of the Tropic of Cancer, between Japan and the Ladrone Islands, and have an area of 27 sq. m. They became a British possession in 1827, reverting to the Japanese in 1876. Few of the islands are inhabited, the total population being about 4,000. They produce sugar and indigo and afford turtle and shark fishing. For many years they served as a Japanese penal settlement. Port Lloyd, on Chichijima, is the chief harbour.

BONITO (Thynnus pelamys). Fish belonging to the tunny group, but smaller and more slender than the common tunny. It is usually about a yard in length, is found in most seas, and follows ships for the refuse thrown overboard. See illus. p. 280.

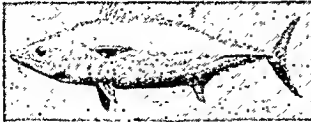


Boniface IX. Pope from 1389 to 1404. Statue in Rome

BONIVARD, FRANÇOIS DE (1493-1570). French priest, historian, and scholar immortalised as the original of Byron's Prisoner of Chillon. Born at Seyssel in Savoy, he was made prior of a Cluniac house near Geneva. He became involved as a partisan of Geneva in a dispute with the duke of Savoy who imprisoned him twice, the second time in an underground dungeon at Chillon, where he spent four years, and from which he was freed by his Swiss friends. Bonivard's best known work is *Chroniques de Genève*, written 1551, but first printed in 1831.

BON MARCHÉ. French term meaning good bargain and taken as a name by various drapery businesses. The chief is the large store in Paris, interesting because it has been successfully conducted on en-operative lines.

BONN. Town of Prussia. On the left bank of the Rhine about 15 m. from Cologne in the Rhine prov., Bonn is a residential town. It



Bonito. A fish of the tunny group, found in the Mediterranean. See p. 279

Applied in Tudor times in Britain to flat caps worn by men, and still used for the velvet cap lining a crown or coronet, the word is chiefly used for women's headdress, though in Scotland it still refers to woolen caps fitting closely over the head and ears. The bonnet of the Highlanders is perpetuated in the Glengarry as worn by the Scottish regiments in the British army.

The bonnet rouge, called also the cap of liberty, was worn by adherents of the French Revolution as a party sign.

The word bonnet is also used for a piece fastened on to a ship's sail, and for the decoy of a gambler. In engineering it is the term for the metal covering surrounding an engine or part of it.

A rare gold coin issued in Scotland in the reign of James V. about 1530 is called a bonnet piece because on it the king's head is represented as covered with a bonnet.

BONNINGTON or **BONINGTON**, RICHARD PANKES (1801-28). English painter. Born at Arnold near Nottingham, he studied in Paris. His training was modified by visits to England, where he came under Constable's influence, which he transmitted to the Barbizon painters. He died in London, Sept. 23, 1828. His subjects were landscapes and marine ones, generally with figures.



R. P. Bonington, English painter

BONNY. Town of Nigeria. On an island at the mouth of the Bonny river estuary, 80 m. E. of the Niger, it lies low and is unhealthy. It was for centuries a centre of the slave trade. Pop. 6,500.

The Bonny river, an arm of the Niger delta, flows into the bight of Biafra.

BONOMI, GIUSEPPE (1739-1808). Anglo-Italian architect. Born at Rome, Jan. 19, 1739, he settled in England in 1767, and was an active exponent of classical architecture. He was elected A.R.A., 1789, and died in London, March 9, 1808.

His son, also Giuseppe Bonomi (1796-1878), was director of the Soano Museum, London.

BONSPIEL (Dutch bond, society; spiel, game). Curling match or series of matches between two rival districts or parishes. Ordinary matches between members of the same club are known as spicls. See Curling.

BONUS (Lat. good). Word used in industrial and commercial circles for an occasional and gratuitous addition to wages, salaries, or dividends. It does not constitute a precedent. Bonuses were much in evidence during the Great War, being paid to British workers of almost every class to meet the extra cost of living. Since 1917 a bonus, varying with the cost of living, has been paid to civil servants and other public officials.

BONZE (Jap. bonzo, Chin. fan seng, monk). Term applied to a priest or, more correctly, to a monk of a bonzery, or Buddhist monastery, in China, Japan, and other parts of the East. Bonzes shave their heads, and wear robes with long and wide sleeves. Some earn a livelihood by teaching, and others subsist on charity.

BOOBY (Span. hobo, fool). Large sea bird of the genus *Sula*, which includes also the gannets. They are said to be so called from the ease with which they can be caught. They inhabit the S. seas, and differ from the gannets of the N. by having a bare throat.

BOOK. A substantial number of printed pages bound together in bulk. The earliest

type of primitive book exists in the form of Chaldaean inscribed tiles, 7,000 years old. Another ancient type was the Egyptian papyrus roll, made from the pith of the reed from which come the word paper, and put in a roller like a map.

The next development came when the papyrus sheet gave way to parchment and vellum skins, and the pen was used instead of the style. Books were thus produced on folded parchment in the early medieval religious houses—for long the only publishers. The folding of the parchment or vellum into four-fold or other convenient sizes of leaf helped to decide the traditional format and make-up of the ordinary book.

The printing press, which began its work about 1450, greatly increased the range of book production. Caxton was himself not only a printer, but a book-maker, translator, and redactor, a hook purveyor and publisher. His idea of a hook was a tall folio, double columned like his Golden Legend, with good dark Gothic type. At first there was no title page, and the colophon gave the date, place and printer's name. The first English title-page appeared about 1482-86. Towards the end of the next century the small quarto came freely into use for smaller books. Meanwhile, abroad, the Aldine editions, first printed in Venice, 1494, had shown how good the small book could be in format. See Bible.

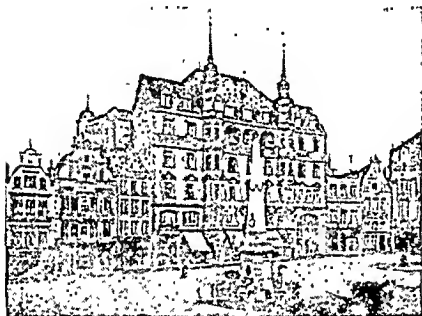
BOOK COLLECTING. Practice of collecting books which for one reason or another, are of exceptional interest, and at the same time so scarce as to be difficult to obtain. Some books have a value as marking a stage in the history of printing. Among these is the famous Gutenberg or Mazarin Bible, the first printed Bible (1456), which until 1919 held the record for the highest price for a single printed book in Britain, viz. £3,800, given by Quaritch at Sotheby's, Nov. 20, 1911. But a copy of Shakespeare's *Venus and Adonis*, from Britwell Court, fetched £15,000 at Sotheby's in 1919. High prices are also paid for some of the productions of the first English printer, William Caxton.

The collection of scarce first editions probably absorbs the attention of most connoisseurs. Another class of book that commands high prices in the auction rooms is technically known as "association books," owing their value to the eminence of their original owner, or to the fact that they are inscribed presentation copies.

BOOKBINDING. Although the origin of bookbinding is uncertain, the art is one of great antiquity. Bookbinding proper began when the sheets were first folded to form leaves of uniform size, sewn together, and fastened between covers.

In the earliest examples still preserved the covers were made of wood, usually covered with leather ornamented with various designs. The work, like that of manuscript, was entirely in the hands of the various religious orders, who lavished great care upon it. In the 12th, 13th, and 14th centuries books were frequently bound in ivory or gem-studded metal. In the 18th century the binding of cheaper books was usually in millboard covered with coloured paper. Even now the majority of French and Italian books are issued in paper covers; but in Great Britain the ordinary binding is cloth. To-day almost all the work formerly laboriously done by hand is accomplished by machinery.

BOOK CLUB. This is a club formed (1) by groups of individuals for the purchase of new books, such being very common before the days of circulating libraries and the cheap press; and (2) for the study and printing of rare books and MSS. The last named, such as the Camden Society and the Hakluyt Society, are often more accurately described as publishing societies.



Bonn. Market-place and 18th century Town Hall. The town was once a Roman military settlement

has a fine embankment, and a handsome bridge crosses the river to Beuel, the industrial district. There are a number of manufactures, and there is a transit trade along the Rhine. Its most interesting building is the minster, the earlier parts of which date from the 11th and 12th centuries; it was restored in the 19th century, and is famous for its great central tower. Among other churches is the Kreuzberg, once a famous place of pilgrimage. The house in which Beethoven was born contains relics of the musician. The university was founded in 1818. Pop. 90,249.

BONNAT, LÉON JOSEPH FLORENTIN (1833-1922). French painter. He was born at Bayonne, and studied in Spain, France, and Italy, after 1870 devoting himself to portraiture. Thiers, Renan, Presidents Carnot and Felix Faure, and Victor Hugo sat to him. He died on Sept. 7, 1922.

BONNER, EDMUND (c. 1500-69). English prelate. In 1529 he became chaplain to Cardinal Wolsey. He was employed by Henry VIII as his envoy at Rome in 1532, in connexion with the divorce from Catherine of Aragon, and was sent on other embassies. Bonner was made bishop of Hereford in 1538 and bishop of London in 1539. He was imprisoned from 1549-53 and deprived of his bishopric for failing to enforce the use of the new Prayer Book. Restored by Mary in 1554, he was partly responsible for the burning of the Protestant martyrs. After the accession of Elizabeth he refused to take the oath of supremacy, and was imprisoned in the Marshalsea Prison, where he died, Sept. 5, 1569.

BONNET (late Lat. honnetta, kind of fabric). Covering for the head, distinguished from the hat by being brimless. It is a development of the Roman pileus. The bonnet mentioned in the Bible (Ex. 29) was a kind of turban.

BOOKKEEPING. Method of recording business transactions in money or money's worth so that an exact statement of their result is obtainable at any time, and the effect and nature of the record is clearly understood. Only one system—that of double entry—has become recognized as being in all respects satisfactory. This is the recording of each transaction into at least two accounts, one the debtor and the other the creditor.

Transactions are first recorded in a book of primary entry, whence they are transferred or posted periodically to the book of final entry—the ledger. The most usual books are: (1) The cash book, in which are entered cash and bank transactions. (2) The purchases book, a record of all purchases on credit. (3) The sales book, a record of all sales other than cash sales. (4) The journal, for all adjustments, or what may be described as miscellaneous transactions. In certain businesses other books of first entry to suit special needs are used.

BOOKMAKER. Professional betting man who offers certain odds on races, more particularly in connexion with horse races. Laying the odds is termed making a book. The man who accepts the odds is called the backer. Since 1926 it has been necessary for bookmakers in Great Britain to be licensed. A licence costs £10 a year, and the bookmaker must also pay £40 a year for each telephone used for business purposes. See Betting.

BOOK OF THE DEAD. Ancient Egyptian work. This Book of Coming Forth by Day (Per-em-Hru) comprises magical formulas, hymns to Osiris, and directions for the soul's journey through the underworld of Amenti. It is usually written on papyrus and often magnificently illustrated, the finest being the Ani papyrus. Selected chapters were written on mummy-wrappings, heart-scarabs, and amulets. No complete copy is extant, the longest being one of 165 chapters, now in Turin, of the Ptolemaic age. See Amenti; Ani; also illus. p. 90.

BOOK PLATE. Label, printed or engraved, intended to proclaim the ownership of a book when affixed to the board or fly-leaf. It is also known as *ex libris*. The simplest form of plate gives merely the owner's name in type or autograph, but armorial bearings were widely affected until recently, when the designer was allowed a free hand.

BOOKSELLING. Trade formerly one with publishing. Organized bookselling began in Greece about 500 B.C., and the trade flourished in Rome. In England the monks were the first booksellers. In the 19th century bookselling became distinct from publishing.

The majority of booksellers get their copies from the big distributing houses or wholesale agents, the published price and the price at which the book is supplied by the publisher being graded to allow the bookseller or agent a profit. Some booksellers deal principally in remainders, books sold en bloc by the publishers when demand for them at their issued price has proved unremunerative or has virtually ceased. Secondhand booksellers deal chiefly in old books. See Publishing; consult also *The Romance of Bookselling*, F. A. Mumby, 1910.

BOOKWORM. Name for the larva of a small beetle of the genus *Anobium*. Some bore holes in all directions through a book, others confine their attentions to the covers. Affected volumes should be treated with benzine and placed in a closed box for a few days, and binders of valuable books should mix oil of turpentine with the paste.

BOOM (Dutch beam, pole). Barrier in a harbour or river. The use of booms for the defence of harbours against naval attack is very ancient. They consist usually of heavy

balks of timber held together by chains and wire hawsers, and stretching from side to side of the entrance to the defended harbour. Modern booms are surmounted by rows of outward-curving iron spikes, and the incursion of submarines is prevented by suspending steel nets of wide mesh reaching the bottom and sometimes dotted with contact mines.

The boom in sailing ships is a pole or spar run out from the lower part of the mast to hold a sail, such a spar being known as the jib-boom, studding-sail-boom, etc., according to position. Loosely, any projecting spar is called a boom. In stock exchange circles a sudden burst of activity is called a boom.

BOOMERANG. Hunting weapon of the Australian aborigines. It is a thin curved piece of hard wood, about 30 ins. long, flat on one side and rounded on the other. A slight axial twist imparts to it an aeroplane flight, making it return to the thrower. A non-returnable form is made use of in warfare.

BOOMPLAATS. Village of Orange Free State, S. Africa. It is 25 m. S.E. of Fauresmith. Here, in 1848, Sir Harry Smith defeated the Boers under Pretorius, thus temporarily securing the district to the British.

BOONE, DANIEL (1735-1820). American pioneer. Born in Pennsylvania, his long life was mainly passed in fighting the Indians and making journeys into the wilds of Kentucky and Virginia. He had a number of adventures with Indians, and his frontier home, a fort in North Carolina, was more than once fiercely assailed. He died Sept. 26, 1820.

BOOSTER. Electrical apparatus for adding electromotive force to, or subtracting it from, a circuit in which E.M.F. already exists. Rotary boosters are used for direct current and static for alternating current. Rotary boosters are commonly installed in generating stations equipped with storage batteries to equalise the load. The battery voltage must be somewhat higher than that at the terminals of the main generators, to allow for drop during discharge. The booster, a small dynamo driven by a motor receiving current from the bus bars, imposes its voltage on the normal voltage of the main generator, and thus enables the latter to charge the battery.

In power stations, where the demand for current varies widely, storage batteries are relied upon to make up the difference between normal and peak loads.

An automatically reversible booster runs as a dynamo and assists the generators to charge the battery under light-load conditions, and acts as a motor when the battery is discharging to the bus bars. See Dynamo; Motor.

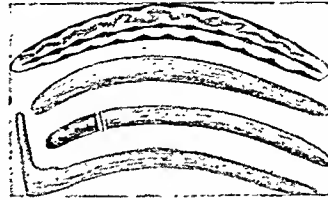
BOOT. Covering for the foot and lower part of the leg. The art of leather manufacture was known in the earliest times. Man in the Stone Age wore roughly enred skin leggings and moccasins to protect his feet

from stones and brambles and to shield his ankles from the bites of venomous snakes and scorpions. The need of added strength to the sole brought about one of the earliest improvements in primeval footwear and the preparation of the raw hide by a process not much different from modern tanning.

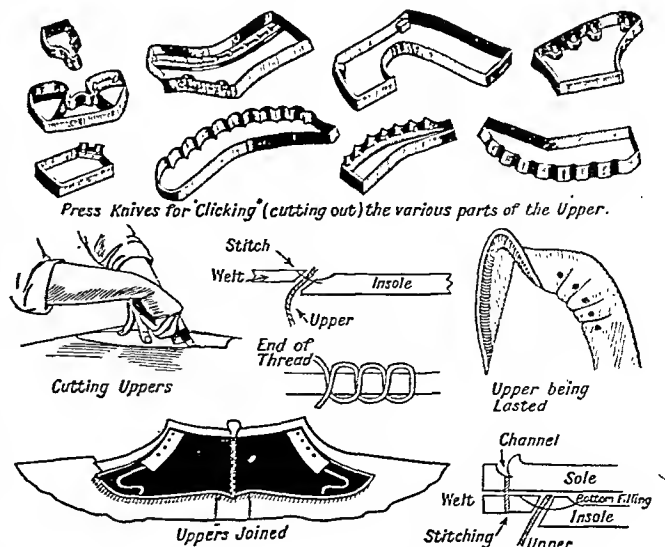
Among the arts of the highly civilized Assyrian and Babylonian Greek and Roman nations the dressing and finishing of beautifully dyed leather for ornate footwear in colours that retained their brilliancy for centuries held a prominent place. The Saxon shoe was a simple affair, but in the Middle Ages extravagance in footwear taxed the ingenuity of the shoemaker, and to such lengths did the shoe fashions attain—pointed toes, for instance, were so elongated that they had to be turned up and fastened at the knees—that finally, under Edward IV, Parliament passed an Act forbidding long toes.

The peak-toed footwear gave place to squat-toed shoes, and after this craze boots became higher in the leg, a fine soft leather, mostly of russet brown, being used. In the Stuart period and during the Commonwealth, Cavalier and Roundhead alike wore a voluminous roll-collar-top jack boot. The heel is a modern innovation. It was first attached to riding boots in the reign of Elizabeth, but was general by Stuart times.

BOOT MAKING. Until the 19th century boots were made by hand, and Northampton was for some centuries famous for its boots. The boots were made in the homes of the workers, the masters supplying the materials. About 1850 machinery was introduced, and the consequent saving of labour led to a long struggle which culminated in 1859 in a general strike. Many workers moved to Leicester, which since then has been a centre of the trade, especially noted for its shoes, which branch developed enormously in the 20th century. In both centres, and also in the United States, much ingenuity was shown in devising machinery to perform every one of the small operations incidental to the making of a boot or shoe. The craft of hand-made boot



Boomerang. Non-returning types used in war; the lower three from N. Australia, the top example from Victoria



Boot. Tools employed in boot-making, and the method of cutting and sewing the uppers and stitching them to the sole, previously joined to the welt

making is not extinct, as it flourishes at Long Buckby, Northamptonshire, and there are small makers in London and elsewhere

BOOT. Instrument of torture used in Scotland and elsewhere. Usually it was made of four narrow pieces of wood or iron fastened together to form a fitting for the leg. The punishment consisted in hammering down wedges between the leg of the sufferer and the side of the boot. The boot was generally used to extort confession or information. The last recorded case of its use was in 1690 and it was declared illegal in 1709.

Boot, Sir Jesse (b. 1850). British merchant, now known as Baron Trent (q.v.).

BOOTH, BARTON (1681-1733). English actor. The son of a Lancashire squire, in 1698 he appeared on the stage in Dublin and in 1700 made his first appearance in London. His triumphs included the Ghost in Hamlet, while his Cato made both his reputation and his fortune. He died May 10, 1733.

BOOTH, CHARLES (1840-1916). British merchant and sociologist. He was born March 30, 1840, and educated at Liverpool. A partner in the shipping firm of Alfred Booth & Co., he became widely known by his nine volumes on Life and Labour of the People in London, 1889-97. The method adopted was statistical, and the books obtained for their author a high place among sociologists and the distinctions of privy councillor and F.R.S. He died Nov. 24, 1916.

BOOTH, JUNIUS BRUTUS (1796-1852). British-American actor. Born in London May 1, 1796, the son of a lawyer, he made his debut on the stage at Peckham, Dec. 13, 1813. Resembling Edmund Kean in features, stature, and voice, he was put forward as the great actor's rival at Covent Garden and at Drury Lane in Feb. and March of 1817, appearing as Richard III at the former house and playing Iago to Kean's Othello at the latter. He went to America in 1821, where he achieved considerable success. He died in America, Nov. 30, 1852.

His son, Edwin Thomas Booth (1833-93) first appeared in Cibber's version of Richard III, Sept. 10, 1849. Later he won great success as a Shakespearean actor in California and Australia, and from 1863-7 was manager of the Winter Garden Theatre, New York. In 1869 he built Booth's Theatre in New York and managed it until 1874. In 1880 and 1882 he played in London and Germany. He died at New York, June 7, 1893.

Junius Booth's younger son, John Wilkes Booth (1839-65), was responsible for the plot to murder Abraham Lincoln, whom he assassinated at Ford's Theatre, Washington, April 14, 1865. Escaping on horseback to Virginia, and refusing to surrender to justice, he was shot in a barn 12 days later.

BOOTH, WILLIAM (1829-1912). Founder and first general of the Salvation Army. Born at Nottingham, April 10, 1829, he laboured as a minister of the Methodist New Connexion, 1855-61, and in 1865 began work as an unattached evangelist in East London. He established the East London Revival Society,

which became known as the Christian Mission when it extended its operations outside the metropolis. He and his wife, Catherine Booth, worked among the poorest, and used the most unconventional methods, gradually adopting a quasi-military organization. This led to the adoption of the name of the Salvation Army in 1878, and the general superintendent was soon styled general. He died in London, Aug. 20, 1912.



W Bramwell Booth, General of the Salvation Army

Booth by G. S. Raiton, 2nd ed., 1912, and H. Begbie, 1920; These Fifty Years, by Bramwell Booth, 1929. Bramwell Booth's biography was being written in 1930.

BOOTHIA FELIX. Peninsula and the most northerly part of the mainland of N. America. Discovered by Sir John Ross, in 1829, it was named after his patron, Sir Felix Booth. In 1831 Sir James Clark Ross, Sir John's nephew, located the north magnetic pole on the peninsula. The Gulf of Boothia, about 315 m. long, and from 60 to 100 miles broad, separates Boothia Felix from Cockburn Island and Melville Peninsula.

BOOTLE. Co. bor. of Lancashire. At the mouth of the Mersey, adjoining Liverpool, it is served by the L.M.S. Rly. Its extensive docks are among the finest along the Mersey, and form part of the system belonging to Liverpool. Industrial establishments include engineering works, iron and tin smelters. Bootle was incorporated in 1868, and became a co. bor. in 1888. Bootle passed to the Stanleys, earls of Derby, at the beginning of the 18th century. After the Great War the earl of Derby sold much of his property in Bootle. Pop. 84,970.

BOOTLEGGGER. A person who sells intoxicating liquor in countries, especially the United States and Canada, where its sale is forbidden. They sprang up in great numbers after the introduction of prohibition, but they originated earlier. In Kentucky and other states, about 1870, men went about selling drink to persons who lived in remote districts. They usually wore boots reaching to the knee, and in their wide bootlegs they often carried the flasks.

BORACIC ACID OR BORIC ACID. Acid of borax. In accordance with the Lavoisierian system, it received the name boric acid, H_3BO_3 , but now in systematic nomenclature is known as boric acid. It occurs native in the lagoons of Monte Rotondo, Tuscany. The volcanic steam jets known as suffioni contain traces of boric acid, and are led into the lagoons, which are evaporated by the heat and yield crystals of the acid. The acid is also prepared from natural borax in California. Boric acid is largely used as a mild antiseptic; as a preservative of milk, meat, and fish; and in many industries. It forms salts known as borates with alkalis and metals.

BORAGE (Borago officinalis). Biennial herb of the order Boraginaceae, a native of central and S. Europe



Borage. Flowers and leaves of Borago officinalis

and N. Africa. The root leaves are lance-shaped with wavy margins, rough with stiff hairs: the flowering stems, 1 ft.-2 ft. high, bear short sprays of brilliant blue flowers. The leaves have the odour of cucumber. Borage is cultivated on account of its supposed exhilarating properties, and is used as an ingredient in claret cup, from a belief that it cools the liquor.

BORAH, WILLIAM EDGAR (b. 1865). American politician. Born in Illinois, June 29, 1865, he entered the Senate in 1906. In 1924 he was chosen chairman of the committee on foreign relations. He was a great advocate of peace and disarmament; but was equally insistent that the U.S.A. should keep clear of the League of Nations and the World Court of Justice and should insist upon the payment of the debts owing by European countries.

BORAX (Arab. bouraq). Combination of boric acid and sodium, also called borate of soda ($Na_2B_4O_7$). The native source was Tibet, the natural mineral being called tincal. It was brought to Europe and refined at Venice and in Holland. Later borax was manufactured by adding soda ash to the boric acid obtained from the Tuscan lagoons. When borax is fused a transparent glass is obtained, which is coloured in different ways by various metallic oxides. Known as the "borax bead," this is used as a test in blowpipe analysis. Borax is employed as a detergent and for many of the purposes of boric acid; also as a laundry glaze, as a flux for metals, in calico printing, and as a solvent for shellac and casein in glazing compounds.

BORDEAUX. City and port of France, capital of the dept. of Gironde. On the left bank of the Garonne, it is about 60 m. from the sea and 360 m. by rly. S. by W. of Paris, and is connected with the Mediterranean by the Canal du Midi. A suburb, La Bastide, on the right bank of the river, is connected by bridges. Bordeaux has a fine harbour formed by a curve of the Garonne, and ample modern docks. It is the centre of the wine trade, the district around being noted for its vineyards. Wine is the most important export.

The chief buildings are the Gothic cathedral of S. André, of the 12th-14th centuries, and the churches of S. Michel, with an isolated tower, S. Séverin, of the 12th century, once the cathedral, and the restored S. Croix. There are remains of a Roman amphitheatre and four magnificent old gateways. The city has a university and an observatory. The Government migrated to Bordeaux when Paris was threatened by the Germans in 1870, and again in 1914. Pop. 256,026.

BORDEAUX MIXTURE. Fungicide prepared by adding milk of lime to a solution of copper sulphate. It is used for spraying various plants, especially in potato disease, and has been found to stimulate growth and lengthen the life of the foliage.

BORDEN, SIR FREDERICK WILLIAM (1847-1917). Canadian statesman. Born in Nova Scotia, May 14, 1847, he graduated in medicine



Bordeaux. Cathedral of S. André, a late medieval Gothic building



J. Wilkes Booth, American assassin



Edwin T. Booth, American actor



William Booth, Founder of the Salvation Army

at Harvard, and began to practise in 1868. In 1874 he entered the Dominion Parliament, and from 1896-1911 was Minister of Militia and Defence in Laurier's Cabinet. Knighted in 1902, he retired from political life in 1911, and died Jan. 6, 1917.

BORDEN, SIR ROBERT LAIRD (b. 1854). Canadian statesman. Born at Grand Pré, Nova Scotia, June 26, 1854, he became a barrister in 1878, and in 1896 entered the Canadian House of Commons as Conservative member for Halifax. In 1901 Borden was chosen as leader of his party in the Commons.



Sir F. W. Borden, Canadian statesman



Sir Robert Borden, Canadian statesman
Lafayette

He became premier in 1911, and as a result of the general election in Dec., 1917, he remained in power with a large majority, and brought the Liberals into his cabinet for the purpose of carrying on the Great War. He was admitted to the privy council in 1912, and made G.C.M.G. in 1914. He attended the Peace Conference in Paris, 1919, and resigned the premiership in July, 1920.

BORDER REGIMENT. British regiment. Originally the 34th and 55th Foot, these were united in 1881 as the 1st and 2nd battalions of the Border Regiment. The regiment fought under Marlborough, saw service at Culloden, and served in the Indian Mutiny and the Crimea. In the South African War it served with distinction, and shared in the British victories in France and Flanders throughout the Great War. The regimental depot is at Carlisle.



Border Regiment badge

BORDIGHERA. Town of Italy. A popular winter resort of the Riviera, it is 6 miles by rly. W. of San Remo and 90 m. S.W. of Genoa. Picturesquely situated on the Mediterranean amid luxuriant vegetation, it comprises the old town, on a hill, and the modern one with esplanades, gardens, and a botanical museum. Pop. 5,750.

BORDONE, PARIS (1500-71). Italian painter, of the Venetian school. He studied under Titian, on whose work he finally modeled his style. His most famous painting is *The Fisherman Presenting the Ring of S. Mark to the Doge* (Venice Academy.)

BORE. Cylindrical hole through the barrel of a gun. A smooth bore gun is one in which the perforation is smooth and plain, and if the bore is of the same diameter throughout its length it is known as a cylinder; it is known as a choke bore if it tapers towards the muzzle, which restrains the shot from spreading and also increases the range. The size of a shot gun is defined as being of such a number bore. The four most common sporting guns, with the corresponding calibre in inches, are 12-bore, .729 in. diameter; 16-bore, .662; 20-bore, .615; 24-bore, .579. See Gun.

Bore (Icelandic *bara*, billow). Crest-fronted wave which rushes up certain rivers at the time of high or spring tides.

Boreas. In Greek mythology, the personification of the north wind. He dwelt in a cave on Mt. Hæmus in Thracæ.

BORECOLE. Plant of the cabbage family of the natural order Cruciferae, genus

Brassica. They develop leaf only, without making heart. Kale and curly kale are the best known varieties. Borecole yields a supply of greenstuff in winter.

BORGHESE. Name of an Italian family founded at Siena in the 13th century. Camillo Filippo Ludovico Borghese (1775-1832), after joining the French army, married Napoleon I's sister Pauline Bonaparte, in 1815, and was appointed governor-general of Piedmont. The territories conveyed to him by Napoleon in part payment for the Borghese art treasures, valued at 13,000,000 francs (£600,000), were reclaimed by the king of Sardinia in 1815, and Borghese recovered a certain part of his collection. This was diminished by sales in 1892-93, but the Borghese Palace in Rome, a magnificent building finished in 1607, still contains a number of famous paintings.

Other old masters and much statuary, ancient and modern, are contained in the Borghese Villa, Rome, formerly the summer residence of the family. Now known as the Villa Umberto Primo, it dates from the 17th century and was bought by the Italian government in 1902. The title of prince is retained in the Borghese family.

BORGIA. Name of a noble Spanish family, de Borja, which became important in Italy in the 15th century. Alonso de Borja was made bishop of Valencia and accompanied Alphonso of Aragon to Naples. He was made a cardinal in 1444, and was elected pope, taking the title of Calixtus III. Many of his relatives then flocked to Rome and the name was changed to Borgia. The sister of Calixtus III was the mother of Rodrigo, who became pope as Alexander VI (q.v.). He was the father of Cesare and Lucrezia and of the first duke of Gandia. Several cardinals were numbered in the family, and one saint, Francesco Borgia (1510-72), the third general of the Jesuits. He was canonised in 1671. His festival is kept on Oct. 10.

BORGIA, CESARE (1476-1507). Italian soldier and statesman. A son of Rodrigo Borgia, who, in 1492, became Pope Alexander VI. Cesare was made an archbishop and a cardinal before he was twenty. In 1499 he was dispensed from his orders and married Charlotte d'Albret, princess of Navarre. As captain-general of the Church he recovered the provinces of Italy for the Papacy.

On the death of Alexander VI, in August, 1503, Cesare lost his main support. He was taken as a prisoner to Spain, 1504, but he escaped in 1506, and was killed in battle, Mareb 12, 1507. It was to Cesare that Machiavelli dedicated his treatise *The Prince*.

Cesare's sister, Lucrezia (1480-1519), was married first to Giovanni Sforza, second to the duke of Bisceglie, and third to the duke of Ferrara. Historical evidence fails to confirm the crimes imputed to her. She died June 24, 1519. See Machiavelli; Renaissance.

BORGU, BORKU, OR BARBA. Country of W. Africa, formerly an independent sultanate and at one time tributary to Wadai. The western portion is now included in the French colony of Dabomé, and the eastern forms part of a province of Nigeria (q.v.). The area of the British portion is about 12,000 sq. m.

Boric Acid. Alternative name for boracic acid (q.v.).

BORINAGE. District of Belgium, in the prov. of Hainault. It lies around Mons, and contains highly productive coal mines, worked, during the Great War, by the Germans.

BORIS (b. 1894). Tsar of Bulgaria. Born at Sofia, Jan. 30, 1894, the eldest son of King Ferdinand, he ascended the throne on his father's abdication, Oct. 4, 1918, under the title of Boris III. His change of religion during childhood from Roman Catholicism to the Orthodox Church, as required by the Bulgarian constitution, caused some controversy.

BORKUM. Island of Germany, in the Frisian group. At the mouth of the Ems, about 9 m. from the coast of Holland, it is about 5 m. long and 2½ m. broad. It is reached by steamer from Emden, Hamburg, and Leer. It has about 3,000 inhabitants, and for administrative purposes is in the prov. of Hanover.

BORNEO. Island in the East Indian Archipelago. It is bounded N. by the South China Sea, W. and S. by the Carimata Strait and the Java Sea, and E. by the Strait of Macassar and the Celebes Sea. Its area is 290,000 sq. m. and its pop. 2,660,000.

Politically Borneo is divided into four parts: (1) British North Borneo, administered by the British North Borneo Company; (2) Brunei, a Mahomedan state attached administratively to the Straits Settlements; (3) Sarawak, a state under British protection; and (4) Dutch Borneo. The last is divided into two provinces: (1) West Borneo, with an area of 56,838 sq. m. and a pop. of 685,545; and (2) South and East Borneo, with an area of 149,972 sq. m. and a pop. of 1,091,341.

The principal native race, aboriginal Indonesians called Dyaks, is divided into numerous



Borneo. Map of the third largest inhabited island in the world. Nearly three-fourths belong to the Netherlands, the remainder being British, or under British protection

tribes. Chinese form large trading and mining communities. Malays are scattered along the rivers. The products comprise

timber, sago, camphor, cinnamon, pepper, nutmegs, rice, rubber, gutta-percha, gum, edible birds' nests, seed pearls and bêche de mer. The great mineral wealth includes gold, copper, iron, tin, petroleum, and coal.

British North Borneo comprises the N. part of Borneo from the Sipitong river on the W., together with adjacent islands, and is held under grants from the sultans of Brunei and Sulu. The area is 31,106 sq. m. In 1904 about 200 sq. m. was made over to Sarawak. See Brunei; Sarawak; and illus. p. 268.

BORNÜ. Country of the Central Sudan. Formerly a negro kingdom to the S. and W. of Lake Chad, it was apportioned between Great Britain, France, and Germany towards the close of the 19th century, the larger portion being included in Nigeria, forming the Bornu province. The tributary state of Zinder and part of northern Bornu are in French West Africa, and the south-western portion is in the Cameroons. Bornu extended at one time to the borders of Egypt. The capital was Kuku, a walled town west of Lake Chad.

BORO BUDUR. Buddhist temple in Java, noted for its architectural and sculptural features. Built on a hill near the confluence of the Progo and Ello, 15 m. N.W. of Jokjakarta, it is 118 ft. high, and about 2,000 ft. in circuit at the base, and dates probably from the 7th century. It consists of six square storeys, and is surmounted by a large cupola for the relic, surrounded by 72 small cupolas on three circular platforms.

BORODIN, ALEXANDER PORFIRIEVITCH (1834-87). Russian composer. Born Nov. 12, 1834, at St. Petersburg, where he studied medicine and became professor of chemistry, his fame rests on his work as a musician. His compositions include symphonies, chamber music, and piano pieces; also the unfinished opera Prince Igor, completed by another hand and produced in St. Petersburg in 1890. He died Feb. 28, 1887.

BORON. Non-metallic element present in borax and boric acid. Its symbol is B, its atomic weight 10.82, and its atomic number 5. It was first prepared by Davy in 1807 by the electrical decomposition of boric acid. The next year Gay-Lussac and Thénard obtained it from boric oxide as an amorphous powder, and in 1856 Wöhler and Deville prepared it in a crystalline form. In some of its properties boron resembles carbon and silicon, but it is a more powerful reducing agent than either.

BOROUGH (O.E. burh, a fortified town). In England a place to which certain privileges have been given and which is distinct from the surrounding country. The Scottish equivalent is burgh.

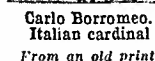
The earliest boroughs were fortified towns called burghs, and at the time of Domesday there were 80 of them in England. After the Norman Conquest certain places obtained charters from the king or an overlord. These gave the inhabitants certain privileges, such as the right to hold markets, to collect their own taxes, to elect their own officials, etc. They were called chartered towns or boroughs, but there was no uniformity either about their privileges or their methods of government.

In 1835 an important Act reformed the government of the boroughs, and since then they have all been ruled in much the same way. Each has a mayor and a council consisting of aldermen and councillors, the latter elected by the ratepayers. In 1888 a special class of boroughs called county boroughs was created. These places with over 50,000 inhabitants were given the same privileges as counties, being made quite independent of the county councils. In boroughs with less than 50,000 people some of the town's affairs are looked after by the county council. In 1926 it was decided that no place should be made a county

borough unless it had 75,000 or more inhabitants. Any populous place can apply to the privy council for a charter of incorporation which will make it an ordinary borough. In 1927 there were in England and Wales 88 county boroughs, and 235 non-county boroughs.

BOROUGHBRIDGE. Market town of Yorkshire (W.R.). It stands on the river Ure, 11 m. N.E. of Harrogate by the L.N.E. Rly. Here Edward II defeated, March 16, 1322, the barons under his uncle, Earl Thomas of Lancaster. Near by are the Devil's Arrows, three monoliths, probably of the Celtic period. Market day, alternate Mon. Pop. 807.

BORROMEO, CARLO (1538-84). Saint, and archbishop of Milan. Born at Arona, Oct. 2, 1538, of noble parentage, he was the nephew of Pope Pius IV. In 1560, having been made cardinal and secretary of state at Rome, he successfully worked for the reopening of the Council of Trent. In 1563 he was ordained priest, and in 1564 consecrated archbishop of Milan. Borromeo organized a series of reforms in his diocese, and also promoted education for the young. He died at Milan, Nov. 3, 1584, and was canonised in 1610. His festival is Nov. 4.



Carlo Borromeo.
Italian cardinal.
From an old print

His cousin Federigo Borromeo (1564-1631) became a cardinal in 1587 and was made archbishop of Milan in 1595.

A group of islands in Lake Maggiore, N. Italy, the property of the Borromeo family, are called the Borromeo Islands.

BORROW, GEORGE HENRY (1803-81). British author. Born at Dumpling Green, near East Dereham, Norfolk, July 5, 1803, son of Captain Thomas Borrow, adjutant of the East Norfolk Regiment, he had a wandering boyhood, moving about with his father's regiment. Having developed a passion for outdoor life, he got into touch with the gipsies and began philological studies which led to his mastery of more than thirty languages.

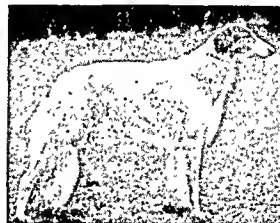
During his lifetime Borrow achieved one great success in the popularity of his Bible in Spain; or, Journeys, Adventures, and Imprisonments of an Englishman in an attempt to circulate the Scriptures in the Peninsula, 1843. On this remarkable book and the two that record his adventures, real and imagined, when travelling through England, Lavengro, 1851, and The Romany Rye, 1857, Borrow's fame rests. He died at Oulton, near Lowestoft, July 26, 1881. In 1913 Mr. A. M. Samuel presented to Norwich the house in which Borrow once lived, to serve as a Borrow museum. Consult George Borrow and His Circle, C. K. Shorter, 1913.

BORROWDALE. Parish of W. Cumberland. It is 5 m. S. of Keswick, in the beautiful valley of the Derwent, ascending from Derwentwater towards Honister Pass. Once famous for its blacklead mines, it contains the curious Bowder Stone.

BORROWSTOUNNESS or Bo'NESS. Burgh and seaport of Linlithgowshire, Scotland. It stands on the Firth of Forth, 24 m. by rly. W.N.W. of Edinburgh by the L.N.E. Rly. It has a good harbour and carries on a brisk coasting trade. Pop. 10,223.

BORSTAL SYSTEM. Method of dealing with the juvenile adult offender—youths from

16 to 21 years of age. The earliest effort in this direction was made in 1902, by removing young prisoners from association with older offenders and grouping them apart in a wing of the convict prison at Borstal, near Chatham. Here, instead of solitary confinement, they worked in large, bright workshops, and were stimulated to do their best by a system of marks and privileges. Six years later the Prevention of Crimes Act extended its methods and established the Borstal System of to-day. In 1923 the care of Borstal girls was transferred to a new society, the Aylesbury Association. In 1930 an estate for another institution



Borzoi. Specimen of the Russian wolfhound acclimatised in Britain

of the kind was bought at Lowdham, Notts. See Prison.

BORZOI (Russian, swift). Russian wolfhound brought to Great Britain about 1885. It stands about 30 ins. high, resembles a large greyhound, and is very gentle.

BOSBOOM, JAN (1817-91). Dutch painter. His paintings are mainly church interiors and landscapes, especially of the country round Scheveningen. In 1851 he married Anna Toussaint (1812-86), a novelist. He died at The Hague, Sept. 14, 1891.

BOSCASTLE. Village of Cornwall. Beautifully situated on the rocky north coast, it is 6 m. from Camelford. There is a harbour and a golf course. In the vicinity are Pentargon caves, St. Nighton's Kieve, Crackington Haven, and the Rocky Valley. Pop. 630.

BOSCobel (pretty wood). Parish of Shropshire, 6 m. N.E. of Shifnal. Its manor house was the retreat of Charles II after his defeat at Worcester, Sept. 3, 1651. The Royal Oak is dead, but Boscobel House remains.

BOSCOMBE. Watering-place of Hampshire, and eastern suburb of Bournemouth. It has a fine pier, an arcade, and is noted for its chine and pleasure gardens. See Bournemouth.

BOSE, SIR JAGADIS CHANDRA (b. 1858). Indian scientist. Born Nov. 30, 1858, he was educated in Calcutta and at Christ's College, Cambridge. He founded and directed at Calcutta the Bose Research Institution. He invented an apparatus known as the crescograph, which, by enormous magnification of the natural movements in plants, makes it possible to record their life-growth. In 1917 he was knighted. See Crescograph.

BOSNIA. Country of S.E. Europe forming part of Yugo-Slavia. It is bounded N. by the Save, which separates it from Croatia and Slavonia, E. by the Drina, which divides it from Serbia, S. by Herzegovina, and W. by the Dinaric Alps and Dalmatia. Mainly it is a high mountainous region. The Save and the Bosna are the chief rivers. Its area is 16,206 sq. m.; pop. about 1,620,000, mostly Croat and Serbian. Serajevo is the capital.

Conquered by the Turks in 1463, Bosnia remained under Turkish rule until 1878, when, with Herzegovina, it was, at the Congress of Berlin, placed under Austrian officials. This lasted until 1908, when Austria annexed the district. It was made into a province, Bosnia-Herzegovina, in 1910, and its inhabitants were allowed to elect a diet of 90 members. As part of Austria, Bosnia was the object of Allied attacks in the Great War. After the downfall of Austria, Bosnia and Herzegovina became part of the new state of the Serbs, Croats, and Slovenes. See Yugo-Slavia.

BOSPORUS. A narrow channel, less correctly called Bosphorus, and known also as the straits of Constantinople, connecting the Black Sea with the Sea of Marmora, and separating Europe from Asia Minor. It is 16 m. long, and varies in width from $\frac{1}{2}$ m. to 2 m. One of its bays forms the harbour of Constantinople and the Golden Horn. During the Great War the S. end of the passage was strongly fortified by the Turks. The straits are sometimes called the Thracian Bosphorus to distinguish them from the Cimmerian Bosphorus. The word means ox ford.

BOSSUET, JACQUES BÉNIGNE (1627-1704) French bishop and orator. He was born Sept. 27, 1627, at Dijon, where his father was a judge, and in 1652 he was ordained priest, and appointed archdeacon of Sarrebourg and canon of Metz. Thence, about 1660, he went to Paris, where his great gifts were soon recognized. He was made bishop of Condom in 1669, but resigned when Louis XIV appointed him tutor to the Dauphin. During the 11 years of this tutorship Bossuet wrote his

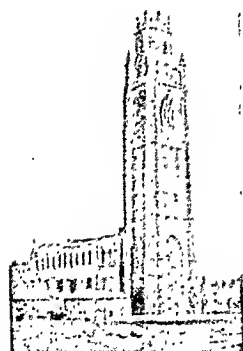


J. B. Bossuet,
French orator
After H. Rigaud

Discours sur l'Histoire Universelle, 1681, and his book in support of the royalists against the papalists in the dispute about the rights of the Gallican Church. He was elected to the academy in 1680, appointed to the bishopric of Meaux in 1681, and made councillor of state in 1697. He died in Paris, April 12, 1704. A notable orator, Bossuet had a permanent influence on French and English preaching. He also ranks among the great prose writers of France.

BOSTON. Borough and seaport of Lincolnshire. It lies 4 m. above the entrance of the Witham into the Wash and 107 m. by rly. N. of London, on the L.N.E. Rly.

The Decorated and Perpendicular church of S. Botolph is one of the largest parish churches in Great Britain. Its western tower is popularly called Boston Stump. Boston is a prominent grain market, and engineering, brewing, malting, fishing, and the manufacture of oil cake, sails and rope are among its industries. Boston, a

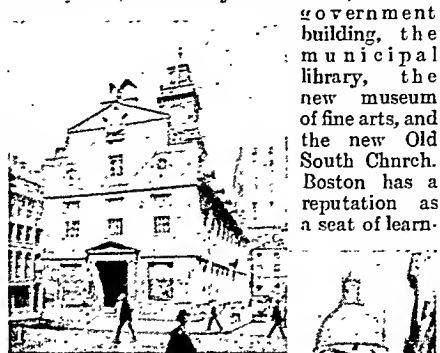


Boston, Lincs. Church of S.
Botolph, called Boston Stump
Frith

contraction of Botolph's town, S. Botolph, it is believed, having founded a monastery here in 654, was one of the principal English ports during the early 13th century, and a guild was established here by the Hanseatic League. Market days, Wed and Sat. Pop. 16,100.

BOSTON. Capital of Massachusetts, U.S.A. It stands on Boston harbour at the head of Massachusetts bay. The city comprises an area of 48 sq. m., is served by the Boston and Maine and other rlys., and has a system of street railways. Among buildings of historical interest are Faneuil Hall (1743), formerly the meeting house of revolutionaries; the Old South Church (1730), the scene of the protest meeting which preceded the Boston Tea Party; the Old North Church or Christ Church (1723), from whose spire were suspended the signals for Paul Revere; the Old State House, built in 1748 and since restored;

King's Chapel (1754), and the new State House (1795). Modern structures include the city hall, the county court house, the U.S.



government building, the municipal library, the new museum of fine arts, and the new Old South Church. Boston has a reputation as a seat of learning and a centre of literature, science, art and music. Among its educational institutions are Boston University, Emmanuel College, North-eastern University, Simmons College, and the Trade Union College. The Boston Opera House is in Huntington Avenue.

Boston conducts the largest leather, wool, and fish trade in the world, and after New York is the leading exporter of meat and dairy produce. There is a fine harbour, with a government navy yard. Pop. 779,620.

BOSWELL, JAMES (1740-95). Biographer of Johnson. Born in Edinburgh, Oct. 29, 1740, he was the eldest son of Alexander Boswell, who took the title of Lord Auchinleck (pron. Affleck) on becoming a Scottish judge. In 1763 he succeeded in obtaining an introduction to Samuel Johnson, who, notwithstanding his scorn for Scotsmen, fell a victim to Boswell's sociability. Boswell, resolved to write Johnson's Life, and set about the task with thoroughness and persistence. Unable to reside permanently in London, he frequented the metropolis at every opportunity, spent much of his time in Johnson's company, and kept a faithful record of the great man's conversation and habits. In 1785 he published an account of his tour with Johnson in the Highlands. His Life of Johnson appeared in 1791, and raised even more controversy than the previous book.

Boswell died in London May 19, 1795, and was buried at Auchinleck. His eldest son, Sir Alexander Boswell (1775-1822) was known as an antiquary and poet.

BOSWORTH, BATTLE OF. Fought between Richard III and Henry, earl of Richmond, Aug. 22, 1485. It took place near Market Bosworth, a village 12 m. from Leicester, and resulted in the death of Richard and the accession of Henry to the throne as Henry VII.

BOTANY (Gr. botania, botanē, a plant). The science of plant life, and one of the divisions of biology, of which the other division is zoology, the science of animal life. There was a literature of botany as far back as the time of Plato and Aristotle. Theophrastus, who left the world his Historia Plantarum, has been called the father of botany. Hippocrates enumerated about 300 plants that were used medicinally, and from his work and the De Materia Medica of Dioscorides came the herbals

of the 16th century. For several centuries British botany was largely mixed up with astrology, magic and medicine. Turner's New Herball (1551) has a real value for the historian, for the author examined his plants minutely, comparing them with the descriptions of the ancients, and assigning new English names when these were lacking.

Lobel in 1576 attempted a natural system of classification. John Ray's Catalogue of English Plants appeared in 1670, followed twenty years later by his Synopsis, the basis upon which all later English floras have been founded. The 18th century was marked by the publication of Hales's Vegetable Statics (1727), dealing with plant physiology, and by several works of Linnæus. The artificial system of classification of Linnæus has been discarded, but his establishment of genera and species, and his binomial system of naming species made possible the later systems of Jussieu and De Candolle.

The far-reaching advances of the 19th century include the work of Robert Brown, J. E. Smith, Lindley, Bentham, the two Hookers, Charles Darwin and his son Francis, Thistleton Dyer, Vines, Bower, and many others. A great impulse was given to the science by the publication of the Origin of Species, and other of Darwin's works. In the realm of classification and cataloguing the monumental work of Bentham and Hooker—the Genera Plantarum (1862-83) may be instanced, and another Kew enterprise, the Index Kewensis, which J. D. Hooker carried out in collaboration with B. Daydon Jackson (1893-5). This contained 375,000 names of plants.

The present main divisions of plant life—proceeding from the simple to the more complex—may be thus set down:

- Thallophyta (including seaweeds, diatoms, and fungi).
- Bryophyta (mosses and liverworts).
- Spermatophyta, seed-bearing plants, including—
- Pteridophyta (ferns, horsetails and club-mosses);
- Gymnosperms (conifers and cycads);
- Angiosperms (flowering plants), divided into monocotyledones and dicotyledones.

BOTANY BAY. Inlet, one to three miles wide, on the E. coast of New South Wales, Australia, five miles S. of Sydney. Discovered by Captain Cook in 1770, it acquired its name from the variety of its plant life. It became a penal settlement in 1787, but was found to be unsuitable, and was supplanted by the locality on which now stands Sydney. The name continued to be a popular term for any Australian convict station.



Horse bot fly,
Oestrophilus equi

BOT FLY. Name applied to various parasitic flies of the family Oestridæ. The ox bot fly or ox warble lays its eggs on the hair of cattle, and the larvae burrow into the tissues and cause tumours. The sheep bot fly lays its eggs on the nostrils, and the larvae work their way up the nasal passages into the head, breeding disease. The horse bot fly deposits its eggs on the hair of its host. When the larvae emerge the horse licks the place, and thus conveys



Sheep bot fly,
Oestrus ovis

the maggots to the alimentary canal. Here they live for about a year, when they are expelled with the excrement and pupate in the ground. See Insect.

BOTHA, LOUIS (1862-1919). South African soldier and statesman. Born at Greytown, Natal, Sept. 27, 1862, the son of a Boer

farmer, he passed much of his early life in the Transvaal. In 1896 he was elected to the Transvaal Volksraad and, as an opponent of Kruger, endeavoured to prevent war with Great Britain. But on the outbreak of the South African War, in 1899, he commanded the Boers who defended the passage of the Tugela, and after Joubert's death was commander-in-chief until the end of hostilities.



Louis Botha,
S. African statesman

Botha worked loyally for the prosperity of the Transvaal, and on the granting of self-government became its premier in 1907. In 1910, as leader of the dominant Nationalist party, he was selected as the first premier of the new Union of South Africa. In 1914, on the outbreak of the Great War, Botha faced and crushed a somewhat formidable rebellion, and conducted the campaign that deprived the Germans of S.W. Africa. In 1907 he was made a privy councillor, and in 1919 he attended the Peace Conference at Paris and signed the peace treaty. He died at Pretoria, Aug. 27, 1919. See South Africa; consult also Life, H. Spender, 1920.

BOTHNIA, GULF OF. Northern extension of the Baltic Sea. Separating Sweden from Finland, it is about 410 m. long, has an average breadth of 100 m. and a maximum depth of 890 ft. It receives most of the large rivers of Sweden and Finland, contains numerous islands, sandbanks, and rocks, and has many harbours and towns on its shores. When the river-flow is great, its waters are only slightly salt, and in severe winters it is frozen over. The territory at the head of the gulf was for nerly called Bothnia. See Baltic Sea.

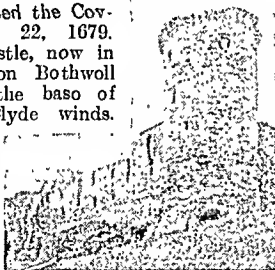
BOTHWELL. Colliery centre of Lanarkshire. It is situated on the Clyde, 8 m. by rly. S.E. of Glasgow, on the L.M.S. Rly. Near is Bothwell Brig, where the Royalists defeated the Covenanters, June 22, 1679. Bothwell Castle, now in ruins, stands on Bothwell Bank, round the base of which the Clyde winds. Pop. 3,450.

BOTHWELL, JAMES HEPBURN, 4TH EARL OF (1536-78). Scottish noble. He succeeded his father as earl of Bothwell in 1556. In 1566 he married Jean Gordon, sister of the earl of Huntly, and became one of the chief advisers of Mary Queen of Scots. In the plot against Darnley he was the chief actor, but he was acquitted after a trial which was little better than a farce. In April, 1567, Bothwell carried off the queen to Dunbar, and in May, when he had divorced his wife, they were married at Holyrood. But the nobles had risen in revolt, and when the rival armies met at Carberry Hill, Bothwell's forces dispersed without a struggle, and the queen became a prisoner. Bothwell escaped to Norway. After a time his enemies seized him, and he passed the rest of his days in prison in Sweden and Denmark. The earl lost his reason before his death, April 14, 1578. The title is now extinct. See Mary Queen of Scots.



James, 4th Earl of
Bothwell

Bothwell Castle, Lanarkshire. Ruins of the ancient Scottish stronghold. Frith



Bothwell Castle, Lanarkshire. Ruins of the ancient Scottish stronghold. Frith

BOTOLPH (d. about 680). English saint. Born in England, he was sent with his brother to the Continent for study. Having become a monk, he returned to England, and was granted land in Leicestershire or Suffolk, where he established a monastery. More than 50 churches, for the most part in East Anglia and Yorkshire, are dedicated to him, as well as two in London. His festival in England is June 17, in Scotland, June 25.

BO TREE or **PREPUL** (*Ficus religiosa*). Fig tree of India, held sacred to Buddha. It differs from the common fig in having undivided leaves of a heart shape with a long slender petiole, and from the banyan (q.v.) in that its lateral branches are not supported by prop-like roots. The leaves are continually in motion. Beneath the Bo Tree at Bodhi Gaya, in Bengal, Gautama, after seven weeks of contemplation, became Buddha, the Enlightened. See Buddhism.

BOTTICELLI, SANDRO (c. 1444-1510). Italian painter. His real name was Alessandro di Mariano dei Filipeppi. He first studied painting under Fra Filippo Lippi.

His special qualities as a painter are his acute sense of decoration, his intense love of swift and graceful movement, and his marvellous power of representing such movement, his extraordinary skill as a draftsman for intricate and lineal design, and his ability to convey the feeling of open air. He was perhaps the first to give landscape its due share in art, and to realize the ideas of infinity and space.

Botticelli's most notable pictures are in Florence, especially *The Birth of Venus*, shown in London in 1930, *The Adoration of the Magi*, two of *Judith and Holofernes*, and the extremely beautiful *Primavera*. A very early *Adoration of the Magi* is in the National Gallery, London, and he is represented also in Berlin, Milan, and Munich. In Rome his work may be seen in three frescoes in the Sistine Chapel. His drawings include a wonderful series of illustrations for Dante. Botticelli died May 17, 1510.

BOTTLE TREE (*Sterculia rupestris*). Evergreen tree of the order Sterculiaceae, a native of Australia. Its trunk is shaped some what like a soda-water bottle. The leaves are either simple and slender, or divided into leaflets arranged like those of the horse chestnut. The wood is of a loose texture and abounds in sweet mucilage, which is available for food; and the fibres are employed for making nets and the like.



Bottle Tree. Example of its curious trunk from Queensland



Sandro Botticelli,
Italian painter

Self-portrait from his *Adoration of the Magi*, Uffizi Gallery, Florence



Bottle Gour.
See above

BOTTLE GOURD. This is a genus consisting of a single species of the order Cucurbitaceae. A native of Asia and Africa, it is an annual trailing or climbing herb with heart-shaped leaves. The flowers are white, the sexes being separate. The fruit is for the most part flask-shaped with swollen, rounded base and narrow neck. See illus. below

BOTTOMLEY, HORATIO WILLIAM (b. 1860). British journalist. He was born Mar. 23, 1860, and was for a time in business in London, after which, turning to journalism, he founded *The Financial Times*, and became known mainly by the skill with which he conducted his own case in various lawsuits. Having owned *The Sun*, he established *John Bull*, which, under his direction, attained an enormous circulation. In 1906 Bottomley was elected Liberal M.P. for South Hackney, and he retained his seat until 1912; in 1918 he was again returned for that constituency. On May 29, 1922, he was sentenced to seven years' penal servitude, being released in 1927.

BOTULISM (Lat. *botulus*, sausage). Disease caused by eating sausages and other preserved food. It is due to the presence of *Bacillus botulinus*, a spore-forming germ occasionally occurring in food from which the air has been excluded. The germ can be destroyed by cooking. The poison attacks the nervous system chiefly, producing disturbance of vision, difficulty in swallowing, great muscular weakness, nausea, etc.

BOTWOOD. Seaport of Newfoundland, on the W. shore of the estuary of the Exploits river, it is connected by rly. with the interior. The products of Grand Falls and district are shipped from here.

BOUCHER, FRANÇOIS (1703-70). French painter. Born in Paris, Sept. 29, 1703, he studied with Le Moine, and was for a time employed as a book-plate designer. Admitted to the Academy, he gained the first prize in 1723, and journeyed to Italy with Carl van Loo. After his return to Paris, 1731, he won admiration as the painter of voluptuous idylls and of portraits, including several of Madame de Pompadour. He died in Paris, May 30, 1770. A collection of his paintings is in the Wallace Collection, London.



François Boucher
French painter
Painting by Ribin

BOUCHES-DU-RHÔNE. Department of France. At the mouth of the Rhône, its area is 2,026 sq. m. It has a seaboard of about 120 m. on the Mediterranean, much of it covered by étangs or lagoons. Marseilles, the capital, is the largest town; others are Aix and Arles. Pop. 929,549

BOUCICAULT, DION (1822-90). Irish dramatist and actor, whose original name was Dionysius Lardner Bouricault. Born at Dublin, Dec. 26, 1822, his first appearance on the London stage was at *The Princess's*, June 14, 1852, in his own play *The Vampire*. His best known drama is *The Colleen Bawn*, which ran for 360 nights at *The Adelphi* in 1860-61. Boucicault wrote or adapted some 140 pieces, including *London Assurance*, 1841; *The Octoroon*, 1861; *Arrah-na-Pogue*, 1865; *The Flying Scud*, 1866; and *The Shaughraun*, 1875. He died Sept. 18, 1890. He was the father of Dion G. Boucicault (1859-1929) and Nina Boucicault (b. 1870). His grandson, Dion Clayton Calthrop (b. 1878), has won distinction as a versatile writer.



Dion Boucicault,
Irish dramatist

BOUFFLERS, LOUIS FRANÇOIS, DUC DE (1644-1711). French soldier. Born in Picardy, Jan. 10, 1644, he served under Turenne in Holland. He was made a marshal of France in 1693 after the victory of Steinkirk and later distinguished himself at Malplaquet. He died Aug. 22, 1711. His son, Joseph Marie, duc de Boufflers (1706-47), was also a marshal of France.

A later member of the family was Stanislas Jean, Marquis de Boufflers (1738-1815), commonly known as the Chevalier de Boufflers. A marshal of France, he was governor of Senegal, 1785-87, was made a member of the Academy in 1788, and of the states-general in 1789. He died in Paris, Jan. 18, 1815.

BOUGAINVILLE. Largest of the Solomon Islands, Pacific Ocean. Formerly German, it is now administered by Australia; its area is 3,500 sq. m. Of volcanic formation, it rises in Mt. Balhi, an active volcano, to 10,170 ft. Pop. 60,000.

BOUGAINVILLE, LOUIS ANTOINE DE (1729-1811). French navigator. Born Nov. 11, 1729, he joined the navy, and was sent to establish a colony on the Falkland Islands. He was the first French seaman to circumnavigate the globe, and in his Voyage round the World (Eng. trans. J. R. Forster, 1772) he added considerably to the geographical and scientific knowledge of the age. He died Aug. 31, 1811, and is commemorated by one of the Solomon Islands and a strait in the New Hebrides.



L. A. de Bougainville
French navigator

Bougainville is also commemorated by the bougainvillea, a genus of climbing shrubs. Natives of S. America, they are largely cultivated in greenhouses on account of their showiness, due to a number of rosy bracts by which the greenish flowers are surrounded.



Bougainvillea.
Leaves and flowers

BOUGH, SAMUEL (1822-78). British painter. Born at Carlisle, Jan. 8, 1822, he spent many years as a scene painter and settled down as a landscape painter in Edinburgh in 1855, being elected to the Scottish Academy in 1875. He died Nov. 19, 1878.

BOUGHTON, GEORGE HENRY (1833-1905). British painter. Born near Norwich, Dec. 4, 1833, he studied in New York, Paris, and London, where, from 1863 onwards, he was always represented at the Royal Academy. Made A.R.A. in 1879, R.A. in 1896, he died in London Jan. 19, 1905. Boughton is mainly identified with paintings of New England episodes and costume. He is represented at the Tate Gallery, London, and the Walker Gallery, Liverpool.

BOUGIE or **BUOIAH.** Seaport of Algeria. On the Bay of Bougie and the declivity of Mt. Guraya, it is 120 m. E. of Algiers, with which it is connected by rly. via Beni Mansour. As the Saldæ of the Romans it formed an important station in Mauritania. Part of the Roman wall is still in existence. Bougie was captured by the French in 1833. It has long been celebrated for the manufacture of bougies (wax candles). Pop. 15,941.

BOUGUEREAU, ADOLPHE WILLIAM (1825-1905). French painter. Born at La Rochelle, he studied under Picot and in 1850 won the Prix de Rome. He achieved popularity with *La Vierge Consolatrice*, 1877, and *The Birth of Venus*, 1879, and reproductions of the former

have made him widely known. He died Aug. 20, 1905.

BOULANGER, GEORGES RNEST JEAN MARIE (1837-91). French politician and soldier. Born at Rennes, April 29, 1837, he entered the army in 1856, and saw service in Algeria and elsewhere. In 1884 he was sent to command the troops in Tunis. In 1886 he was made minister for war, but resigned the following year and was given command of an army corps. Removed from his command in 1888 owing to alliances with royalists, he was elected to the chamber by an immense majority. But he showed no stability of character, and in 1889, accused of peculation and of intriguing with the royalists, he fled to escape arrest. He committed suicide Sept. 30, 1891.



Georges Boulanger.
French soldier

BOULDER. Mining town of West Australia. Linked with Kalgoorlie by train and tram, it is 379 m. by rly. from Perth, and close to the famous group of mines forming the Golden Mile. It has a fine racecourse. Pop. 5,884.

BOULOGNE-SUR-MER. Seaport and town of France, in the dept. of Pas-de-Calais. It stands on the English Channel, 157 m. by rly. N. by W. of Paris at the mouth of the Liane River. On a hill is the old town, surrounded by walls, containing the castle, now used as barracks, the hôtel de ville, and the cathedral of Notre Dame. Boulogne has a fine modern harbour, and is one of the chief ports for the traffic between England and France. The industries include fishing and fruits, eggs, and fish. To the north is Napoleon's column, begun to commemorate the assembly of the army for the conquest of England in 1804, and completed in 1841. There is a wireless station.



Boulogne. Street of the old town, with the cathedral of Notre Dame

Boulogne was, according to some, the starting-point of Caesar's invasion of Britain. During the Great War the town and port were under British administration and were almost entirely devoted to military uses. For the admirable conduct of its inhabitants during numerous aerial bombardments, Boulogne was awarded the Croix de Guerre. In June, 1920, a conference was held at Boulogne by the Supreme Council of the Allies to discuss the allocation of Reparation payments from Germany. Pop. 52,839.

Boulogne-sur-Seine, in the dept. of Seine, lies S.W. of Paris, in a bend of the Seine, and gives its name to the adjacent park, the Bois de Boulogne (q.v.). Pop. 75,559.

BOULTON, MATTHEW (1728-1809). British engineer. He was born in Birmingham, Sept. 3, 1728, and entered and soon enlarged the business of a silver stamper carried on by his father. Having opened works at Soho, near Birmingham, for the production of metal wares, the lack of water power caused him some anxiety, and in 1772 he entered into partnership with James Watt, who was trying to perfect his steam engine, then only thought of for pumping purposes. Boulton turned his attention later to the manufacture of coins and coining machinery. He died Aug. 18, 1809.

BOUNDS, BEATING THE. This is an old English custom for perpetuating the parish

boundaries. The ceremony took place annually in May on the Rogation days preceding Ascension Day. The parish priest, the churchwardens, the beadle, and other parish officials perambulated the boundaries accompanied by boys, who beat the boundary stones with houghs. As an aid to memory the urchins were sometimes beaten or bumped on the stones. The custom still exists in some places, notably the London parish of St. Clement Danes. At Lustleigh, Devon, it takes the form of ducking the boys.

BOUNTY (Lat. *bonitas*, goodness). Term for a gift or benefaction of any kind. It has been, and still is, used for payments made to soldiers and sailors in addition to their pay, the equivalent of the civilian's bonus. The money given at the close of a campaign is also called a bounty. The king's bounty is a sum of money sent to any British woman who gives birth to triplets. In a special sense bounty is used for a grant of public money to aid a particular industry. In the 18th century bounties were freely given in England, and in the 20th Canada fostered some of her infant industries by this means.

BOUNTY, MUTINY OF THE. In 1788 Captain William Bligh (q.v.) was sent by the British government in command of H.M.S. *Bounty* to the Society Islands to collect vegetable products with a view to propagating them in the W. Indies. In April, 1789, his crew mutinied. The captain and 18 loyal sailors were set adrift in an open boat, but ultimately landed on the island of Timor near Java. Meanwhile the crew of the *Bounty* reached Tahiti, whence nine of them, with a few natives, both men and women, sailed to the uninhabited Pitcairn Island, in 1790. Ten years later only one of the men, John Adams (q.v.) was alive; but there were several women and children, from whom the present inhabitants of the island, now numbering about 140, are descended.

BOUNTY ISLANDS. Group of 13 uninhabited islands in the S. Pacific belonging to New Zealand. They lie N. of the Antipodes Islands, about 415 m. from Port Chalmers. The principal island, which has a depot with stores for shipwrecked mariners, is visited twice a year by a government steamer.

BOURASSA, HENRI (b. 1868). Canadian politician and journalist. He was born at Montreal, Sept. 1, 1868, and became the ardent spokesman of the French-Canadians. From 1896 to 1908, and again from 1925, he sat in the Dominion House of Commons. He opposed Canada's participation in the Great War. He founded the Montreal newspaper, *Le Devoir*, in 1910.

Bourbon, ÎLE DE. A French island in the Indian Ocean, generally called Réunion (q.v.).

BOURBON. Name of a French family, members of which were kings of France from 1589-1789, and again from 1814-48, and rulers of Spain, with a brief interval, from 1700 to the present day. The name is taken from the town of Bourbon l'Archambault, and the district around this, called the Bourbonnais, was the first territory ruled by the family. They first appear as its lords in the 9th century, and in the 13th their heiress, Beatrix, married Robert, count of Clermont (1250-1318), a younger son of Louis IX.

Robert's son Louis became duke of Bourbon, and the existing Bourbons are sprung from a younger son of Duke Louis James, count of La Marche, whose grandson was Louis, count of Vendôme. Fourth in descent from this Louis was Antony, who married Jeanne d'Albret, heiress of Navarre, and became king of that land in 1554. Their son was Henry IV, who in 1589 secured the throne of France. His descendants, Louis XIII, XIV, XV, and XVI, reigned until the Revolution.

In 1814 the Bourbons were restored, but their rule ended in 1848, with the revolution that overthrew Louis Philippe. At the present time the French Bourbons are only represented by the Orleans branch, descendants of Philip I, duke of Orleans, as the count of Chambord, the last of the senior line, died in 1883.

The Spanish Bourbons are descended from Louis XIV through his grandson Philip, who became king of Spain in 1700. His descendant, Charles IV, was driven from his throne by Napoleon, but, as in France, the Bourbons were restored in 1814. Ferdinand VII, dying in 1833, left only an infant daughter, Isabella, whose claim was contested by her uncle Carlos. In the civil war, Isabella was victorious, and from her the present king is descended.

BOURBON, CHARLES, DUKE OF (1490-1527). French soldier, frequently called the Constable of Bourbon. Born Feb. 17, 1490, a son of the count of Montpensier, he obtained the title of duke through marriage. He began his notable military career in Italy, and was made constable of France by Francis I in 1515. Later he deserted his country and entered the service of the emperor Charles V, and in 1524 took command of the emperor's armies in Italy. He fought at Pavia, and then made his memorable attack on Rome, in the course of which he was killed, May 6, 1527.

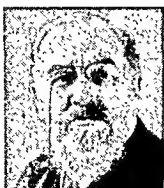
BOURCHIER, ARTHUR (1864-1927). British actor-manager. Born at Speen, Berkshire. June 22, 1864, he was educated at Eton and Christ Church, Oxford, where he helped to found the O.U.D.S., and made his first professional appearance as Jacques in *As You Like It* at Wolverhampton in 1889. He was associated with Charles Wyndham in the management of *The Criterion*, London. In 1900 he became manager of *The Garrick*, London, where *The Walls of Jericho*, by Alfred Sutro, 1904, was one of his most notable productions. He died Sept. 14, 1927. Pron. Bowcher.

BOURGEOIS. Term applied generally to a member of the mercantile or shop-keeping middle class of a community or country, sometimes in a disparaging sense. From its usual reluctance to cooperate in any violent disturbance of established conditions, it has incurred the resentment of the extremists in most revolutionary movements, and in Russia the bourgeoisie was specially marked down for extermination by the Bolsheviks. In *Molière's* comedy, *Le Bourgeois Gentilhomme*, the central character is an elderly tradesman who, having suddenly become rich, wishes to educate himself in the ways of society.

BOURGEOIS. Medium-sized printing type, between brevier and long primer, known also as 9-point; about 8 lines make an inch. The name, derived probably from that of a typefounder, is so spelt in German; bourgeois, in Dutch; gaillarde, in French; and gagliarda, in Italian. Pron. bourjoice.

This line is set in bourgeois type.

BOURGEOIS, LÉON VICTOR AUGUSTE (1851-1925). French statesman. He entered public service in 1877, and after holding other offices



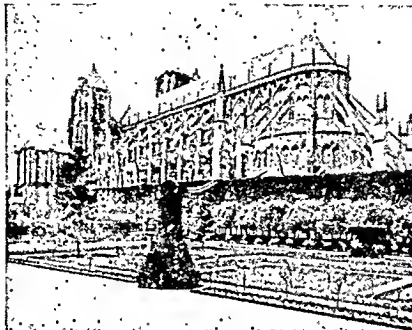
Léon Bourgeois,
French statesman
Manuel, Paris.

was minister of public instruction, 1890-92; of justice, 1892-93; and premier, 1895-96. He was again minister of public instruction in 1898, and in 1899 represented France at the Hague conference. President of the chamber of deputies, 1902-3, he became a senator in 1905, and was minister of foreign affairs, 1906, and minister of labour, 1912-13 and 1917. He was the permanent delegate of France at The Hague from 1907, and was

appointed to represent France on the council of the League of Nations in 1919. He died Sept. 29, 1925.

BOURGEOIS, SIR PETER FRANCIS (1756-1811). English painter. Elected R.A. in 1793, he was appointed landscape painter to George III in 1794. He died Jan. 8, 1811. There are 20 of his pictures in the gallery he founded at Dulwich.

BOURGES. City of France, capital of the dept. of Cher. It stands at the junction of the rivers Yèvre and Auron, 144 m. by rly. S. of Paris. The seat of an archbishopric, its chief building is the magnificent 12th century Gothic cathedral, famed especially for its stained glass and its two towers. Other features of interest are the hôtel de ville.



Bourges. Cathedral of S. Etienne, which took nearly 400 years to build

Courtesy of Office Français du Tourisme

built about 1440, and the old house of Jacques Cœur, now used as law courts. The university, founded in 1465, was abolished at the Revolution. The city is noted for its arsenal and engineering works. The ancient Avaricum, the chief town of the Bituriges, it was taken by Caesar and made a Roman settlement. It was long the capital of the province of Berry. Pop. 45,942.

BOURGET. Lake of France, close to Aix-les-Bains. Its length is 11 m. and its breadth 2 m. The canal de Savières takes its water to the Rhône, 2½ m. away.

BOURGET, LE. Village of France, in the dept. of Seine. It is 6 m. by rly. N.E. of Paris, and during the siege of Paris in 1870 was the scene of French reverses. It has a large aerodrome, being the airport for Paris. Pop. 6,185.



Paul Bourget,
French writer
Henri Manuel

quière, 1874, Mensonges, 1887; *Le Disciple*, 1889; *Outre Mer*, 1895; *Le Danseur Mondain*, 1926. In 1894 he was elected to the Academy.

BOURLON WOOD. Wood of France prominent in the Great War. It lies 3½ m. W. of Cambrai, and the village of the same name, ruined in the fighting, was at its N.W. edge. The wood played a most important part in the great series of battles fought before Cambrai in 1917 and 1918. In the former year Bourlon Wood was captured by the British on Nov. 23 in the first battle of Cambrai (q.v.), but was evacuated on Dec. 4-6. It was finally captured by the British in Sept., 1918, in the second battle of Cambrai, Canadian units and tanks being conspicuous in this operation. To mark the heroism of the Canadian troops it is proposed to erect a memorial here.

BOURNE. Urban district and market town of Lincolnshire. It is 9½ m. by rly. W. of Spalding on the L.N.E. and L.M.S. Rlys. It has a Norman church and traces of a castle. Market day, Thursday. Pop. 4,317.

BOURNE, FRANCIS (h. 1861). English cardinal. He was born at Clapham, March 23, 1861, and was ordained priest in 1884. After serving at Blackheath, Mortlake, and West Grinstead, he founded the Southwark diocesan seminary, and in 1889 became its rector. In 1897 he became bishop of Southwark, and in 1903 succeeded Cardinal Vaughan as archbishop of Westminster. He was created a cardinal in 1911.



Francis Bourne,
English cardinal
Russell

BOURNE, HUGH (1772-1852). Founder of Primitive Methodism in England. Born at Fordhays, Staffordshire, April 3, 1772, he was brought up a Wesleyan, became a local preacher, and in 1807 began holding camp meetings. These were condemned by the Wesleyan Conference, and in 1808 Bourne was expelled from the denomination. He gained many followers, commonly known as ranters, who adopted the style of the Primitive Methodist Connexion in 1812. Bourne made many preaching tours in Great Britain and Ireland, and visited the U.S.A. in 1844-46. He died on Oct. 11, 1852.

BOURNEMOUTH. Borough and watering place of Hampshire. It stands in the pine-clad valley of the Bourne rivulet on Poole Bay, 107 m. S.W. of London by the Southern Rly. Its equable climate, soft air, and picturesque chimes make it a popular health



Bournemouth, a favourite health resort. View of the sea front and pier from the East Cliff

resort and residential district. Bournemouth sprang into popularity about the middle of the 19th century. It has a long stretch of firm, clean sands affording excellent bathing, and two piers. There are numerous gardens and parks. The Winter Gardens are a great attraction, and a fine pavilion was opened in 1929.

The public buildings include fine modern churches, free libraries, and the Russell-Cotes art gallery and museum. There is a broadcasting station (call 6 B M). About 3 m. outside the town is an aerodrome. Bournemouth was incorporated in 1890, and became a county bor. in 1900. Pop. 92,650.

BOURNVILLE. Industrial and residential model village of Worcestershire, included in Greater Birmingham. It was built on garden city lines in 1895 by George Cadbury



Bournville. Part of the model village built by George Cadbury

(q.v.) for his chocolate and cocoa business. In 1901 the property was made over to a trust.

BOURRIENNE, LOUIS ANTOINE FAUVELET DE (1769-1834). French diplomatist. Born at Sens, July 9, 1769, and educated at the military school at Brienne with Napoleon Bonaparte, he is chiefly remembered for his inaccurate *Mémoires sur Napoléon* (1829).

BOURSE. French word meaning purse, but used in a special sense for an exchange, especially a stock exchange. The Bourse par excellence is the Stock Exchange of Paris. The large hall has the parquet, reserved for the agents de change or official members; the coulisse is for unofficial members.

A French labour exchange was known as a *Bourse du Travail*. One was opened in Paris in 1887, and others were set up elsewhere, but they were not very successful. They were carried on by members of the trade unions, without the state or the employers having any voice in the management.

BOUSSA, BUSSA, OR BUSA. Town of Nigeria. On the Niger, at the head of navigation, it occupies a large stretch of land and is encompassed by a wall. Here Mungo Park was drowned in 1806. Pop. about 12,000.

BOUTS, DIERICK (c. 1410-75). Dutch painter. Born at Haarlem, he settled at Louvain, where in 1468 he became official painter to the town council. He executed for the hôtel de ville the two large pictures, later in the Brussels Museum, dealing with the unjust judgement of the emperor Otho and his reparation. He is represented in the Munich Gallery, Louvain, the Louvre, and the National Gallery. He died May 6, 1475.

BOUVET. Uninhabited island in the S. Atlantic. It has been British since its discovery in 1925, but in 1927 was occupied by the Norwegians. The difficulty was composed, and the island leased to a Norwegian company for whaling and the collection of guano.

BOVEY TRACEY. Village of Devonshire. It lies 6 m. S.E. of Moreton Hampstead, on the G.W.R., amid beautiful scenery in a district rich in lignites. The Church of Thomas à Becket was built by Sir William de Tracey as a penance for the murder of the archbishop. There are pottery works. Pop. 2,788.

Bovey Tracey gives its name to a series of beds consisting of sands, clays, and lignites. They are over 600 ft. in thickness and 9 m. in extent, and occupy an old lake basin in the Teign valley. The deposits are valuable on account of the lignites and certain pottery clays they contain.

BOW (A.S. hūgan, to hend). Weapon for propelling arrows. Made of a flexible piece of wood and a length of cord, bows have been used from the earliest ages in all parts of the world. The long bow is made of bamboo, yew, etc. Strings for bows are made of hemp and other fibres, of twisted cane, raw hide, silk and various other materials. In modern British archery the bow-string consists of three strands of hemp compacted with glue. Bow-string hemp is obtained from the leaves of plants of the *Sansevieria* family. It is also used for making ropes for deep-sea sounding.

Another kind of bow is the stick strung with horseshair used for producing sound and tone from stringed instruments. Its name and earlier forms were derived from the weapon. See Archery; Crossbow; also illus. pp. 112, 115

BOW OR STRATFORD-LE-BOW. Eastern suburb of London, within the met. bor. of Poplar, 3 m. E. of S. Paul's. Named from the bow or arched bridge over the Lea, which replaced the ford in the reign of Henry II, it had a Norman-French school, referred to by Chaucer in "French she spake . . . after the scol of Stratford-atte-Bowe."

BOW WARE. This is a very heavy ware having a hard, compact body. The pieces made included table services, large howls, snuff

boxes, figures and groups characterised by holes at the back for candlestick branches. These were decorated with crimson, pale blue and yellow underglaze, and other colours with gold overglaze. Biscuit-ware baskets were made.

BOW. River of Canada. It rises in the Rocky Mountains and unites some miles W. of Medicine Hat with the Belly River, the two forming the South Saskatchewan. Its total length is 315 m.

BOW CHURCH. London church, in full S. Mary-le-Bow, or S. Maria de Arcubus. Built in 1671-87, it is on the S. side of Cheapside, and possesses one of Wren's finest steeples, in height about 220 ft. The church chimes were rearranged in 1904, when Sir Charles Stanford revived the old tune. Turn again, Whittington. Anyone born within the sound of Bow bells is defined as a Cockney.

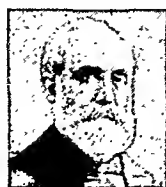


Bow Church, London famed for its chime

BOWDLER, THOMAS (1754-1825). Editor of *The Family Shakespeare*. Born at Ashley, near Bath, July 11, 1754, he graduated in medicine in 1776. In 1818 he published *The Family Shakespeare* (10 vols.), in which "nothing is added to the original text; but those words and expressions are omitted which cannot with propriety be read aloud in a family." In 1826 appeared posthumously his similarly expurgated edition of *Gibbon's Decline and Fall of the Roman Empire*. The success of the censored Shakespeare brought into use the verb "to howlerise," first employed in 1836. Bowdler died at Rhyddings, near Swansea, Feb. 24, 1825.

BOWEL (late Lat. botellus, little sausage). Intestine of the body. It consists of the small intestine, about 23 ft. long, divided into the duodenum, jejunum, and ileum; and the large intestine, 5 ft. or 6 ft. in length, which is divided into the caecum, colon, and rectum.

BOWELL, SIR MACKENZIE (1823-1917). Canadian politician. Born at Rickingham, Suffolk, Dec. 27, 1823, he emigrated in 1833 to Canada, where he became a printer and later a journalist. In 1867 he was elected to the first Dominion Parliament, and was minister of customs in Macdonald's Cabinet, 1878-91. In 1892, after becoming a senator, he succeeded Thompson as premier. He resigned in the next year, and was knighted. From 1896-1906 he was leader of the conservative opposition, and he remained a member of the Canadian Senate until his death, which took place, Dec. 11, 1917.



Sir M. Bowell, Canadian politician

harbour. It has one of the finest anchorages on the East Coast. Pop. about 2,000.

BOWEN, CHARLES SYNGE CHRISTOPHER BOWEN, BARON (1835-94). British judge. Born at Woolaston, near Chepstow, Mon. Jan. 1, 1835, a grandson of Richard Steele, he was called to the bar at Lincoln's Inn, in 1861. In 1872 he was made junior counsel to the treasury. He became a queen's bench judge in 1879, a lord justice of appeal, 1882, and a lord of appeal, 1893. He died April 10, 1894.



Bow Ware. A painted plate of this distinctive London pottery

BOWER BIRD. Name given to several species of Australian birds. They derive their name from their habit of constructing

howers, or covered runs, apparently for arranged to form a kind of tunnel among the bushes, and adorned with small pebbles, shells, bones, etc.

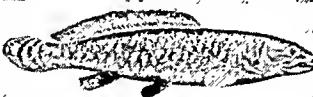
BOWES. Village of Yorkshire (N.R.), 4 m. S.W. of Barnard Castle, where it is understood the boarding school for boys was carried on which figures as *Dotbeboys Hall* in Nicholas Nickleby. A natural bridge of limestone, which is known as God's Bridge, crosses the Greta. Pop. 655.



Bower Bird. One species of this Australian bird

Bow Fell. Mountain of Westmorland. It is in the Lake District, 8 m. W. of Ambleside, and is 2,960 ft. high.

BOWFIN (*Amia calva*). Mud fish found in the lakes of N. America. It frequently comes to the surface to inhale air into its swim-bladder, and will live for an hour out of water without ill effects. It constructs a nest among the weeds for its eggs, which are guarded by the male until hatched.



Bowfin. A North American mud fish found in the lakes

BOWIE KNIFE. General term in the U.S.A. for a large heavy sheath-knife. It is so called from the American pioneer James Bowie (d. 1836), who in a fight near Natchez, in 1827, killed Major Norris Wright with a hunting knife made from a blacksmith's rasp or file.

BOW LEG (*Genu varum*). Condition in which the legs are curved outwards, usually resulting from rickets. In young children the condition can be cured or much improved by wearing splints for some months and massaging. See Leg.

BOWLS (Lat. bulla, bubble, anything round). British pastime. It was practised in the 13th century and was very popular in Elizabethan days. To-day the English Bowling Association has an individual membership of 100,000, and nearly 900 clubs are affiliated to it.

The game is played upon either a level green, a space 42 yds. square, divided into six rinks



Bowie knife and its sheath

In 1814 the Bourbons were restored, but their rule ended in 1848, with the revolution that overthrew Louis Philippe. At the present time the French Bourbons are only represented by the Orleans branch, descendants of Philip I, duke of Orleans, as the count of Chambord, the last of the senior line, died in 1883.

The Spanish Bourbons are descended from Louis XIV through his grandson Philip, who became king of Spain in 1700. His descendant, Charles IV, was driven from his throne by Napoleon, but, as in France, the Bourbons were restored in 1814. Ferdinand VII, dying in 1833, left only an infant daughter, Isabella, whose claim was contested by her uncle Carlos. In the civil war, Isabella was victorious, and from her the present king is descended.

BOURBON, CHARLES, DUKE OF (1490-1527). French soldier, frequently called the Constable de Bourbon. Born Feb. 17, 1490, a son of the count of Montpensier, he obtained the title of duke through marriage. He began his notable military career in Italy, and was made constable of France by Francis I in 1515. Later he deserted his country and entered the service of the emperor Charles V, and in 1524 took command of the emperor's armies in Italy. He fought at Pavia, and then made his memorable attack on Rome, in the course of which he was killed, May 6, 1527.

BOURCHIER, ARTHUR (1864-1927). British actor-manager. Born at Speen, Berkshire, June 22, 1864, he was educated at Eton and Christ Church, Oxford, where he helped to found the O.U.D.S., and made his first professional appearance as Jacques in *As You Like It* at Wolverhampton in 1889. He was associated with Charles Wyndham in the management of *The Criterion*, London. In 1900 he became manager of *The Garrick*, London, where *The Walls of Jericho*, by Alfred Sutro, 1904, was one of his most notable productions. He died Sept. 14, 1927. Pron. Bowcher.

BOURGEOIS. Term applied generally to a member of the mercantile or shop-keeping middle class of a community or country, sometimes in a disparaging sense. From its usual reluctance to cooperate in any violent disturbance of established conditions, it has incurred the resentment of the extremists in most revolutionary movements, and in Russia the bourgeoisie was specially marked down for extermination by the Bolsheviks. In Molière's comedy, *Le Bourgeois Gentilhomme*, the central character is an elderly tradesman who, having suddenly become rich, wishes to educate himself in the ways of society.

BOURGEOIS. Medium-sized printing type, between brevier and long primer, known also as 9-point; about 8 lines make an inch. The name, derived probably from that of a typefounder, is so spelt in German; *hurgeois*, in Dutch; *gaillarde*, in French; and *gagliarda*, in Italian. Pron. burjoice.

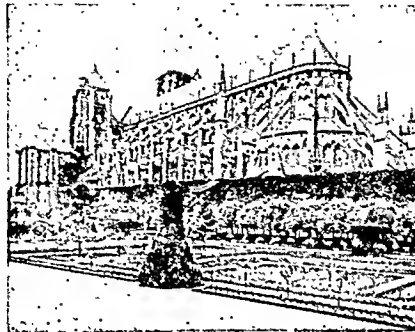
This line is set in bourgeois type.

BOURGEOIS, LÉON VICTOR AVOUSTE (1851-1925). French statesman. He entered public service in 1877, and after holding other offices was minister of public instruction, 1890-92; of justice, 1892-93; and premier, 1895-96. He was again minister of public instruction in 1898, and in 1899 represented France at the Hague conference. President of the chamber of deputies, 1902-3, he became a senator in 1905, and was minister of foreign affairs, 1906, and minister of labour, 1912-13 and 1917. He was the permanent delegate of France at The Hague from 1907, and was

appointed to represent France on the council of the League of Nations in 1919. He died Sept. 29, 1925.

BOURGEOIS, SIR PETER FRANCIS (1766-1811). English painter. Elected R.A. in 1793, he was appointed landscape painter to George III in 1794. He died Jan. 8, 1811. There are 20 of his pictures in the gallery he founded at Dulwich.

BOURGES. City of France, capital of the dept. of Cher. It stands at the junction of the rivers Yèvre and Auron, 144 m. by rly. S. of Paris. The seat of an archbishopric, its chief building is the magnificent 12th century Gothic cathedral, famed especially for its stained glass and its two towers. Other features of interest are the hôtel de ville.



Bourges. Cathedral of S. Etienne, which took nearly 400 years to build
Courtesy of Office Français du Tourisme

built about 1440, and the old house of Jacques Cœur, now used as law courts. The university, founded in 1465, was abolished at the Revolution. The city is noted for its arsenal and engineering works. The ancient Avaricum, the chief town of the Bituriges, it was taken by Caesar and made a Roman settlement. It was long the capital of the province of Berry. Pop. 45,942.

BOURGET. Lake of France, close to Aix-les-Bains. Its length is 11 m. and its breadth 2 m. The canal de Savières takes its water to the Rhône, 2½ m. away.

BOURGET, LÉ. Village of France, in the dept. of Seine. It is 6 m. by rly. N.E. of Paris, and during the siege of Paris in 1870 was the scene of French reverses. It has a large aerodrome, being the airport for Paris. Pop. 6,185.



Paul Bourget.
French writer
Henri Manuel

BOURGET, PAUL CHARLES JOSEPH (h. 1852). French writer. Born at Amiens, Sept. 2, 1852, his father was Russian and his mother English. He wrote many novels and volumes of essays, the best known being *La Vie Inquiete*, 1874, *Mensonges*, 1887; *Le Disciple*, 1889; *Outre Mer*, 1895; *Le Danseur Mondain*, 1926. In 1894 he was elected to the Academy.

BOURLON WOOD. Wood of France prominent in the Great War. It lies 3½ m. W. of Cambrai, and the village of the same name, ruined in the fighting, was at its N.W. edge. The wood played a most important part in the great series of battles fought before Cambrai in 1917 and 1918. In the former year Bourlon Wood was captured by the British on Nov. 23 in the first battle of Cambrai (q.v.), but was evacuated on Dec. 4-6. It was finally captured by the British in Sept., 1918, in the second battle of Cambrai, Canadian units and tanks being conspicuous in this operation. To mark the heroism of the Canadian troops it is proposed to erect a memorial here.

BOURNE. Urban district and market town of Lincolnshire. It is 9½ m. by rly. W. of Spalding on the L.N.E. and L.M.S. Rlys. It has a Norman church and traces of a castle. Market day, Thursday. Pop. 4,317.

BOURNE, FRANÇOIS (h. 1861). English cardinal. He was born at Clapham, March 23, 1861, and was ordained priest in 1884. After serving at Blackheath, Mortlake, and West Grinstead, he founded the Southwark diocesan seminary, and in 1889 became its rector. In 1897 he became bishop of Southwark, and in 1903 succeeded Cardinal Vaughan as archbishop of Westminster. He was created a cardinal in 1911.



Francis Bourne,
English cardinal
Russell

BOURNE, HUGH (1772-1852). Founder of Primitive Methodism in England. Born at Fordhays, Staffordshire, April 3, 1772, he was brought up a Wesleyan, became a local preacher, and in 1807 began holding camp meetings. These were condemned by the Wesleyan Conference, and in 1808 Bourne was expelled from the denomination. He gained many followers, commonly known as ranters, who adopted the style of the Primitive Methodist Connexion in 1812. Bourne made many preaching tours in Great Britain and Ireland, and visited the U.S.A. in 1844-46. He died on Oct. 11, 1852.

BOURNEMOUTH. Borough and watering place of Hampshire. It stands in the pine-clad valley of the Bourne rivulet on Poole Bay, 107 m. S.W. of London by the Southern Rly. Its equable climate, soft air, and picturesque chines make it a popular health



Bournemouth, a favourite health resort. View of the sea front and pier from the East Cliff

resort and residential district Bournemouth sprang into popularity about the middle of the 19th century. It has a long stretch of firm, clean sands affording excellent bathing, and two piers. There are numerous gardens and parks. The Winter Gardens are a great attraction, and a fine pavilion was opened in 1929.

The public buildings include fine modern churches, free libraries, and the Russell-Cotes art gallery and museum. There is a broadcasting station (call 6 B M). About 3 m. outside the town is an aerodrome. Bournemouth was incorporated in 1890, and became a county bor. in 1900. Pop. 92,650.

BOURNVILLE. Industrial and residential model village of Worcestershire, included in Greater Birmingham.



Bournville. Part of the model village built by George Cadbury

It was built on garden city lines in 1895 by George Cadbury (q.v.) for his chocolate and cocoa business. In 1901 the property was made over to a trust.

1864. He was vicar of S. James's, Holloway, 1870-79, of Christ Church, Lancaster Gate, 1879-84, and was made canon of Windsor in 1882. In 1884 he was



Wm. Boyd-Carpenter,
British divine
Russell

selected as bishop of Ripon, and remained there until 1911, when he exchanged the bishopric for a canonry at Westminster, which post he retained until his death, Oct. 26, 1918. Boyd-Carpenter was one of the most eloquent preachers of his day and also took an interest in social questions. He was created K.C.V.O. in 1912.

BOYLE. Market town of co. Roscommon, Irish Free State. On the river Boyle, it is 9 m. N.W. of Carrick-on-Shannon, by the Gt. Southern Rlys. It has ruins of a 12th century Cistercian abbey, and trades in flax, butter, and provisions. Market days, Wed. and Sat. Pop. 2,323.

BOYLE, ROBERT (1627-91). Irish natural philosopher and chemist. Born at Lismore, Munster, Jan. 25, 1627, the 14th child of Richard Boyle, first earl of Cork, his bent for chemistry and natural science made him a leader in the foundation of the Royal Society. From 1654-68 he resided at Oxford, and, after a long series of experiments, discovered in 1662 the law known by his name.



Robert Boyle, Irish natural
philosopher and chemist
Engraved by W. Holf

During his residence in Oxford Boyle lent his influence to procuring the Charter of the East India Company, with the idea of furthering the propagation of Christianity in the Far East. He bore the expense of translating the Bible for Indian, Irish, Welsh, Turkish and Malay readers. By bequest he founded the Boyle Lectures, a course delivered every year at S. Mary-le-Bow Church, London, and consisting of eight sermons to prove the truth of Christianity. He died Dec. 30, 1691, and his complete Works were published in 1744.

Boyle's Law—that the volume of a given mass of gas at a fixed temperature multiplied by the pressure is always a constant quantity—is the result of his study of the elasticity of gases. It has been found that gases deviate from the law slightly but consistently at high pressures and at low pressures.

BOYNE. River of the Irish Free State. Rising in the Bog of Allen near Carbery, in co. Kildare, it flows to the Irish Sea, 4 m. below Drogheda, to which town it is navigable. Its length is about 80 m., and on its banks are Trim and Navan. Its chief tributary is the Blackwater.

The battle of the Boyne was fought between William III of England and the exiled James II, July 1 (July 11, new style), 1690. The Orangemen keep July 12 as the anniversary. It resulted in the defeat of James and of his hopes of restoration. The losses were about 500 English and about 1,500 on the other side. An obelisk was erected to mark the site of the battle.

BOYS' BRIGADE, THE. Organization for the training and welfare of boys. It was founded in Glasgow, Oct. 4, 1883, by William (later Sir William) Smith. The brigade has

a distinct religious basis, and provides a sound disciplinary and moral training and elementary drill. Companies are formed in connexion with churches and other organizations.

In 1926 the union of the Boys' Brigade and the Boys' Life Brigade was effected. The latter organization, founded in 1899, promoted discipline and taught military drill (excluding rifle and bayonet practice), and gave special prominence to life-saving. The total strength is 100,000 officers and boys. The headquarters are at Abbey House, Westminster, S.W.1.

BOY SCOUTS. Organization for the development of good citizenship among boys. It exists to train the young in habits of observation, obedience, and self-reliance. It inculcates loyalty and thoughtfulness for others, and teaches boys to be useful to the public and to themselves.

The movement was initiated in Great Britain by Lord Baden-Powell in 1908, and is known as the Boy Scouts Association. It only admits to membership bodies which accept as a basis the threefold promise of the scout, the system of instruction contained in Scouting for Boys by Lord Baden-Powell (q.v.), the chief scout, and regulations from headquarters.

Scouts are graded according to age, into three classes—Wolf Cubs: eight to eleven; Scouts: eleven and upwards; Rover Scouts: over fifteen and a half. In addition there are Sea Scouts for activities connected with sailing. Badges are given for proficiency. Among the multifarious activities of the scout movement are the rally, camping, and woodcraft. The total world membership is about 2,000,000, of whom nearly 600,000 are British scouts.

In 1929 a great Jamboree was held at Birkenhead attended by scouts from 42 countries. The headquarters are at 25, Buckingham Palace Road, London, S.W.1.

BOZ. Name under which Charles Dickens first came to be known as a writer. His Sketches by Boz were published in volume form in 1836, and the Pickwick Papers were at first issued under the same pen-name in the following year. It was a nickname that had been applied to Dickens's youngest brother.

BOZRAH. Name of two towns of ancient Palestine. (1) Bozrah of Edom was the capital of the kingdom of the Nahateans, about 300 B.C. It lay 30 m. S. of the Dead Sea. It has been identified with El Buseira in Transjordan. (2) Bozrah of Moab was situated in the Mishor, or plains of Moab, 75 m. S. of Damascus. The Bostra of Roman times, it was conquered by Trajan, A.D. 105. It has been identified with Busra in Syria.

BRABANT. Name of a medieval duchy, formerly part of Lorraine. Henry, duke of Lower Lorraine, about 1190 called himself duke of Brabant. Later it passed to Burgundy and came with the lands of Mary, the heiress of Charles the Bold, to the Hapsburgs and thus passed with Spain to Philip II. The revolt of the Netherlands against Spain divided Brabant into two parts. The northern portion (now the province of Holland called North Brabant) was conquered by the Dutch and was included in the United Provinces in 1648. The southern part (now the Belgian province of Brabant) remained under Spanish

rule until 1713, when it passed to Austria. In 1815 Brabant was included in the new kingdom of the Netherlands, but the southerners soon revolted against Dutch rule. The outcome was the foundation in 1830 of the kingdom of Belgium.

The eldest son of the king of the Belgians is called the duke of Brabant. In 1926 Leopold, duke of Brabant, the oldest son of King Albert, married Princess Astrid of Sweden. A daughter was born to them in 1927.

The national anthem of Belgium is called La Brabançonne. It celebrates the establishment of Belgian independence after the revolution of 1830. The words are by Jenneval, and the music by F. Campenhout. See Belgium; Netherlands.

BRACE, WILLIAM (b. 1865). British politician. Born Sept. 23, 1865, he became a miner. Chosen agent for one of the miners' unions, he was elected president of the miners' federation of S. Wales. In 1906 Brace was returned as labour M.P. for S. Glamorganshire, and from 1915-18 was under-secretary for home affairs in the coalition government. In 1920 he was appointed chief labour adviser to the Department of Mines.



William Brace,
British politician

BRACEBROUGH SPA. Inland watering place near Stamford, Lincs. The value of its waters was discovered in 1800, and in 1920 it was reopened. The waters are good for disorders of the blood, skin, etc.

BRACEGIRDLE, ANNE (c. 1663-1748). English actress. In 1688 she took the part of Lucia in Shadwell's The Squire



Anne Bracegirdle in Howard and
Dryden's tragedy, The Indian Queen
From an old print

of Alsatia, and in 1693 that of Araminta in Congreve's The Old Bachelor. When Betterton opened the theatre in Lincoln's Inn Fields in 1695 with Congreve's Love for Love, Mrs. Bracegirdle played Angelica, one of her best parts. Congreve and Rowe wrote plays for her, and she also played Shakespearian roles.

BRACHYCEPHALIC (Gr. brachys, short; kephale, head). Term usually denoting human heads and skulls whose breadth is at least four-fifths of their length. The round-(short-, broad-) headed form is found among peoples of Alpine type from the Pyrenees across Europe into Mongol Asia, thence through Burma and the Indo-Chinese peninsula into Java. In America it appears in the N. Pacific region, along the central and Andean tablelands, and in Patagonia.

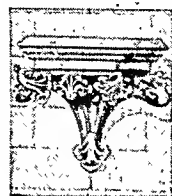
BRACKEN OR BRAKE (*Pteris aquilina*). Fern of world-wide distribution. It grows in masses upon great stretches of heath, moor-



Bracken. Under-
surface of frond

land, and forest. There is no crown of fronds, the creeping underground root-stock giving off fronds singly at intervals. The fronds are triangular in outline, leathery, and much divided. The edible fern of Tasmania, whose root-stock is eaten by the natives, is a variety.

BRACKET (Fr. *hraguette*). (1) Projecting piece of stone, wood, or metal with a horizontal supporting surface usually sprung from a vertical surface.



Bracket, in architecture

(2) Metal pipe, usually ornamented, projecting from the wall of a room or apartment and carrying gas or electric light fittings.

(3) Signs [. . .] for enclosing words, sentences, or mathematical symbols, indicating that the enclosed matter is separated from its context.

BRACKLESHAM. In geology middle Eocene beds of the Hampshire basin. They are named from Bracklesham Bay, in Sussex, where they are well exposed and yield numbers of marine fossils, and are also well developed in the Isle of Wight. They consist of blue, grey, and green clays with interbedded sands.

BRAC (Lat. *bractea*, thin metal plate). Small leaf-like organ produced on the flower stalks of plants, often just below the calyx, or below the point where the flower-stem branches. It is a modified leaf.

BRAXTON OR **BRATTON**, HENRY DE (d. 1268). English judge. Born at Bratton, Devonshire, he became the friend of Henry III and an itinerant judge. He held various ecclesiastical appointments and was chancellor of Exeter cathedral (1264). His great work was a treatise on the laws and customs of England, printed first in 1569, and edited by Sir Travers Twiss, in the *Rolls series*, 1878-83.



Bract of lime fruit

BRADBURY, JOHN SWANWICK BRADBURY, 1ST BARON (b. 1872). British civil servant. Born Sept. 23, 1872, in 1896 he entered the Colonial Office. Transferred to the Treasury, he rose to be a principal clerk there. In 1911 he was made a member of the National Health Insurance Commission, and in 1913 he became joint permanent secretary to the Treasury. He was there until 1919 and his name appeared on the notes issued by the Treasury. Knighted in 1917, he was chief British representative on the reparations commission, 1919-1924, and was created a peer in 1925.

BRADDOCK, EDWARD (1695-1755). British soldier. He commanded a battalion of Coldstreamers in Holland under the prince of Orange, 1746-48, became a major-general in 1754, and was sent to America to take command against the French. He decided to invest Fort Duquesne (now Pittsburg), but being totally unused to backwoods warfare was ambushed near his objective. Mortally wounded in the battle, Braddock died July 13, 1755.

BRADDON, MARY ELIZABETH (1837-1915). British novelist. Her first great success was *Lady Audley's Secret*, 1862. This was followed by a long series of novels in which she showed herself an adept in handling sensational plots. They included *Anrora Floyd* 1862, *The Doctor's Wife*, 1864, *The Trail of*

the *Serpent*, 1866, *Dead Sea Fruit*, 1868, and *The Green Curtain*, 1911. Miss Braddon, who died Feb. 4, 1915, was the wife of John Maxwell, publisher, and mother of W. B. Maxwell, the novelist.

BRADFIELD COLLEGE. English public school, 8 m. from Reading. S. Andrew's College, Bradfield, was founded in 1850 on Church of England lines. It has about 300 boys, and scholarships both to the school and the universities, and it is famous for its performance of Greek plays, first given in 1890 by the boys in an open-air theatre constructed on the Greek model. Another Bradfield is a village near Sheffield.

BRADFORD. City and county borough of Yorkshire (W.R.). It is in a picturesque hilly district on the Aire, 9 m. W. of Leeds, and 191 m. N.N.W. of London, and is served by the L.M.S. and L.N.E. Rlys. Famous for the spinning and weaving of worsted, Bradford has long been the chief centre in England of this industry. An important allied industry is dyeing and finishing. There are several large engineering works and foundries and also stone quarries.

Foremost among public buildings is the French-Gothic town hall, erected in 1873 and since enlarged. The Exchange, opened in 1867, contains a statue of Coghden, and the Cartwright Memorial Hall, erected in 1904 in honour of the power loom, houses the art gallery and museum. Bradford became a bishopric in 1919. The parish church of S. Peter, which became the cathedral church, is a Perpendicular building erected about 1458. Among educational institutions are the grammar school, founded in the 16th century, and lodged in a new building in 1873; the technical college, opened in 1882, and acquired by the corporation seven years later; and the mechanics' institute, established in 1832. There are many parks and open spaces. Market days, Mon. and Thurs. Pop. 293,200.

Bradford was incorporated in 1847, became a co. bor. in 1888, and a city in 1897. First represented in Parliament in 1832, it returned two members down to 1885, when the number was increased to three, and in 1918 to four. In 1907 the chief magistrate received the title of lord mayor. After the great war Bradford adopted Bailleul and Nieppe.

BRADFORD, WILLIAM (1589-1657). Pilgrim Father. He was born at Austerfield, Yorkshire, and became associated in his youth with the puritan separatists at Scrooby, Nottinghamshire. He left England and lived for some years as a silk weaver at Amsterdam.

In 1620 he sailed in *The Mayflower* for New England, and the following year was made governor of Plymouth. He died May 9, 1657.

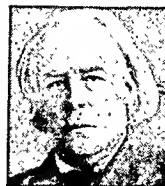
BRADFORD-ON-AVON. Urban district and market town of Wiltshire. It is 9 m. by rly. S.E. of Bath, on the G.W.R., and stands on both banks of the Avon, and on the Kennet and Avon canal. S. Lawrence, a Saxon church, is one of the oldest in England. Ma ket day, Tues. Pop. 4,621.

A bed of grey marly clay forming a local division of the Great Oolite group is known

as the Bradford Clay. It is developed especially around Bradford-on-Avon.

BRADING. Village of the Isle of Wight. It is 4 m. S. of Ryde, on the Southern Rly. It retains its stocks and bull ring, and has remains of a Roman villa. Pop. 1,696.

BRADLAUGH, CHARLES (1833-91). British freethinker. Born at Hoxton, London, Sept. 26, 1833, he obtained work in a lawyer's office, and engaged in free-thought and radical propaganda under the name of Iconoclast. He founded *The National Reformer*, and was successful in much of the litigation entailed by his publications, notably in 1877-78, when he and Mrs. Annie Besant were prosecuted and acquitted for publishing a Malthusian pamphlet. In 1880 he was elected M.P. for Northampton. He refused to take the oath, and more than once he was expelled. Each time, however, his constituents re-elected him. In 1886 he took his seat, on affirmation, without opposition. He died Jan. 30, 1891.



Charles Bradlaugh, British freethinker
Elliott & Fry

BRADLEY, JAMES (1693-1762). British astronomer. He was born in March, 1693, at Sherborne, Gloucestershire, and was ordained. Under the influence of his friend Halley, and Sir Isaac Newton, in 1721 he forsook the pulpit, became Savilian professor of astronomy at Oxford, and lecturer on astronomy and physics. Bradley's chief claims to fame are his discovery of the aberration of light and of the fixed stars, and his further discovery that the inclination of the earth's axis to the ecliptic is not constant. He succeeded Halley in 1742 as astronomer royal. He died July 13, 1762.

BRADSHAW, GEORGE (1801-53). Publisher of railway guides. Born at Salford, July 29, 1801, he served his apprenticeship as an engraver and printer, and in 1839 he issued Bradshaw's Railway Time Table as a small book, and in Dec., 1841, he first published the time-tables monthly under the title of Bradshaw's Monthly Railway Guide. He died Sept. 6, 1853.

BRADSHAW, JOHN (1602-59). English regicide. He was appointed chief justice of Chester in 1647. In 1649 he was chosen president of the commission set up by the Commons for the trial of Charles I, upon whom he pronounced sentence. He was president of the council of state 1649-52, and died Oct. 31, 1659.

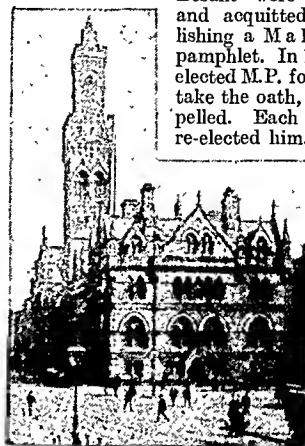
BRAEMAR. District and village of S.W. Aberdeenshire. Surrounded by the Cairn-

gorm Mts. and watered by the Dee, it has typical Highland scenery and deer-forests, and is a great tourist resort. Near

are Balmoral, Abergeldie, and Braemar castles, and Mar Lodge. Castleton of Braemar, the village, 18 m. S.W. of Ballater station, has a meteorological station. A Highland gathering is held each year. Pop. 1,029.



Braemar Castle, situated amidst some of the finest Highland scenery
Valentine



Bradford, Yorkshire. The Town Hall; the campanile contains a fine carillon



M. E. Braddon, British novelist



Edward Braddock, British soldier

BRAGANZA OR BRAGANÇA. Name of the ruling family of Portugal 1640-1853 and of Brazil 1822-89. The house is descended from Alphonso, a natural son of King John I, who was made dnke of Braganza in 1442. In 1640, when the Portuguese expelled the Spaniards, a duke of Braganza became king as John IV. Members of the family remained on the throne, except when Napolcon controlled the country, until 1834, when Miguel was driven out. In 1853 the throne passed by marriage to the family of Saxc-Cohurg, a line now represented by the exiled king Manoel.

In Brazil there were two emperors of the Braganzas, Peter I and Peter II, the latter being expelled in 1889. The present head of the family is Dom Mignel, son of Miguel I, who was deposed in 1834 and died 1866.

The cradle of the dynasty was the city of Bragança. 8 m. from the Spanish border. Pop. 5,750. Another Bragança is a seaport of Brazil, near the mouth of the navigable river Caité. Pop. 10,000.

BRAGG, SIR WILLIAM HENRY (h. 1862). British scientist. Born July 2, 1862, of a Cumberland family, he was professor at Adelaide, 1886-1903, and Cavendish professor at Leeds, 1909-15. His chief work was concerned with X-rays and crystals and radio-activity. In 1915 he was appointed professor of physics at London University. In 1920 he was knighted. From 1923 Bragg was director of the Royal Institution, Fullerian professor of chemistry there, and director of the Davy-Faraday Research laboratory. He was assisted in his work by his son, William Lawrence Bragg (b. 1890), Langworthy professor of physics at Manchester University.



Sir William H. Bragg, British scientist

BRAGGADOCCHIO. Name of a hoastful hut really cowardly knight in Spenser's Faerie Queene. Now spelt braggadocio, it is applied to either an ineffective booster or any boasting intended to conceal innate cowardice.

BRAGI. In Norse mythology, one of the principal Aesir (q.v.), the god of poetry, husband of Idun. When Aegir (q.v.) visits the hall of Odin he sits next to Bragi, who answers all his questions with stories of the gods and the sources of wisdom and poetry.



Brahma. Figure of the four-headed god and his consort Saraswati, goddess of wisdom

BRAHE, TYCHO OR TYGE (1546-1601). Danish astronomer. Born Dec. 14, 1546, at Knudstrup, in Sweden, he studied rhetoric and philosophy at Copenhagen University, but an eclipse of the sun in 1560 directed his attention to the study of Ptolemy's works. Brahe discovered that the positions of the planets did not coincide with those assigned them by accepted astronomical calculations, and with such primitive instruments as he could command he carried out a series of measurements. In 1572 he discovered a new star in Cassiopeia. He published the first of his great astronomical works, De Nova Stella, in 1573.



Tycho Brahe, Danish astronomer From an old print

In 1576 the king of Denmark, Frederick II, conferred on him Hven Island, in the Sound near Elsinore. Here was built Uraniborg, or

Castle of the Heavens, which became a nursery of astronomy for the whole of Europe. Brahe died at Prague, Oct. 24, 1601. Consult Tycho Brahe, J. L. E. Dreyer, 1890.

BRAHMA (shortened form of Brahmaputra). Breed of domestic fowl. Said to he descended from two Asiatic strains originally crossed in the U.S.A., it once enjoyed a great vogue in the United Kingdom, being regarded as a good all-round fowl. But owing to a craze on the part of fanciers for markings and feathers, the ntilitarian qualities of the breed were gradually hred out, and it degenerated into a mere prodigy of feathers and fluff.



Brahma fowl, with bronze body and cream-coloured neck

BRAHMANISM. Hindu religion. The word Brahmanism is used to denote the modified form of Vedism which took the place of the older religion soon after 1000 B.C. Its introduction was due to the increasing number and the growing influence of the Brahmins, members of a priestly caste attached to the Vedic monarchs. It is less ethical hut more ceremonial than Vedism.

The literature of Brahmanism belongs to two classes, the inspired and the uninspired. The inspired embraces the Mantras or Vedic hymns, and the Brahmanas. These latter are prose or liturgical treatises intended primarily as manuals for the Brahmins; they furnish detailed instructions as to sacrifice and other priestly functions. The gods of the Brahmanas are identical for the most part with those of the early Vedas, but many others have been added. They are regarded as controlled by the sacrifices offered or hy the hymns chanted by the Brahmins.

The institution of caste originated in Brahmanism. To-day only a small percentage follow occupations connected with religion, the remainder consisting of lawyers, doctors, Government officials, clerks, policemen, artisans and servants. Some of the old food tahoes and other caste rules are now becoming disused. See Hinduism; India; Vedas.

Brahma Samaj (church of one God) is the title of a theistic society in India. It was started in 1830 in Calcutta by a Brahman, the Rajah Ram Mohan Roy (1774-1835), to purify Hinduism and establish monotheism. Under a later leader, Keshuh Chunder Sen (1838-84), the movement developed its creed and activities, condemning tho system of caste and advocating the universal brotherhood of man. Its headquarters are in Calcutta.

The Brahman ox is another name for the zebu (q.v.).

BRAHMAPUTRA (son of Brahma). One of the three great Indian rivers, the others being the Ganges and the Indus. Its length is about 1,800 m. and its drainage area about 361,200 sq. m. It traverses the Assam valley for 450 m., and then enters Rangpur district, continuing, as the Jamuna, a southerly course for about 150 m.

until it reaches the main stream of the Ganges, the Padma, at Goálanda. Here the combined delta of the two rivers begins, the main body of the Brahmaputra waters finally reaching the Bay of Bengal hy the Meghná estuary.

BRAHMS, JOHANNES (1833-97). German musician. He was horn at Hamburg, May 7, 1833, and during his student period composed his three piano Sonatas and the Scherzo in E flat minor. From 1854-59 he was musician to the prince of Lippe-Detmold. In 1862 he became conductor of the Singakademie at Vienna. He died April 3, 1897.



Johannes Brahms, German musician

Among the most important of Brahms' compositions are the German Requiem, 1867, the Triumphlied and the beautiful Schicksalslied, produced 1871, all for choir and orchestra.

BRAID, JAMES (h. 1870). Scottish golfer. He won the open championship in 1901, 1905, 1906, 1908, and 1910; played for Scotland against England in 1903-7, 1909, 1910 and 1912, and won the French championship in 1910. He wrote several hooks on golf.

BRAILA. River port of Rumania. On the Danube, about 100 m. N.E. of Bukarest, it is connected by a branch line with the main rly. systems. An important commercial town, it trades largely in grain. In 1921 Poland was given permission to use the port. It belonged to Turkey from the 16th century until 1828, when it passed to Rumania. Pop. 65,911.

BRAILLE SYSTEM. Writing and reading for the blind, so named from its inventor, Louis Braille (1809-52). The system consists

A	B	C	D	E	F	G	H	I	J
⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠
know	like	more	not	people	quite	rather	so	that	
U	V	X	Y	Z	and	for	of	the	with
⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠

Braille. System of embossed reading and writing. The alphabet and some contractions are shown

of utilising raised dots or points on tough paper; the whole alphabet, numerals, punctuation marks, and various contractions being obtained from the variations of six dots

The writing of the system is rendered very simple by means of two metal bars, between which the paper lies, and a stylus. The bars are provided with cells into which the paper can be pressed by the stylus to make the requisite number and arrangement of dots. A typewriter has been invented for Braille, and there is a shorthand adaptation of it.

BRAIN. Central organ of the nervous system contained within the cranial cavity of the skull. Three membranes envelop the brain: the dnra mater, thick and tough and adherent to the interior of the skull; the arachnoid membrane, thin and delicate; and



Brain. Diagram showing the difference between a human brain (left) and that of a dog (right), and demonstrating the prominence of the dog's olfactory bulb

the pia mater, lying next to the brain surface. The cerebro-spinal fluid circulates between these membranes and in the cavities of the brain substance, known as ventricles.

Anatomically the brain is divided into four principal parts, the cerebrum, cerebellum, pons and medulla oblongata, the last named being continuous with the spinal cord. In every part there are two distinct kinds of nervous substance, termed white and grey matter, the latter being chiefly upon the surface.

The cerebrum consists of two oval hemispheres, separated by a great fissure; the surface of each hemisphere is broken up into lobes and convolutions, and each hemisphere has been mapped out into divisions representing distinct functions. The cerebellum serves to maintain the equilibrium of the body. From the brain come twelve pairs of nerves with differentiated functions.

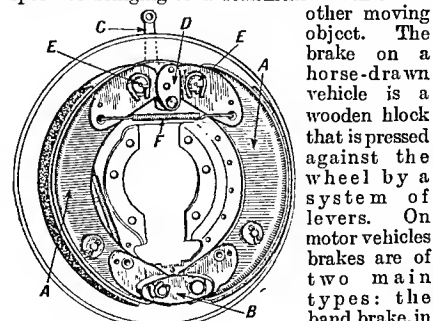
Diseases of the brain include anaemia, due to excessive haemorrhage anywhere in the body, or to blood impoverishment; arteriosclerosis, which may induce apoplexy or cerebral haemorrhage; abscesses and tumours. Injuries to the brain may result in various forms of paralysis or interference with sight, bearing, etc. The commonest immediate result of a head injury is concussion of the brain; if the skull is fractured, inflammation of the lining membrane, or meningitis, may be set up. The term brain fog is given to a condition of chronic nervous exhaustion. See Apoplexy; Meningitis; Nervous System; Spinal Cord.

BRAINTREE. Urban district and market town of Essex. On the Blackwater river, 6 m. by rly. N.W. of Witham junction on the L.N.E.R., it manufactures artificial silk and has breweries and corn mills. In 1928 a new town hall was opened, the gift of Mr. W. J. Courtauld. Market day, Wed. Pop. 6,980.

BRAITHWAITE, JOHN (1797-1870). British engineer. Born in London, March 19, 1797, he was the son of another John Braithwaite, the inventor of the diving bell. His own work included the introduction of the donkey engine and the donkey pump and much railway construction. He was responsible for the first practical fire engine, the air pumps that ventilated the House of Lords, and other inventions. He died Sept. 25, 1870.

BRAITHWAITE, SIR WALTER PIPON (b. 1865). British soldier. Born Nov. 11, 1865, from 1911-14 he was head of the Staff College at Quetta, and he was director of staff duties at the War Office from Sept., 1914, until he went to Gallipoli. On the western front he led a division and then a corps. Later he held high commands in India, Scotland and England, and in 1927 was made adjutant-general.

BRAKE. Contrivance for diminishing speed or bringing to a standstill a vehicle or other moving object.



Brake. Perrot-Bendix 2-shoe Servo brake, in which wheel rotation increases braking action in either direction. A, brake shoes. B, connecting link. C, operating lever. D, floating lever expanding the shoes. E, pins on which shoes hang with limited movement clockwise or anticlockwise. F, contracting spring

and the internal expanding type, in which a strap is expanded against the inner surface of a drum. Many cars have brakes applied simultaneously on all four wheels, usually by a servo mechanism which utilizes the momentum of the vehicle, or brings into action a hydraulic device when the brake lever is operated.

All trains carrying passengers must be provided with brakes that are continuous, capable of being applied at will by engine driver and guard, instantaneous in action, and self-applying should the train part or the apparatus go wrong. In the vacuum brake the brake-shoes are held clear of the wheels as long as a vacuum is maintained in the brake cylinders, and are applied by the admission of air to the train pipe, which lowers the vacuum. To restore the vacuum and pull off the brakes, air is exhausted by a steam ejector.

BRAMAH, JOSEPH (1749-1814). British inventor. Born at Stainborough, Yorkshire, April 2, 1749, he moved to London. His first patent (1778) was concerned with domestic sanitation, and this was followed by the invention of a lock of great ingenuity. His hydraulic press, patented in 1795, was a valuable contribution to mechanical science, and the most important of his inventions. Of Bramah's patents, the beer engine and a machine for printing bank notes deserve mention. He died in London, Dec. 9, 1814.

BRAMANTE, DONATO (1444-1514). Italian architect. Born at Castel Durante, near Urbino, he resided at Milan from 1472-99, and shortly after moved to Rome, where, in 1506, he was charged by Julius II with the plan and reconstruction of St. Peter's. Bramante died at Rome, March 11, 1514, before the work was completed.

BRAMBLE OR **BLACKBERRY** (*Rubus fruticosus*). Prickly shrub of the order Rosaceae. It is a native of Europe, Asia, and N. Africa.



Bramble. Fruit and leaves of blackberry

The stems climb to the top of hushes and then bend over till they touch the earth, when their tips root. The leaves consist of three or five oval leaflets. The pink or white flowers are produced in clusters at the end of side shoots. The fruit is a collection of drupes, hard and green at first, but succulent and purple-black when ripe.

BRAMBLING OR **MOUNTAIN FINCH** (*Fringilla montifringilla*). Small bird akin to the chaffinch, but larger. Common in N. Europe, and a native of Scandinavia, Siberia, and Lapland, it is a winter visitor to Britain.

BRAMHAM. Village of Yorkshire (W.R.), near Tadcaster. At Bramham Moor a battle was fought in 1408, when the Percies were defeated. It gives its name to a hunt of which Lord Harewood was master in 1930.

BRAMLEY, FRANK (1857-1915). British artist. Born near Boston, Lincolnshire, May 6, 1857, he was trained at the Lincoln school of art and at Antwerp and Paris. In 1884 he began to exhibit at the Academy, and four years later appeared *A Hopeless Dawn*, now in the Tate Gallery. A member of the Newlyn school, he was made A.R.A. in 1894 and R.A. in 1911. He died Aug. 10, 1915.

BRAMPTON, HENRY HAWKINS, BARON (1817-1907). British judge. Born at Hitchin, Sept. 14, 1817, he was called to the bar in 1843, and made his reputation in the Titchborne case. He became a judge in 1876 and retired in 1898. A great criminal lawyer, he had a reputation for severity, but if he was quick to detect a rogue, he was equally quick to discern innocence. In his youth a supporter of the prize ring, Hawkins was also a patron of horse racing. Made a baron in 1899, he died Oct. 6, 1907, when the title became extinct. His *Reminiscences* appeared in 1904.



Baron Brampton, British judge Russell

BRAN. Coarse offal produced as a by-product during the milling of wheat. It is the outer coating of the grain. Its percentage composition is: Water, 13.2; albuminoids, 12.1; amides, etc., 2; fat, 3.7; soluble carbohydrates, 56; fibre, 7.2; ash, 5.8. It is valued as a food for cows and for horses.

BRAN. Dog of Fingal or Finn, the hero of Gaelic tradition. Bran was a deerhound of fairy origin, and was found by Fingal in a giant's lair and carried off. According to a Scottish tradition the deerhound was killed in a fight with a dog belonging to a southern chief.

BRANCHIDAE OR **DIDYMI.** Ancient town of Asia Minor. On the W. coast, 60 m. S. of Smyrna, it is famed for its temple of Apollo and oracle of Apollo Didymaeus.

BRANCKER, SIR WILLIAM SEFTON (b. 1877). British airman. Born March 22, 1877, he passed from Woolwich into the Royal Artillery in 1896. He served in the S. African War, 1899-1902, and at the outbreak of war in 1914 was appointed deputy director of military aeronautics. Later he was director of air organization, commander of the R.F.C. in the Middle East, and controller-general of equipment and personnel at headquarters. Knighted



Sir W. S. Brancker, British airman Swaine

in 1919, he became director of civil aviation, 1922, and in 1924 air vice-marshal.

BRAND, SIR JAN HENDRIK (1823-88). South African politician. Born at Cape Town, Dec. 6, 1823, he became a harrister in England, but practised in South Africa. In 1854 he was elected a member of the House of Assembly of Cape Colony. In 1863 the hurgers of the Orange Free State elected him president. He reorganized the state finances and crushed the Basutos. He died July 14, 1888.



Sir J. Hendrik Brand, S. African politician

BRANDENBURG. Country of Germany in medieval times, now the name of a prov. of Prussia. The margraviate and electorate which afterwards grew into the kingdom of Prussia, it originated as the district around Brennvor, a settlement of the Slavs, not far from where Berlin now stands.

In 1415 Frederick of Hohenzollern became its margrave, and under him and his successors Brandenburg was enlarged in all directions. In 1569 the elector Joachim II made an arrangement with his kinsman, the duke of Prussia, that if the duke's family died out he should inherit Prussia. This came to pass in 1618, when East Prussia and Brandenburg were united under the same ruler. In 1701 the elector received the rank of king. He was not king of Brandenburg, but king of Prussia, and henceforward the latter name was used for all his dominions. See Hohenzollern; Prussia.

Brandenburg, the capital of the province of the same name, stands on the river Havel, about 36 m. from Berlin. It was a bishopric from 948 until 1544. The cathedral, on the island between the old and new towns, is Gothic of the 14th century. S. Catherine's, also Gothic, has a fine exterior and a notable altar and font. S. Peter's is Gothic of the 14th century, S. Godehard partly Gothic and partly Romanesque. Pop. 59,297.

BRANDES, GEORG MORRIS COHEN (1842-1927). Danish writer and critic. Born in Copenhagen of Jewish parents, Feb. 4, 1842, he studied jurisprudence, philosophy, and aesthetics at Copenhagen University, 1859-64, after which he spent some years abroad, chiefly in France and Italy. His first three books were *Aesthetic Studies*, 1868; *French Aesthetics*, 1870; and *Criticisms and Portraits*, 1870. In 1872 he returned to Copenhagen, where he taught at the university and wrote the earlier volumes of his *Main Currents of Nineteenth Century Literature*. Later works were his *Study of Lord Beaconsfield*, 1878, and *Study of Shakespeare*, 1895-6, an English translation of which appeared in 1898. Brandes died Feb. 19, 1927.



Georg Brandes,
Danish writer

BRANDING (A.S. brand, burning). Impressing an indelible mark upon the body of human beings or of cattle with a hot iron, as a punishment or as a means of identification. In the U.S.A. slaves were branded with the owner's initials. In England criminals were branded on the cheek, forehead, breast, shoulder, and hand, and gipsies and vagabonds on the breast, the marks usually indicating the nature of the crime. Branding was abolished in Great Britain in 1829, except in the case of army deserters, who were tattooed with the letters D and BC as late as 1879.

Branding is also used to mark merchandise in a distinctive manner, the brand usually taking the form of a trade mark.

BRANDON. Market town of Suffolk, the centre of a rural district. It is on the Little Ouse, 7 m. by rly. N.W. of Thetford, on the L.N.E.R. Flint-knapping work has been carried on here from prehistoric times. There are extensive warrens, and rabbit skins are dressed and prepared. Market day, Thurs. Pop. 2,462.

The English title Duke of Brandon has been borne since 1711 by the dukes of Hamilton, Brandon Park is a seat of the marchioness of Graham, daughter and heiress of the 12th duke of Hamilton.

BRANDON. City and river port of Manitoba, Canada. On the Assiniboine river, it is 132 m. by rly. W. of Winnipeg. An important rly. centre served by the C.P.R.

and the Canadian National Rlys., it has a government experimental farm and Indian industrial school, and trades in farm produce and agricultural machinery. Pop. 16,443.

BRANDY (formerly Brantwein, brande-wine, brandy-wine, i.e. burnt or burning wine). Spirituous liquor obtained by distilling wine or the fermented, unmodified juice of fresh grapes. The finest brandy comes from Charente dept., and is exported and named from the town of Cognac. Good brandies come from Australia, Spain, Portugal, California, the Cape, Greece, Cyprus, and Canada. The proportion of alcohol by volume averages 53. The older the brandy, the less alcohol it contains, but the greater its medicinal value. Liqueur brandy is old, well-matured, high-class brandy. There is a duty of £3 15 4 per proof gallon on all brandy imported into Britain.

BRANDYWINE CREEK. River of S.E. Pennsylvania, U.S.A. Rising in Chester co., it flows S.E. to join the Delaware below Wilmington. On its banks a battle was fought, Sept. 11, 1777, during the American War of Independence. The English commander, General Howe, met Washington at Chadd's Ford and, while feigning a frontal assault, sent a detachment, under Cornwallis, to cross the stream higher up. The Americans were soon in retreat, and a fortnight later Howe took Philadelphia.

BRANGWYN, FRANK (b. 1867). British painter. Born at Bruges, May 12, 1867, the son of an architect, Brangwyn was at first employed in his father's office in London. Later he studied at South Kensington, and occasionally worked at William Morris's establishment in Oxford Street, London. His first picture, *A Bit of the Esk*, near Whithy, was hung at the Academy in 1885, and soon he came under the influence of Whistler. In 1904 he was elected an A.R.A., and R.A. in 1919. Modern Commerce, the centre decorative panel at the Royal Exchange, is his work. Consult *The Graphic Arts* of F. Brangwyn, W. Shaw Sparrow, 1918.

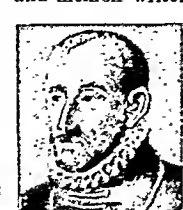


Frank Brangwyn,
British painter
Lafayette

BRANKSOME. Former urban dist. of Dorset, now part of the borough of Poole. A summer resort, with a station on the Southern Rly., it is noted for its beautiful chine.

BRANTFORD. City and port of Ontario, Canada. On the Grand river, communicating by a short canal with Lake Erie, it is 24 m. by rly. S.W. of Hamilton, and is served by the C.N.R. and C.P.R. It has manufactures of clothing, agricultural implements, and electrical fittings. Pop. 29,440. The town is named after the Mohawk chief Joseph Brant (1742-1807), who fought for the British against the French and the Americans.

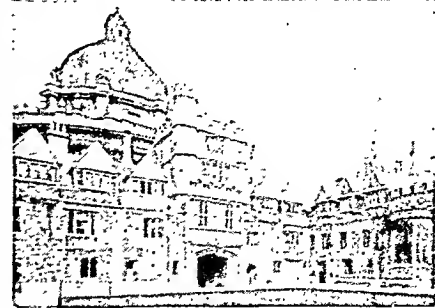
BRANTÔME, PIERRE DE BOURDEILLES, SEIGNEUR DE (c. 1540-1614). French soldier and memoir writer.



Pierre, Seigneur de
Brantôme, French
soldier and author
From an engraving

In 1561 he accompanied Mary Queen of Scots on her journey from France to Holyrood, and in 1579 he visited Queen Elizabeth. In 1564 he was in Morocco, and a year later fought with the Knights of Malta against the sultan. He then served in Italy and Africa, in Hungary against the Turks, and in his own country against the Huguenots. His memoirs chronicle the scandals and gallantries of the French court. He died July 15, 1614.

BRASENOSE COLLEGE. Oxford college. It was founded in 1509 by gifts from William Smith, bishop of Lincoln, and Sir Richard Sutton. There was already in exist-



Brasenose College, Oxford. The main quadrangle of the college. Behind is the dome of the Radcliffe Camera

ence a hall of Brasenose, presumably named from the figure of a nose, and this name was taken by the new foundation, which is, in full, the King's Hall and College of Brasenose. The buildings are between Brasenose Lane and the High Street. The college is specially connected with Lancashire, and in the 19th century had a great reputation for sport.

BRASOV OR BRASSO. Town of Rumania, in Transylvania, formerly known as Kronstadt. It lies 70 m. E.S.E. of Sibiu (Hermannstadt), and was until Jan., 1919, in Hungary, near the former Rumanian frontier.

The inner town, some of whose towers and walls still stand, is commanded on the N. by the Schlossberg, on which there is a fort, built in 1553. The early 15th-century town hall was restored at the end of the 18th century. S. Bartholomew's Church is the oldest in the town, and there is an old Protestant church. Brasov is a banking centre, and its industries include oil refining, glass making, and cement works. Pop. 41,056.

BRASS. Properly an alloy of copper and zinc, but the name is also given to many alloys in which other metals, usually in relatively small quantities, are also present. Technically it is a convenience to consider brass as an alloy in which copper and zinc predominate, leaving those in which copper and tin predominate to be classed as bronzes.

Brass generally is of a yellow colour, the shade varying according to the proportions of the constituents. It casts readily, is machined with equal facility, is harder than copper, and has considerable tensile strength. The melting point of the alloy is lower than the mean of its constituents, while its density is higher. Certain brasses are malleable and ductile, for example, Muntz metal. See Alloy.

BRASS. River, district, and town of Nigeria. The river, an outlet of the Niger, is about 100 m. long. The town, a prosperous trading centre, is at the mouth of Brass river. It is the headquarters of the district, and has a native court house.

BRASS. Engraved tablet of latten (q.v.) or brass placed in Christian churches as memorials of the dead. These monumental brasses were introduced in the 13th century to replace effigies in the round. The English practice developed into a national art, with



Brass. Sir Thomas
Bullen (or Boleyn)
in Eber church

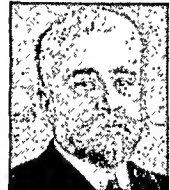
guilds in London, Ipswich, Norwich, and Bristol. The figures, escutcheons, and inscribed plates were cut separately and countersunk in stone pavements, walls, or altar-tombs. The incisions were often filled with niello, the escutcheons with coarse coloured enamels. Continental brasses were rectangular sheets comprising figures and inscriptions. The oldest brasses in England, those at Stoke D'Abernon, 1277, and Trumpington, 1289, portray mailed knights.

BRASSEY, THOMAS BRASSEY, 1ST EARL (1836-1918). British politician. The eldest son of Thomas Brassey (1805-70), the railway contractor, he was born at Stafford, Feb. 11, 1836. He became a barrister, and in 1865 entered Parliament as Liberal M.P. for Devonport. From 1868-86 he was M.P. for Hastings. Brassey's ministerial career lasted from 1880, when he was made civil lord of the admiralty, to 1885, when he left office as its parliamentary secretary. Knighted in 1880, he was made a baron in 1886, and went out to Victoria as governor, 1895-1900. In 1908 he was chosen lord warden of the Cinque Ports, and in 1911 was made an earl. He died Feb. 23, 1918. In his yacht the Sunbeam Brassey visited nearly all parts of the world, accounts of the voyages being written by his first wife. He also founded The Naval Annual.

When Brassey's son, Thomas Allnutt Brassey (1863-1919), who became the second earl, died, Nov. 11, 1919, the title became extinct.

Brasso. Alternative name for the Rumanian town of Brasov (q.v.).

BRATIANU OR BRATIANO, ION (1867-1927). Rumanian statesman. Son of a politician, he was born at Florica, the family seat in Walachia. He succeeded his father as leader of the Liberals, and became prime minister in 1907. On the fall of Maiorescu's Conservative government in Jan., 1914, he was again prime minister, and occupied that position when the Great War broke out. Early in 1918 he resigned, his policy of resuming the struggle against the Central Powers having been outvoted. After the signing of the armistice by Germany, Nov. 11, 1918, he again became premier and was delegate of Rumania at the Paris Conference. He was again premier in 1922, and died Nov. 23, 1927.



Ion Bratianu
Rumanian statesman
Vandyk

BRATISLAVA. City of Czechoslovakia. It is known to the Magyars as Pozsony and to the Germans as Pressburg. It is situated on the left bank of the Danube about 50 m. to the east of Vienna. It is the chief river port of the republic, and is on the eastern slope of the Little Carpathians, a few miles east of where the Morava joins the Danube.

Since 1526 the kings of Hungary have been crowned here, in the Gothic cathedral of S. Martin, and here the Hungarian Parliament met in the Landhaus until 1848. The town hall houses the Municipal Museum; near by is the Franciscan Church, founded in 1272. The ruins of the royal palace, which was burned down in 1811, crown a wall-encircled plateau at a height of 270 ft. above the river; access to the enclosure is gained through a massive Gothic gateway. There is an iron bridge across the river. Bratislava possesses a Slovak university and is an important broadcasting station. Pop. 93,189.

BRAXFIELD, ROBERT MACQUEEN, LORD (1722-99). Scottish judge. Educated at Edinburgh University, he became a lord of justiciary in 1780 and lord justice clerk in 1788. In his treatment of political prisoners he was notorious for his roughness and ferocity. He is portrayed as Lord Weir in R. L. Stevenson's *Weir of Hermiston*, 1896.

BRAY. Parish and village of Berkshire. It is on the Thames, 1½ m. S.E. of Maidenhead. It is generally assumed that the vicar of Bray of the song was vicar here. Pop. 3,800.

BRAY. Urban district, seaport, watering place, and market town, Irish Free State. It is on the river Bray, 12 m. by rly S.E. of Dublin, on the Gt. Southern Rlys. It has a harbour, a fine esplanade, and good bathing. Market days, Tues. and Sat. Pop. 8,637.

BRAZEN SERPENT. Replica of one of the fiery serpents which afflicted the Israelites in the wilderness. The serpents were sent as a punishment of rebellion, and the image of one, wrought in bronze or copper, was set up on a pole by Moses, at the command of Jehovah, for the afflicted to look up to in token of repentance, whereupon they lived (Num. 21; Wisdom of Solomon 16; John 3). The brazen serpent was preserved, until it became an object of worship, and was destroyed by Hezekiah (2 Kings 18).

BRAZIL. Largest country of S. America. It is bounded N. by the Atlantic Ocean, Guiana, Venezuela, and Colombia, S. by Uruguay, E. by the Atlantic Ocean, W. by



Brazil. Left, Indian women mending their nets for use in the Amazon. Right, Napidian Indian shooting river fish in the Amazonas district

Peru, Bolivia, Paraguay, and Argentina. Its area is about 3,285,000 sq. m., and its pop. about 36,870,000. There are about 600,000 Indians in the Amazon area. Rio de Janeiro is the capital, other important towns including São Paulo, Bahia (São Salvador), Recife, Belem, and Porto Alegre.

The centre of Brazil consists of a great plateau with an average height of 2,000 ft. In the E. and S. mountain ranges alternate with fertile valleys. The northern regions are chiefly low-lying thickly forested plains. Brazil has the greatest water system on the face of the globe. The rivers include the Amazon, Paraná, Araguaya, and Madeira.

Coffee is the most important product cultivated, the states of São Paulo, Rio de Janeiro, Espírito Santo, and Minas Gerais being the chief coffee-growing districts. About three-quarters of the world's supply of coffee comes from these states, and over a half from São Paulo alone. Rubber is another very important natural product, the so-called "fine hard Pará" rubber coming from Brazil. Other crops include maize, maté (Paraguay tea), sugar cane, cocoa, tobacco, and cotton.

The country is very rich in minerals. It has long been famous for gold and diamonds. There are widespread deposits of manganese, and a large proportion of the world's supply of monazite comes from Brazil. Iron and low-grade coal are also found.

At the end of 1927 there were about 19,500 m. of rly., of which some 14,000 belonged to the union and about 5,000 to the states. About one-half of the telegraph system is controlled by the government. There are about 40 wireless stations. Navigable inland waterways amount to some 40,000 m.

Brazil was discovered in 1500 by the Portuguese commander, Pedro Alvarez Cabral. When the French armies approached Lisbon in 1807 the Portuguese royal family fled to Rio, which became for a time the capital of the Portuguese monarchy. In 1822, Pedro, eldest son of John VI of Portugal, declared the independence of Brazil and was chosen emperor. In 1889 his son was dethroned, and Brazil became a republic, the united states of Brazil. The union consists of twenty states, a federal territory and a federal district. There have been frequent boundary disputes. Brazil retired from the League of Nations in 1926. The federal executive is in the hands of a president elected for four years by direct popular vote. The Chamber of Deputies consists of 212 members elected for three years, and there are 63 senators. See map, p. 297; consult also Brazil and the Brazilians, G. J. Bruce, 1915; Brazil, Past, Present and Future, J. C. Oakenfull, 1920; The New Brazil, M. R. Wright, 1920; Brazil After a Century of Independence, H. G. James, 1925; The Conquest of Brazil, R. Nash, 1926.

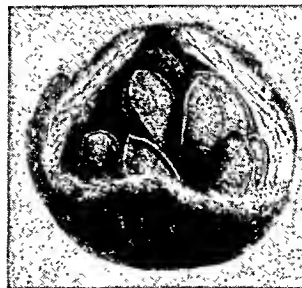
BRAZIL NUT (*Bertholletia excelsa*). Seed of a tall tree of the order Myrtaceae, a native of Brazil, Guiana, and Venezuela. It grows in large forests and attains a height of 150 ft., with a smooth trunk of great girth. Its oblong leaves are each about 6 ft. long. The cream-coloured flowers are succeeded by spherical fruits, woody capsules each containing about 20 rough-shelled triangular nuts.

Brazza (Slav. Brac). Island of Yugoslavia, formerly belonging to Austria. It is the largest in the Dalmatian archipelago.

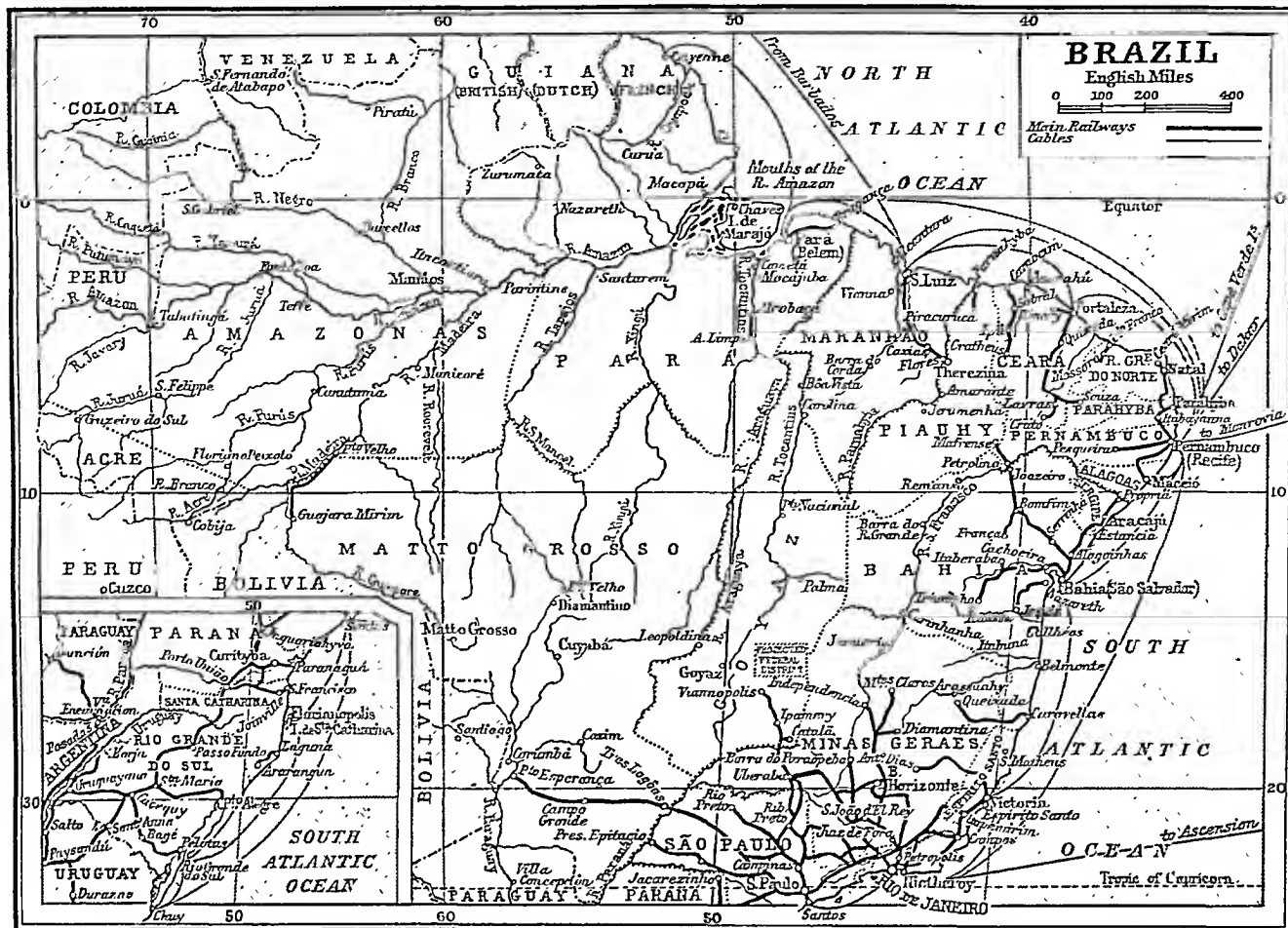
BREACH OF PROMISE. Term used in English law in connexion with promises of marriage. A contract to marry is as binding in law as any other contract; and if it is broken, the party breaking it is just as liable to pay damages. The woman who breaks her engagement is just as liable in law as a man; but in practice men seldom gain damages. In actions for breach of promise of marriage the plaintiff is entitled to the recovery of pecuniary loss, e.g. cost of a wasted trousseau, value of a situation given up, and also to such other damages given sentimentally or punitively as a jury may consider adequate.

BREAD (A.S. bread, breed). Principal food of most nations. It consists of flour mixed with water, yeast, and salt, kneaded into dough, made into loaves, and baked. Unleavened bread is made without yeast. In temperate latitudes wheat flour is generally used; in more northerly latitudes rye, oats, and barley; millet bread is made in southern Europe, and maize flour is used in parts of U.S.A.

Bread was first made with yeast in England in 1634, and aerated bread, made by forcing carbonic acid gas into the dough, was first manufactured in England in 1859. Brown bread is composed of ordinary flour with 15 to 20 p.c. of bran added; bread of unsifted



Brazil Nuts in Pod. Each pod contains about 20 nuts. See above



Brazil. Map of the largest state in South America. It borders on every state south of the Caribbean Sea except Chile. See p. 296

ground wheat is known as wholemeal bread. In Britain bread must be sold by weight, excepting in the case of rolls or fancy bread, and a quarter loaf must weigh 4 lb. when sold.

During the Great War bread was rationed in Germany, France, and other countries; even Norway, Sweden, and Switzerland. In France, bread cards were introduced in Dec., 1914, and in Germany a little later.

BREADALBANE. Mountainous district of Perthshire. It is drained by the Tay, Almond, Dochart, Orchy, and other streams, and among its lochs are the Tay and Rannoch. It has extensive deer forests, and is noted for fishing.

The district gives its name to the title of earl borne since 1681 by the family of Campbell. Sir Duncan Campbell of Glenorchy, created a baronet in 1625, was the ancestor of Sir John Campbell (c. 1636-1717), the 5th baronet, who in 1681 was created earl of Breadalbane. When John the 3rd earl died the titles fell to a descendant of the third baronet, who was given the title of marquess of Breadalbane in the United Kingdom in 1831. In 1862 this title became extinct; but the earldom passed to another descendant of the third baronet, who became the sixth earl.

His son Gavin, who succeeded in 1871, was made a peer of the United Kingdom in 1873, and in 1885 the marquessate was revived in his favour. On his death, Oct. 19, 1922, the marquessate again expired, but the earldom passed to a relative. Taymouth Castle, now an hotel, was the chief seat of the family.

BREAD FRUIT (*Artocarpus incisa*). Fruit of a tree of the order Urticaceae. A native of the South Sea Islands, it attains a height of 50 ft. and has deeply notched leaves

2 ft.-3 ft. long. The male flowers are crowded into a long spike and the females in a globular head, which later expands into the fruit.



Bread Fruit. Leaves and fruit of *Artocarpus incisa*

This is as large as a melon, and filled with starchy pulp. When roasted the interior is bread-like, though without flavour.

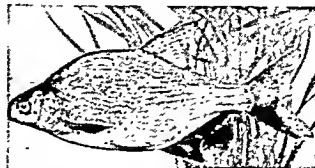
BREAD NUT TREE (*Brosimum alicastrum*). Evergreen tree of the order Urticaceae. It is a native of Jamaica. It possesses lance-shaped leaves and simple yellow flowers in globular heads. The so-called nuts are berries about an inch across. When boiled or roasted they are used for food, and have the flavour of hazel nuts. The bread tree is a native of Guiana. Its fruit is edible.

BREAKWATER. Structure intended to form an artificial harbour. It consists of mounds of rubble or blocks; or walls of huge concrete blocks in courses or mass concrete built up from the sea bed; or rubble mounds topped by walls. Rubble mounds are formed by dumping stones from barges, or from an overhead track on piles, or from the end of the work itself. Breakwaters of this class are best suited for positions where the rise of tide is slight, and where they can be placed at right angles to the direction of the most violent storms. Solid masonry breakwaters depend for their stability on sheer weight and

solidity. They may be built of very heavy blocks from the bottom; or be of mass concrete throughout; or contain blocks or mass concrete superimposed on huge bags of cement; or may consist of large monoliths formed by sinking concrete caissons and filling them solid. See Caisson.

BREAM. Name given to species of freshwater fish of the genus *Abramis*, allied to the carp. The only British species is the common bream (*A. brama*). It grows about a foot long and weighs two to four pounds or more. The flesh has little to recommend it. The body is deep and laterally compressed and the dorsal fin is short. The white bream, which belongs to a different genus (*Blicca*), is found in the rivers of eastern England. The sea bream (q.v.) is in no way allied.

BREAST. In human anatomy, the name given to the mammary gland of the female. In structure it consists of a number of lobes subdivided into lobules in which the milk is secreted, and which terminate in the milk-ducts opening on the nipple. During pregnancy the breast enlarges and becomes firmer.



Bream, a fresh-water fish. The common bream, *Abramis brama*

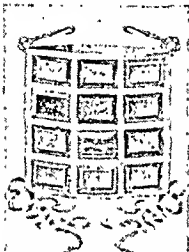
DISEASES OF THE BREAST. Acute inflammation of the breast is most likely to occur in pregnant women and during the first month after delivery, the most frequent cause being infection through a sore or crack on the nipple. The condition needs prompt medical attention.

Cancer attacks the breast more frequently than any other organ of the body in the female, with the exception possibly of the

uterus. The disease is about equally prevalent in the single and married up to the age of 45, but after that age it is much more common in the single than in the married and widowed. Cancer of the breast can only be cured by a surgical operation, which, though large and serious, is not in itself dangerous in women who are otherwise healthy. When the disease is taken early and is confined to the breast, the prospects of permanent recovery are good.

The breast-bone or sternum is the bone which forms the central part of the front of the chest of warm-blooded vertebrates. In the human being it consists of three main parts, and to it are attached the collar-bone and the upper seven pairs of ribs.

BREASTPLATE. Piece of defensive armour worn across the breast. It was used by Greeks and other early soldiers, beautiful examples having been found at Mycenae; also by the Romans. The introduction of suits of armour made it unnecessary. It appears to have been made first of leather, then of bronze or brass. The term breastplate is also applied to a part of the dress worn by the Jewish high priest (Exod. 28 and 39).



Breastplate worn by a Jewish high priest

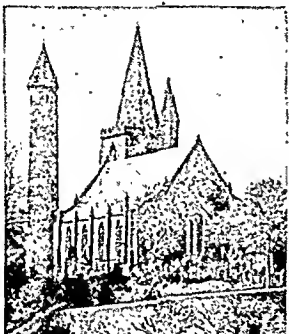
BRECHIN. City and royal burgh of Angus, Scotland. It is on the South Esk, 9½ m. by rly. W. of Montrose by the L.M.S. It manufactures linen, sailcloth, rope, and paper, and has brewing and distilling industries. It was created a bishopric in 1150, and has a 13th century cathedral and a round tower. Brechin Castle is the seat of the earl of Dalhousie. The bishop of Brechin is the primus or head of the Episcopal church in Scotland. Market day, Tues. Pop. 7,446.

BRECKLAND.

District of Suffolk. On the borders of Norfolk, it is a sparsely inhabited region, as its sandy soil is of little use for agriculture. After the Great War much of the land was acquired for afforestation purposes, and it has been made into one of the largest forest areas in the country. Thetford is the nearest town.

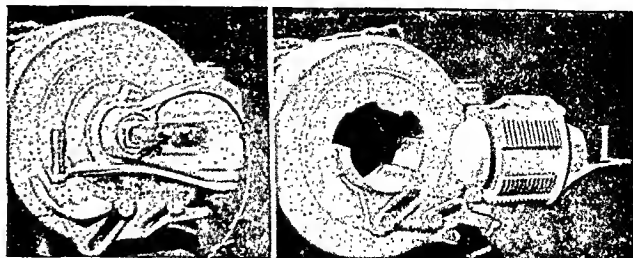
BRECKNOCKSHIRE OR BRECONSHIRE.

County of Wales. Forming a part of the boundary between Wales and England, its greatest length is 38 m., greatest breadth 33 m., and its area 732 sq. m.



Brechin. The 13th century cathedral and ancient round tower, 100 ft. high

The county lies within the Welsh coal-field, and iron, copper, lead, and limestone are found. The county is intersected by the L.M.S. Rly. and the Brecon and Abergavenny Canal.



Breech Block. Breech mechanism of 6-in. gun. Left, the breech closed; right, the breech open, showing breech block with Welin screw. See below

Usually a breechloading mechanism is associated with a rifled barrel, and the letters B.L. stand for a modern gun or rifle, but old weapons with breechloading mechanism are extant. B.L. firearms came into general use in 1866. In 1870 the French and Germans both fought with B.L. rifles, the French weapon being called the Chassepot. See Artillery; Gun.

BREHON LAWS. English name for an ancient legal system which prevailed in Ireland for more than 1,000 years before the 17th century. On the authority of a royal commission appointed in 1852, six volumes, including a glossary, were published (1865-1901) under the title Ancient Laws of Ireland. They contained translations of MSS. dating from the 5th to the 13th century. The laws cover a wide field, and from them a faithful picture of social life and custom in Ireland for a long period of time may be drawn. Consult Brehon Laws, L. Ginnell, 1894.

Breitmann, HANS. Name by which Charles G. Leland (q.v.) was known after the publication of his Hans Breitmann's Ballads.

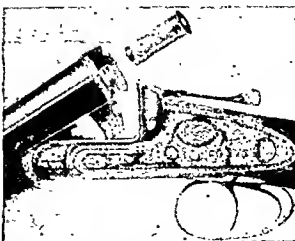
BREMEN. Free state of Germany. It consists of the city of Bremen, the surrounding district, and two detached portions of territory, the town and district of Vegesack, on the right bank of the Weser, and the port of Bremerhaven at its mouth. Bremen is the capital. The total area is 99 sq. m., and the pop. 338,846. Since 1920 the government is vested in an elected House of Burgesses of 120 members, which elects the Senate of 12 as the Executive.

BREMEN.

City of Germany, capital of the free state of Bremen. It stands on the Weser, about 46 m. from its mouth and 77 m. by rly. S.W. of Hamburg. The old town is on the right bank of the Weser, and the new town on the left, bridges connecting the two. The Rathaus contains memorials of past glories.



Bremen. Stone statue of Roland the Great



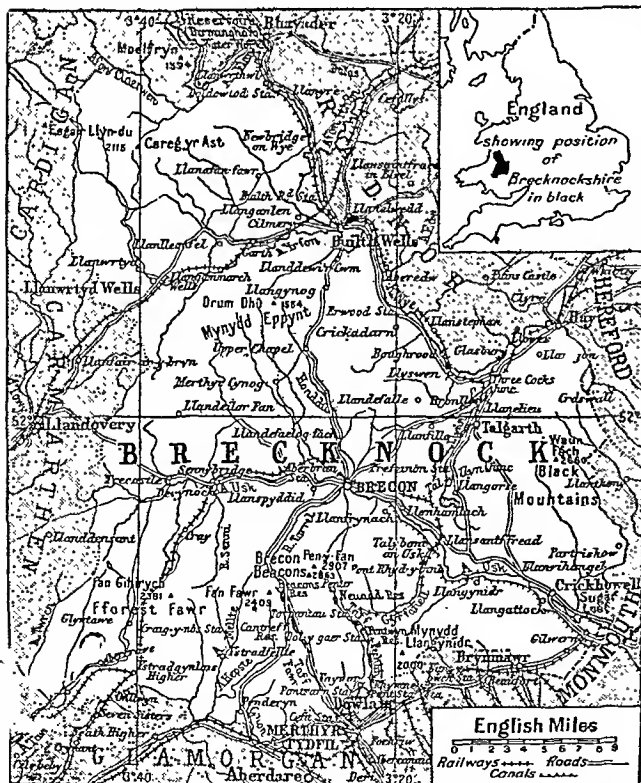
Breechloader. Double-barrelled shotgun with cartridge ejector

BREECH BLOCK.

Mechanism for closing and sealing the breech end of a firearm after the projectile and propellant charge have been inserted. Modern breech blocks for cannon and howitzers embody one of two main principles, the interrupted screw (British) and sliding wedge (German). See illustration above.

BREECHLOADER.

Firearm charged at the breech, as distinguished from one loaded at the muzzle.



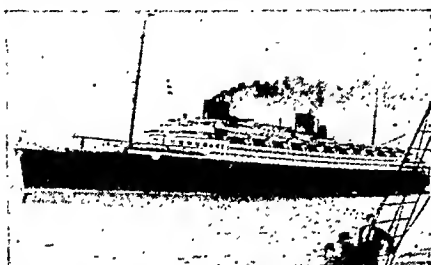
Brecknockshire. Inland county of South Wales, notable for its mountain chains and deep, fertile valleys. It is watered by the rivers Wye and Usk

Of old churches the chief are the Romanesque cathedral, begun in the 11th century, now a Lutheran church; S. Stephen, S. Angarius, S. Martin, S. John, and the Liebfrauen. An immense statue of Roland stands before the town hall. Characteristic of the city are the gabled houses

looking out on the narrow, winding streets of the old town.

Bremen ranks next to Hamburg in volume of trade. It is the headquarters of the North German Lloyd Steamship Company. Before the Great War it was one of the great tobacco and rice marts of the world. The exports include linen and woollen goods, iron, machinery, and toys. Cotton, iron ore, grain and tobacco are important imports. Its industries include shipbuilding and the manufacture of ropes and sails, and there are iron foundries, engineering works, rice mills, and jute spinning factories. The manufacture of tobacco is now carried on outside the city. Pop. 294,966.

Bremen was the name of a German protected cruiser sunk by a British submarine in the Baltic, Dec. 17, 1915. She was 330 ft. long, 40 ft. in beam, and displaced 3,200 tons. She carried ten 4.1-in. and fourteen smaller guns, with two submerged torpedo tubes.



Bremen. German liner which made a record voyage (4 days, 17 hours) across the Atlantic in July, 1929

Another Bremen is the North German Lloyd liner launched in 1928, gross tonnage 49,864. In July, 1929, she crossed the Atlantic in 4 days 17 hours, 42 min., setting up a record for the run from Europe to New York, hitherto held by the Cunarder Mauretania. In Mar., 1930, the Europa beat this record.

BREMERHAVEN. Seaport of Germany, the outport of Bremen. It lies at the junction of the Weser and the Geeste, about 40 m. N. of Bremen. The port was opened in 1830. The large and safe harbour has 112 acres of wet docks and several dry docks. The town is a shipbuilding centre, and was one of the bases of the German fleet. Pop. 23,896.

Brendon Hills. Limestone range in the W. of Somerset. They lie about 6 m. S. of Watchet and reach a height of 1,391 ft.

BRENNAN, Louis (h. 1852). British inventor. Born at Castlebar, Ireland, Jan. 28, 1852, his fame rests upon his inventions of the Brennan torpedo and of the gyroscopic monorail system of transport. From 1887-96 he was superintendent of a government factory where his torpedoes were made, and from 1896-1907 its consulting engineer. During the Great War he was engaged in confidential aircraft research work for the British Government.

BRENNER PASS. Lowest pass over the Alps. On the new Italo-Austrian boundary, between Innsbruck and Bolzano (Bozen), it has been a carriage-road since 1772, and is traversed by a rly., passing over many bridges and viaducts, and through several tunnels, opened in 1867. The pass, 4,500 ft. high, was used by the Romans. Near the head of the pass, on the Italian boundary, is the Austrian village of Brenner.

BRENNUS. Leader of the Gauls. He invaded Italy, defeated the Romans at the battle of the Allia, 390 B.C., and captured Rome except the Capitol, on which occasion he is said to have used the phrase *Vae victis* (woe to the conquered!).

Another Brennus, also a Gallic chief, invaded Macedonia 280 B.C. and penetrated into Greece, but was defeated at Delphi.

BRENTA. River of Italy. It rises near Trent, and after a course of 100 m. flows into the Adriatic. There was fighting in the valley of the Brenta between the Austrians and the Italians in Nov. and Dec., 1917.

BRENTFORD (with Chiswick). Market town and county town of Middlesex. It is part of the urban district of Brentford and Chiswick, the two having been united in 1927. Brentford stands at the junction of the Brent with the Thames, 10 m. by rly. W. of London, on the G.W. and Southern Rlys. In 1928 excavations revealed the remains of a pile village about 2,000 years old. In the neighbourhood is Syon House, seat of the duke of Northumberland. Brentford and its inn, The Three Pigeons, have figured largely in literature. The inn which replaced the original Three Pigeons was closed in 1916, and a fire in 1920 destroyed a large portion of the interior. Market days, Tues. and Sat. Pop. 57,889.

BRENTFORD, WILLIAM JOYNSON-HICKS, 1st Viscount (h. 1865). British politician. Born June 23, 1865, he was the son of Henry Hicks of Plaistow Hall, Kent. He became a solicitor in 1895, and on his marriage with the daughter of R. H. Joynson of Bowdon took that name. He was M.P. for Manchester, 1908-11, for Brentford, 1911-18, and for Twickenham, 1918-29. He was parliamentary secretary, Overseas Trade Dept., 1922; then in quick succession postmaster-general, financial secretary to the treasury, with a seat in the Cabinet, and minister of health. In 1924 he was made home secretary and, known as "Jix," was much in the public eye. He left office in 1929 and was made a viscount.



Viscount Brentford, British politician

BRENT GOOSE (*Branta bernicla*). Species of wild goose. It visits the shores of Great Britain in autumn and winter, spending summer in the northern regions. Blackish brown on the upper parts and grey below. It weighs about 4 lb., and its flesh is valued for the table.



Brent Goose. *Branta bernicla*, a species of wild goose

rly. S.W. of Chelmsford on the L.N.E.R. It has a grammar school founded in 1557, and an Elizabethan assize house. Industries are brewing and brick-making. A fair is held in October. Pop. 6,870

BRESCIA (anc. Brixia). City of Italy. Capital of the prov. of Brescia, at the foot of the Alps, it is an important rly. junction 51 m. E. of Milan. Dominated by its old castle, now a prison, and enclosed by walls, it has Roman remains. The old cathedral, probably of the 10th century, was built over a Christian basilica; the present cathedral is modern. The town hall (1492-1574) is the work of Sansovino and Palladio. The Broletto, originally the council hall, now the law courts, dates from the 12th century. Pop. 113,489.

BRESLAU. City of Prussia. It stands on the Oder, 350 m. from its mouth and 224 m. S.E. of Berlin. It is the capital of the prov. of Lower Silesia, and its size and importance are

due to its position on the Oder, and to the rich coal and iron mines in the vicinity. The cathedral was begun in the 12th century, and restored in the 19th. The 14th century Protestant church of S. Mary Magdalene is a model of it. The church of the Holy Cross and the church of the Minorites date from the 14th century.

The Rathaus is a 14th cent. building, restored in the 19th century. Underneath is the Schweidnitzer Keller, used since about 1350 as a beer house. The Silesian museum of fine arts is housed in a modern building; the museum of industrial arts and antiquities is in the old hall of the estates, Standehaus. The Hohenzollerns had a modern palace here. The university, established in 1811, was founded in 1702 as a Jesuit college. The city has a good library and zoological and botanical gardens.

Breslau is a great railway centre, the south-eastern railways of Germany converging here, is connected by canals with the Elbe and the Vistula, and its trade in coal, timber, corn, etc., is considerable. Pop. 557,139.

Breslau was the name borne by a German protected cruiser, which, along with the Goeben (q.v.), escaped the Allied fleets in the Straits of Messina, Aug., 1914. They were then purchased by Turkey.

BREST. Naval seaport and town of France. It is in the W. of Brittany, 155 m. from Rennes, on the N. side of the Brest Roads, into which the river Penfeld falls. Along its banks are the establishments of the French navy, shipbuilding yards, foundries, magazines, repairing and other docks, barracks, etc. There is a naval school. It has a 12th century castle, which was modified by Vauban. The commercial harbour has ample docks. A fishing centre, Brest manufactures bricks, chemicals, candles, rope, soap, and oilskins. There is a telegraph cable to Duxbury, Mass., U.S.A. Pop. 67,861.

BREST-LITOVSK. Town of Poland. On the Bug, near that river's confluence with the Mukhavetz, it lies about 130 m. S. of Grodno. It is a great rly., road, and inland waterway centre, and carries on an active trade in grain, hemp, flax, timber, and leather. An old Slav town, anciently called Berestov (elm town), it was the Polish Brzesc Litewski until 1795, when it passed to Russia. It was taken by the Germans in 1915 and by the Poles in 1919. Pop. 29,100.

BREST-LITOVSK, TREATY OF. Peace concluded between Germany and her allies and Russia, Mar. 3, 1918. The conference began Dec. 22, 1917, and both sides stated their conditions. The Central Powers asked for a peace without annexations or indemnities, provided the Allies approved and would join in the negotiations. The latter did not even reply, and on Jan. 10, 1918, Trotsky announced that Russia would make a separate peace. Disagreement as to terms caused a temporary suspension of the armistice, but on Feb. 24 the Bolsheviks gave in, and the treaty of Brest-Litovsk ending the war between the contracting parties was signed on Mar. 3. The Bolsheviks undertook to evacuate Estonia, Livonia, and Finland and certain areas of Turkey-in-Asia and to demobilise their armed forces. There were to be no indemnities and prisoners were to be exchanged. The treaty was annulled by a proviso of the armistice of Nov. 11, 1918.

BRETON. One of the three branches of the Celtic languages which are grouped as *Cymric* or *Brythonic*. It is spoken by the people of Lower Brittany, and though closely connected with the old Cornish and with Welsh, the other two branches of the group, has become differentiated from them, though there are striking similarities. The language, which is still spoken by upwards of a million people, is represented by four dialects, known

respectively as those of Léon, Tréquier, Cornouailles (Quimper), and Vannes. The Union Régionaliste Bretonne, founded 1898, has laboured to preserve the ancient language of the people. See Brittany; Celt.

BRETWALDA (A.S. overlord). Word or title used in the Anglo-Saxon Chronicle. The old idea was that the eight rulers mentioned there, and also by Bede, as having this title were the recognized superiors of the other English kings. Probably the word was used for an overlord whose authority was little more than nominal.

BREVET (Fr.). Term used in France in the days of the monarchy in the sense of the English term commission, i.e. a written authorisation to assume the functions of an officer in the navy or army. Brevet has come to mean in the British army a sort of rank other than regimental rank given to three grades of officers only. A captain with six years' service may be a brevet major, a major may be made a brevet lieutenant-colonel, or the latter a brevet colonel.

In aeronautics the term is used for a certificate issued to a pilot. It indicates the official tests he has passed through, and is therefore a certificate of qualification.

BREVIARY (Lat. *breviarium*, summary). Originally a compendium of the Psalter and Christian prayers, the term has been applied since the 11th century to the complete book of prayers for the daily offices in the Roman Catholic Church. It is divided into four seasonal parts. The daily office contains the short service for the canonical hours, i.e. Prime, Terce, Sext, None, and Vespers, with the night office of Compline and the long midnight and early morning services of Matins and Lauds. There are also special offices of the Blessed Virgin and of the Dead, and the supplementary offices of each diocese.

BREVIEWER. Type, between minion and bourgeois in size, originally used in printing breviaries, and also known as 8-point. Nine lines make an inch. The text of this Encyclopedia is set in brevier. See Printing.

BREWER, JOHN SHERREN (1810-79). British historian. Born at Norwich, he was ordained in 1837. In 1839 he became lecturer in classics, and from 1855-77 was professor of English literature and lecturer in modern history at King's College, London. He arranged and edited for the Master of the Rolls many volumes of historical manuscripts. He died Feb. 16, 1879.

Ebenezer Cobham Brewer (1810-97), his brother, compiled many useful books, including A Dictionary of Phrase and Fable, 1870.

BREWSTER, SIR DAVID (1781-1868). Scottish scientist. Born Dec. 11, 1781, at Jedburgh, he abandoned the ministry for science. In 1816 he invented the kaleidoscope and perfected the lenticular stereoscope. Between 1827-33 his experiments led to the introduction of the holophotal system of lighthouse illumination. From 1808 to 1830 he was editor of The Edinburgh Encyclopaedia. Knighted in 1832, he was appointed in 1838 principal of the united college of S. Salvador and S. Leonard at St. Andrews. In 1859 he became principal and vice-chancellor of Edinburgh University. He died Feb. 10, 1868.

BRIALMONT, HENRI ALEXIS (1821-1903). Belgian soldier and engineer. Born at Venlo, in Dutch Limburg, May 25, 1821, he made a special study of the principles of fortification, and, appointed as inspector-general of fortifications, 1875, he designed and superintended military works, especially those on the Meuse. Having fortified Bukarest, he returned to Belgium in 1884, and completed the fortifications of Antwerp, Liège, and Namur.



Henri A. Brialmont, Belgian military engineer

Brialmont died July 21, 1903.

BRIAN (926-1014). King of Ireland. He succeeded his murdered brother Mathgamain in 976 as king of Thomond, in 978 became king of Munster, and in 1002 became chief king of Ireland. On Good Friday, 1014, his forces totally defeated the Danes in the battle of Clontarf, but Brian, too old to fight, was slain in his tent. The charter which he gave to Armagh in 1004 may be seen in the library of Trinity College, Dublin.

BRIANÇON. Town of France. Capital of the dept. of Hautes-Alpes, it is the highest town in France, 4,334 ft. above sea level, and lies just above the junction of the Durance and Guisane, 51 m. by rly. N.E. of Gap. It has an 18th century church and a fine bridge across the Durance. Pop 5,780.

BRIAND, ARISTIDE (b. 1862). French statesman. Born at Nantes, March 28, 1862, he worked as a barrister and a journalist before being elected to the Chamber of Deputies in 1902. He was then a socialist, but he was expelled from the party when he became minister of education in 1906. In 1908 he was made minister of justice, and in 1909 he succeeded Clemenceau as premier. Resigning in Feb., 1911, he was again premier for a few weeks in 1913, and in Aug., 1914, to March, 1917, he was premier, as he was again in 1921-22 and in 1925-26.

In 1926 Briand became foreign minister, under Poincaré, and he retained that post when in July, 1929, he became premier for the twelfth time. In Oct. his government was defeated and he resigned, but returned as foreign minister under M. Tardieu. Outstanding events in Briand's long public career are the separation of church and state, which he carried through; his action in crushing the strike of railwaymen in Oct., 1910; and his part in the European negotiations, 1926-30.

BRIAR or **BRIER** (A.S. *brer*). Term in botany applied more particularly to *Rosa rubiginosa*, the sweet briar or eglantine, and *R. canina*, the wild dog-rose, but used of *R. inodora*, the slightly scented briar, *R. micrantha*, the small-flowered sweet briar, and other species of rose. The word is applied generally to any prickly or thorny shrub.

BRIAR ROOT (Fr. *bryère*). Tree-heath (*Erica arborea*), a common plant of south Europe. Its roots are as hard and fine-textured as ebony, and susceptible of a high polish. These characteristics make the wood—which is too small for most other uses—very suitable for the manufacture of tobacco pipes.

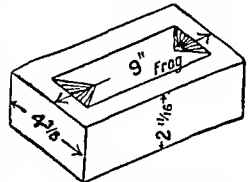
BRIBE. In English law, a gift or other material inducement given or held out to a person to betray a trust or a duty. Bribing at an election for a parliamentary or municipal seat is heavily punishable, because a vote is a

trust conferred for a public purpose. On this principle briber and bribed are equally guilty. This class of offence is regulated by the Corrupt Practices Act, 1883. The payment of secret commissions to induce business is forbidden by the Prevention of Corruption Act, 1906. This form of bribery is punishable by a fine up to £500 with or without imprisonment for a maximum of two years. The servant or agent asking for or accepting the bribe is equally punishable.

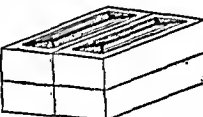
BRICK. The making of bricks is one of the oldest arts, and is still being carried on in many parts of the world much as it was some 4,000 years ago in Egypt. The Romans used bricks extensively, and a description of the method of making and laying them is given by Vitruvius (fl. 16 B.C.). Bricks were introduced into Britain by the Romans, who used them extensively in the 5th century.

The London stock brick is of a yellow colour; it is largely used by suburban builders. Of recent years the Peterborough pressed brick has been competing with it for favour. Common red and building bricks are made in almost every county. A hard, impervious blue brick is produced in South Staffordshire, and Stourbridge gives origin to fire-clay bricks used for furnaces and for the domestic grate. Glazed bricks are used where light and a good surface are needed.

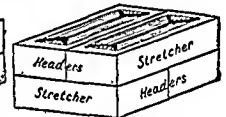
One of the essential conditions of good brickwork is sound bonding, i.e. the interlacing of the bricks for mutual support and



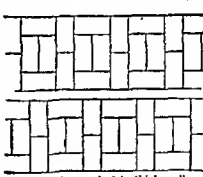
Brick, showing the frog, which is filled with mortar



Bricks laid without bonding

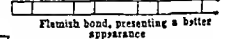


The principle of bonding

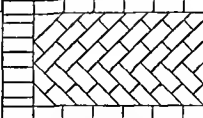


English bond, preferred for strength

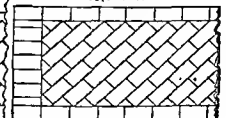
Bonding applied to thick walls



Flemish bond, presenting a better appearance



Herringbone bond



Raking or diagonal bond

Brick. Examples of bonding, that is, interlacing of bricks for support, in modern brickwork

for the avoidance of continuous vertical joints. There are several methods. Those most in use are the Flemish and the English, the latter being preferred for its superior strength.

BRIDE. Variant form of Brigid, saint of Ireland. It was the form commonly used in England, where many churches, notably S. Bride's, Fleet Street, London, received this dedication. See Brigid, Saint.

BRIDEWELL. Originally a well dedicated to S. Bride, or S. Brigid, near New Bridge Street, Blackfriars, London. Now covered by a pump, it gave its name to a palace, a parish, a church, and a prison. The first palace was Saxon, built on the site of a Roman fort. Then came a palace of Henry I, which was rebuilt by Wolsey. The third act of Shakespeare's



E. C. Brewer, book compiler



Aristide Briand, French statesman



Sir David Brewster, Scottish scientist

Henry VIII is laid in the palace. Later it became a prison, and afterwards a penitentiary with a department for idle apprentices. Rebuilt after the fire of 1666, it was pulled down in 1864. The name survives in Bridewell Place.



Bridewell. The building destroyed by the Great Fire. It was in turn palace, prison, and penitentiary

BRIDGE. Bridges are structures which carry paths, roads, railways, or canals across rivers, or other water chasms, or depressions in the ground level, or over other roads or railways. A bridge consists of one or more spans, each of which has two end supports, called abutments. The intermediate supports in a bridge of several spans are termed piers.

GIRDER BRIDGES. In the commonest form each span is supported independently at the ends, the weight of a span being distributed over two or more girders connected to each other. A simple girder is made up of a top and bottom flange connected by a vertical web, or in the case of a box girder, by two webs. Plate-web girders are now used only for moderate spans, and have been superseded by different forms of truss, or open web girder, in which the plate-web is replaced by a number of struts and ties. These, proportionately to their united weight, give greater stiffness than a continuous plate. A lattice girder bridge carries the railway across the river at Newcastle-upon-Tyne. Its two river spans are each 300 ft. long.

For spans of over 600 ft. the cantilever type of girder is used. The cantilevers are deep at their points of support and taper towards the other extremity. In most bridges of this class a main span is made up of two pairs of cantilevers and an intermediate girder span which they support at each end. The Forth bridge comprises three double cantilevers each 1,360 ft. long. The Quebec cantilever bridge has a clear span of 1,800 ft.

ARCH BRIDGES. The masonry arch is composed of a number of segmental blocks or voussoirs (vv), the end ones of which, called the skewbacks (sk), rest on the abutments. The spaces above, called span-drels, are filled in with solid masonry or walls of masonry, which, by distributing the stresses of moving loads, prevent deformation of the arch. In the steel arch, bricks or stone blocks are replaced by two or more parallel curved plate or lattice ribs. The load is distributed from the top members which carry the roadway. The ends are sometimes hinged to the skewbacks, to allow for alterations of curvature due to change of temperature. (See diagram above.)

SUSPENSION BRIDGES. A tower is built on each bank or on piers, and chains, links, or cables are run over them to firm anchorages well back from the bridge. Between the towers the cables droop in a funicular curve, while between tower tops and anchorages they are taut and nearly straight. The roadway platform is attached to the cables by vertical tie-rods at equal intervals; and, to give better distribution of the load, lattice trusses, having considerable stiffness vertically and a slight rise or camber towards the middle of the span, are provided. Notable suspension bridges are the Brooklyn, the Williamsburgh, and the Manhattan, all crossing the East river, New York, and those at Menai Strait and Clifton.

CONCRETE BRIDGES. Reinforced concrete as a bridge-building material has largely displaced brick and stone. Short span bridges consist usually of a deck slab resting on longitudinal members. For longer structures the arch or the girder type is used. An example of the first type is the flat arch concrete bridge over the Mersey at Warrington, which has a span of 134 ft. A fine ferro-concrete bowstring girder bridge over the Seine at St. Pierre du Vauvray is 432 ft. long.

MOVABLE BRIDGES. Bridges which move to enable shipping to pass are of three kinds: (1) revolving or swing bridges; (2) lifting or bascule bridges; (3) transporter bridges. The Tower Bridge, London, is an example of the hinged bascule type, in which a leaf is pivoted and counter-balanced at the back end.

BRIDGE. Card game for four persons. It was first known under the title of biritch, or

Russian whist, whence arose the idea that it was a Russian game. But bridge was certainly played over 50 years ago in Eastern Europe, notably in Constantinople and Greece. Its introduction into England dates from 1880, although it is said to have been played earlier among Greeks settled in Manchester.

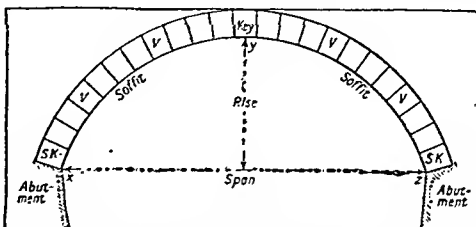
In Dec., 1894, a committee of the Portland club was appointed to draft an authorised code of laws. These laws were issued early in 1895, and after being passed by a joint committee of the Portland and Turf clubs, became the official laws of English bridge. They were revised in 1904 by a joint committee of the same clubs.

About 1910 the simple form of bridge was superseded by a form called auction bridge, and later a variant, contract bridge, was introduced. See Auction Bridge; Contract Bridge.

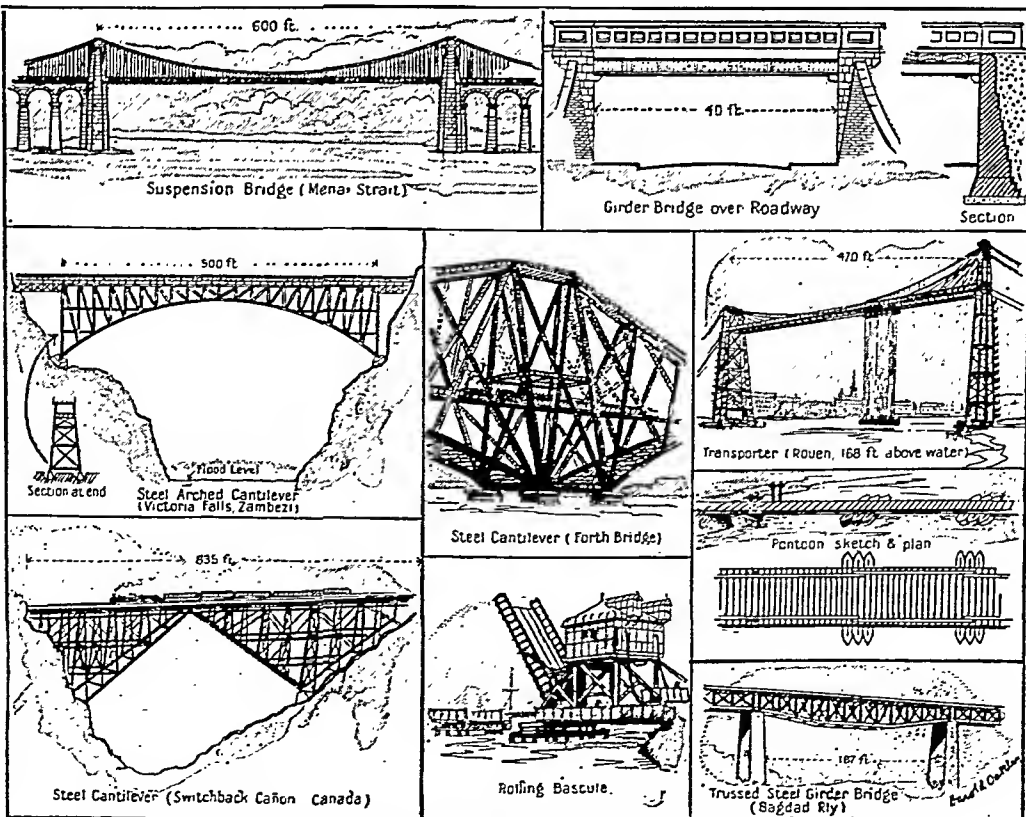
BRIDGE, SIR CYPRIAN ARTHUR GEORGE (1839-1924). British sailor. Born March 15, 1839, he served in the navy from 1853 to 1904. He was on active service during the Crimean

War and the Indian Mutiny, and was with the naval brigade in Burma. He was director of naval intelligence, 1889-94, commander-in-chief in Australia, 1895-97, and in China, 1901-4. Bridge died August 16, 1924.

BRIDGE, SIR JOHN FREDERICK, (1844-1924). British organist. Born at Oldbury, Worcestershire, Dec. 5, 1844, he was organist at Manchester Cathedral from 1869-75. Deputy organist at Westminster Abbey from 1875 to 1882, he was organist from 1882 to 1918. He was professor at London University, Gresham College, and the R. College of Music. He died Mar. 18, 1924.



Bridge. Masonry arch held together by the keystone. The segmental blocks will remain in place even if uncemented



Bridge. Modern examples of engineering skill in spanning space by structures in timber, masonry, and steel

BRIDGEMAN, SIR FRANCIS CHARLES BRIDGEMAN (1848-1929). British sailor. Born Dec. 7, 1848, he entered the navy in 1862. In 1903 he became a rear-admiral, and from 1907-9 was commander-in-chief of the Home Fleet. Knighted in 1907, Sir Francis became second sea lord of the Admiralty in 1909, and was again commander of the Home Fleet for a short time in 1911, when he was promoted to be first sea lord and was made an admiral. He died Feb. 17, 1929, at Nassau, Bahamas.

BRIDGEMAN, WILLIAM CLIVE BRIDGEMAN. 1st Viscount (b. 1864). British politician. Born Dec. 31, 1864, his father was a clergyman and a member of the earl of Bradford's family. He had a brilliant career as scholar and cricketer at Eton and Cambridge, and in 1906 became Unionist M.P. for the Oswestry division. He joined the Government in 1916 and, after holding various minor appointments, was secretary for mines, 1920-22, and home secretary, 1922-24. From 1924-29 he was first lord of the admiralty and on his retirement was made a viscount.



Viscount Bridgeman,
British politician
Russell

BRIDGEND. Urban district and market town of Glamorganshire. It stands on both banks of the Ogmore (Ogwe), 20 m. W. of Cardiff on the G.W.R. Of the ancient castle only a Norman gateway and a few other vestiges remain. It has tanneries, joinery works, collieries, etc. Pop. 10,000.

BRIDGE OF ALLAN. Burgh of Stirling-shire. On Allan Water, it is 3 m. N. of Stirling on the L.M.S. Rly. Its mineral springs and mild climate make it a favourite winter resort, and it has a well-house, baths, and hydropathic establishment. Its industries include bleaching, dyeing, paper-making, and ham curing. The annual Strathallan Gathering is held close by. Pop. 3,579

BRIDGEPORT. City and seaport of Connecticut, U.S.A., a co. seat of Fairfield co. On an arm of Long Island Sound, 58 m. N.E. of New York, it is served by the New York, New Haven, and Hartford Rly. It has a small but good harbour, carries on an extensive coasting business, and has manufactures of machinery, motor vehicles, and sewing machines. The buildings include the U.S. government buildings, the county court house, a public library, and the Barnum Memorial Institute. Daily steamboat communication with New York is maintained. Pop. 179,163.

BRIDGES, ROBERT (1844-1930). British poet laureate. Born Oct. 23, 1844, he was educated at Eton and Corpus Christi College, Oxford, studied medicine at St. Bartholomew's, London, and afterwards held posts at the Children's Hospital in Great Ormond Street and the Great Northern Hospital, until he retired in 1882. A collected edition of his poetical works was published 1898-1905. In 1916 appeared *The Spirit of Man*, an anthology in English and French; in 1920, *October and other poems*; in 1925, *New Verse*; and in 1929, *The Testament of Beauty*. In the same year he was given the O.M. In 1913 he was made poet laureate. His play *The Humours of the Court* was produced in Jan., 1930. He died April 21, 1930.



Robert Bridges,
English poet laureate,
Lafayette

BRIDGET (1302-73). A Swedish saint. In 1344 she founded a convent at Vadstena, in E. Gothland, and established a new religious order, the Briggittine or order of S. Saviour. This

order spread over Europe, and in England in 1415 Syon House, Isleworth, was the chief convent. S. Bridget journeyed to Rome in 1350, where she died July 23, 1373. Canonised in 1391, her festival is Oct. 8.

BRIDGETOWN. Capital and chief port of Barbados. It is the seat of a bishop, contains Codrington theological college, the governor's residence, House of Assembly, barracks, and arsenal, and is the headquarters of the British West Indian troops. The harbour is a fine, open roadstead. Bridgetown has an export trade in sugar and mineral oil, and is connected by rly. with the interior, and by cable with Jamaica and Trinidad. Pop. 13,486.

BRIDGEWATER, DUKE OF. English title borne by the family of Egerton from 1720 to 1803. In 1617, John Egerton was made earl of Bridgewater; he was a younger son of Sir Thomas Egerton, the lord chancellor who was made Viscount Brackley. Scroop, the 4th earl, was created duke in 1720, and the title passed to his two sons. The younger, Francis (1736-1803), became the 3rd duke in 1748.

The duke died March 8, 1803, when the dukedom became extinct. His canals, together with his great wealth, passed to a nephew, whose son, on succeeding to the property, was created earl of Ellesmere. Another nephew succeeded to the earldom of Bridgewater, which in 1823 passed to Francis Henry Egerton (1756-1829), a distinguished scientist, who became the 8th earl.

When he died, Feb. 25, 1829, the earldom became extinct. He bequeathed to the British Museum £12,000 and the so-called Egerton MSS.

His chief property was around Worsley, near Manchester. There coal was beginning to be mined, and he conceived the idea of making a canal to carry it. James Brindley was employed by him, and in a few years a canal from Worsley to Manchester had been successfully cut. It was then extended to Liverpool, and, known as the Bridgewater Canal, was purchased in 1887 by the Manchester Ship Canal for nearly £2,000,000.

Bridgewater House, the London residence of the earl of Ellesmere, lies between Green Park and Cleveland Row, S.W.

BRIDGMAN, LAURA DEWEY (1829-89). American blind-mute. Born in Hanover, New Hampshire, Dec. 21, 1829, at the age of two a

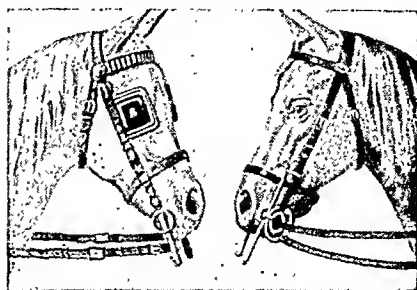
fever destroyed her sight, hearing, speech, and sense of smell. At the Perkins institution for the blind at Boston she learned to read embossed letters and words by touch. After some years she was able to receive lessons in geography, algebra, and history, and became proficient at needlework and other household duties, and also wrote a legible hand. Eventually she became a successful teacher of the blind and deaf and dumb. She died May 24, 1889.

BRIDGNORTH. Borough and market town of Shropshire. Divided by the Severn into an upper and a lower town, it is 22 m. S.E. of Shrewsbury by the G.W.R. It has a grammar school founded at the beginning of the 16th century, an old town hall and a tower of the old castle. It was the birthplace of Bishop Percy, whose house still stands. Market day, Sat. Pop. 5,143.

BRIDGWATER. Borough, seaport, and market town of Somersetshire. On both

banks of the Parret, it is 12 m. by river from Bristol Channel and 33 m. by rly S.W. of Bristol on the G.W.R. and the L.M.S. and Southern Jt. Rly., and is connected by canal with Taunton. It is the only town in Britain engaged in the making of bath brick. Ordinary bricks, tiles, pottery, and drain pipes are also made, and there are breweries, malting, and cake mills. The town suffered from floods in 1929. Bridgewater secured its first charter in 1260. In its castle the duke of Monmouth was proclaimed king in 1685. Market day, Wed. Pop. 15,968.

BRIDLE. The part of a horse's harness that fits the head. It consists of the headstall, the bit and the bearing rein, and a more



Bridle. Left: Simple bridle with single reins for driving. Right: Snaffle bridle for a hard-pulling riding horse

elaborate kind is called a snaffle bridle. Bridles are manufactured chiefly in Walsall. See Bit.

BRIDLINGTON. Borough, market town, and watering-place of Yorkshire (E.R.). It is 33 m. N. of Hull on the L.N.E.R., and consists of an old town lying 1 m. inland, Bridlington Quay, its port on Bridlington Bay, and Hildesborough, a district to the S. It has fine sands, promenades, baths, and a mineral spring. The harbour is one of the securest on the E. coast. Market days, Wed. and Sat. Pop. 22,768.

BRIDPORT. Borough and market town of Dorset. On the river Brit, it is 18 m. W. of Dorchester by the G.W.R. The main street and rly. extend to the sea at West Bay, which has a small harbour. It had a mint for silver coins, and at one time sent two members to Parliament. Market days, Wed. and Sat. Pop. 5,909.

BRIEF (Lat. brevis, short). In English law, a statement in writing furnished by a solicitor to counsel, to instruct him as to the facts of a case. Hence counsel is said to be briefed in a case.

A papal brief is the name applied to an official letter from the pope. It is always written in Latin, is sealed with the fisherman's ring on wax, and has the authority of a bull. See Bull.

BRIENZ. Lake of Switzerland, in the canton of Berne. In a valley N. of Interlaken, 1,857 ft. above sea level; it is 9 m. long, 1½ m. across, and 11½ sq. m. in area, and has a greatest depth of 860 ft. On the S. shore is the Giessbach waterfall, and N.E. lies the Rothorn, with a view of the Bernese Alps. The village of Brienz on its shores, 8 m. W. of Meiringen, is the centre of the Swiss wood-carving industry, and has a rly. up the Rothorn. Pop. 2,474.

BRIERFIELD. Urban dist. of Lancashire. It is 2 m. N. of Burnley, on the L.M.S. Rly. It has a Gothic church, built in 1872, and shares in Burnley's industries. Pop. 8,341.

BRIERLEY, BENJAMIN (1825-96). Lancashire writer. Born at Failsworth, near Manchester, June 26, 1825, he was a weaver from his 6th to his 38th year. In 1856 he wrote *A Day's Out*, the first of many tales and articles in the dialect of the people of S. Lancashire. In 1863 he became sub-editor of *The Oldham Times*, and from 1869-91 edited *Ben Brierley's Journal*. He died Jan. 18, 1896.



Laura Bridgman,
American teacher,
who was blind, deaf
and dumb

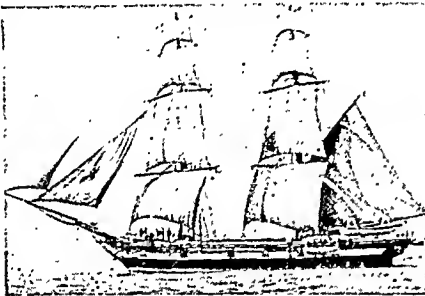
BRIERLEY HILL. Urban dist. and market town of Staffordshire. On the river Stour, it is 2½ m. N.E. of Stourbridge, on the G.W.R., and is also served by canals. It has glass, firebrick, nail, and chain manufactures. Market day, Tues. and Sat. Pop. 12,484.

BRIEUX, EUGÈNE (b. 1858). French dramatist. Born in Paris, Jan. 19, 1858, he first made his mark with *Ménages d'Artistes* at the Théâtre Libre in 1890. Afterwards he wrote a series of plays dealing with social questions: *Les Trois Filles de M. Dupont*, 1897; *La Roche Rouge*, 1900 (Eng. version, *The Arm of the Law*); *Les Avariés*, 1901 (Eng. version, *Damaged Goods*). The plays have all been translated into English. Later work included *La Femme Seule*, 1913; *Les Américains Chez Nous*, 1920; *La famille Lavolette*, 1926.



Eugène Brieux,
French dramatist
Manuel

BRIG. Type of two-masted sailing vessel, carrying square sails on both masts. Until 1904, when mast-and-yard training in the navy was abolished, brigs were attached to the depots to complete the training of youths before they were drafted to sea-going ships.



Brig. One of the old training brigs (Martin) making full sail down the Channel
Cribb, Southsea

BRIGADE (Ital. *brigata*, from *brigare*, to fight). Military organization of infantry, cavalry, or artillery. In the British army the last named is a lieutenant-colonel's command, consisting of three batteries and an ammunition column. Infantry and cavalry brigades are commanded by general officers, and consist of four battalions of infantry, or three regiments of cavalry, besides medical, veterinary, and signal details, that is, about 3,000 bayonets or 900 sabres. The ration strength of a British infantry brigade on mobilisation is 124 officers, 3,931 men, 247 horses; of a cavalry brigade, 85 officers, 1,633 men, 1,873 horses. See *Army*.

BRIGADIER-GENERAL. Commander of an infantry or cavalry brigade, and the lowest rank of general officer. It is only a temporary rank, i.e. there are no brigadiers-general as such on the establishment. The rank was abolished in the British army in 1920, colonels-commandant taking its place. It was revived in 1928.



Brigadier-General.
Shoulder-strap and
badge

Huddersfield, on the L.M.S. Rly., it has woollen and worsted factories, wire mills, flour mills, card factories, and stone quarries, and makes carpets, soap, and machinery. It has a town hall, art gallery, and free libraries. Market day, Sat. Pop. 20,610.

BRIGHT, JOHN (1811-89). British politician. Born at Rochdale, Nov. 16, 1811, in 1839 he associated himself with Richard Cobden and Charles Villiers in agitating for the repeal of the corn laws, to which cause his time, until 1846, was largely devoted. In 1843 Bright entered the House of Commons as an independent free trade M.P. for Durham, and in 1847 was elected for Manchester. That city rejected him in 1857, but in the same year he was elected for Birmingham, which he represented until his death. In 1863 he became president of the Board of Trade, but in 1870 ill-health brought about his retirement.



John Bright,
British politician
Engraving by Hall
from photo by Mayall

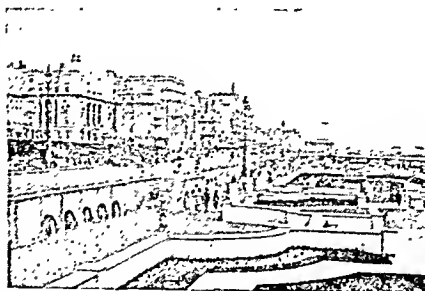
In 1873-4 he was chancellor of the duchy of Lancaster, and again in 1880-2, when he withdrew from the Gladstone ministry as a protest against the policy of intervention in Egypt. In 1885 he left the Liberal party on the question of Home Rule for Ireland, an action which had its share in bringing about the fall of the ministry. He died Mar. 27, 1889.

BRIGHT, TIMOTHY (c. 1551-1615). Inventor of a system of shorthand. From 1586-90 he was physician to St. Bartholomew's Hospital. In 1591 he took orders and was presented to two Yorkshire rectories by Queen Elizabeth, to whom he had dedicated his treatise on shorthand, *Characterie*, in 1588.

BRIGHTLINGSEA. Urban district and seaport of Essex. On the Colne estuary, 8 m. S.E. of Colchester by the L.N.E.R., it is a yachting station. Pop. 4,497.

BRIGHTON (formerly *Brightelmstone*). County borough and watering place of Sussex, 50½ m. by rly. S. of London on the Southern Rly. It stands high on the S. slopes of the South Downs, with a promenade stretching about 4 m. along the sea front, from Kemp Town at the E. end to Hove.

Brighton's rise was due to Dr. Richard Russell, a physician, and to the discovery of a



Brighton. View showing the esplanade, gardens, and pier entrance of this famous south coast resort
Frith

chalybeate spring, while the opening of the L.B. & S.C. Rly. in 1841 helped to popularise it. The Aquarium, opened in 1872, was replaced by a new building in 1929.

Educational institutions include the technical college and Brighton college. The Royal Pavilion and the Dome, a group of buildings of Eastern design, begun in 1784 for George IV when Prince of Wales and finished in 1827, are used for entertainments, picture galleries, etc. The Booth Museum has a fine collection of British birds. The West Pier (1866) is 1,115 ft. long, and the Palace Pier (1900),

replacing the old Chain Pier, washed away in 1896, is 1,700 ft. long. Recreation grounds include Preston Park, Queen's Park, and Hollingbury Park, with an 18-hole golf course. There is a racecourse at Kemp Town.

In 1927 the population was estimated at 147,600. In 1928 the area of Brighton was increased to 12,490 acres, or nearly 20 sq. m., and it now includes Ovingdean, Rottingdean, Patcham and other places. In 1928 the town council bought Devil's Dyke, as well as 200 acres on the cliffs between Roedean and Rottingdean to extend the marine drive. Other improvements, put in hand or suggested in 1929, include a huge bathing pool near the Aquarium.

There is a watering place called Brighton in Victoria, Australia. It stands on the E. shore of Port Philip, 8 m. S.E. of Melbourne, and has two piers and a long stretch of sandy shore.

BRIGHT'S DISEASE. Acute or chronic inflammation of the kidney, also known as nephritis. The disease is named after its investigator, Richard Bright (1789-1858), a physician at Guy's Hospital, London.

Acute Bright's disease may be due to exposure to cold and wet, particularly in persons addicted to drinking; to infectious disease, most frequently scarlet fever; to the swallowing of poisonous substances such as cantharides or turpentine; and occasionally arises in the course of chronic diseases such as gout and diabetes. Characteristic symptoms are changes in and diminution of the urine, dropsy, first noticeable in the eyelids and ankles, fever and vomiting. In cases due to exposure to cold the outlook is favourable; when the disease occurs in the course of scarlet fever in young children the mortality is high. Treatment consists in arranging the diet so as to diminish the amount of nitrogenous foods, and so rest the kidneys; in giving water and other diluents; and in increasing the action of the skin, if necessary by hot packs, in the elimination of poisons by sweating.

In chronic Bright's disease, which is of two kinds, distinguished by the morbid changes in the kidney, complete cure is impossible, but by careful treatment and a well-regulated life the symptoms may be much improved.

BRIGID (452-523). Irish saint. Born at Faughart, near Dundalk, of noble ancestry, she became a nun and founded an oratory at Cill-Dara which developed into two important abbeys and later into the city of Kildare. The friend of St. Patrick, she is with him a patron saint of Ireland, and her festival is kept on Feb. 1. The name is often abbreviated to Bride and spelt wrongly Bridget.

BRHASPATI. One of the gods of Brahmanism, regarded especially as the Lord of Prayer. A reference in the Mahabharata suggests that he may also be the god of wisdom. See *Brahmanism*.

BRIL, PAULUS (1554-1626). Flemish painter. Born in Antwerp, he was the younger of two sons of Matthys Bril, the elder. His brother, Matthys the younger (1550-84), achieved a great reputation at the Vatican, where he was employed by Gregory XIII. Going to Rome, Paulus assisted Matthys in the frescoes commissioned by the pope, and was employed in the Sistine chapel.



Brill. A species of turbot
Bertrage

BRILL. Species of fish of the same genus as the turbot (*Rhomus*), but smaller and more oval in shape and inferior in the quality of its flesh. It is greyish brown in colour, with reddish spots, and is caught in British and other European waters.

BRIMSTONE (Old Eng. brenston, burn-stone). Popular name for sulphur, also used by the alchemists, who looked upon sulphur as the principle of combustibility. The name chiefly survives in connexion with "brimstone and treacle," a popular confection for purifying the blood. See Sulphur.

BRINDISI (Gr. Brentesio; Lat. Brundisium). City and seaport of Italy in the prov. of Brindisi. On the Adriatic, 473 m. by rly. S.E. of Bologna, it has been a starting point for the E. from earliest times, and was the principal naval station of the Romans on the Adriatic. Its importance was enhanced when it became the land terminus of the overland route to India on the opening of the Suez Canal. Mail and passenger boats leave here for Egypt, India, the Far East, and Australia and New Zealand.

The city lies between the two arms of the harbour, which is accessible to large vessels and sheltered by several islands. There is a wireless station. The buildings include the cathedral, built 1089 and restored 1749; the castle, built by the emperor Frederick II, now a prison; the 11th century baptistry of S. John, which houses a museum; and San Benedetto, a Norman church dating from about 1200, with fine cloisters. Pop. 41,393.

BRINDLEY, JAMES (1716-72). British engineer. Born at Thornsett, Derbyshire, in 1742 he set up in business for himself at Leek. Employed by the



James Brindley,
British Engineer
Engraving by J. T.
Wedgwood

Wedgwoods to repair and construct machinery, he patented an improved steam engine in 1758. The following year he planned for the duke of Bridgewater the water-way known as the Bridgewater Canal, from Worsley to Manchester, including the aqueduct which still carries its water over the Irwell. The extension of the Bridgewater Canal to the Mersey, and the Trent and Mersey, or Grand Trunk Canal, were also his work. Most of Brindley's calculations were done mentally, as he could hardly write. He died Sept. 30, 1772.

BRINVILLIERS, MARIE MADELINE MARQUERITE, MARQUISE DE (1632-76). French poisoner. In 1651 she was married to the marquis de Brinvilliers, and in 1659 became the



Marie, Marquise de
Brinvilliers

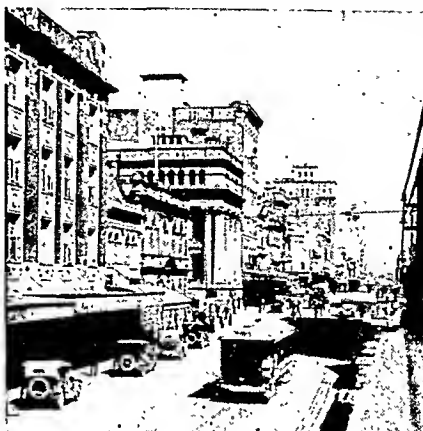
mistress of a cavalry officer, Godin de Sainte-Croix. By him she was persuaded to poison first her father and then her two brothers in order that he and his mistress might inherit the whole of the family wealth. Although the cause of death was revealed at the post-mortem examinations, no suspicions fell on the murderers. Sainte-Croix died suddenly in 1672, and among his papers was a document incriminating the marquise, who fled to Germany and thence to a convent at Liège. Lured from here by a trick, she was taken to Paris and beheaded, July 16, 1676. A full confession was found among her papers.

BRIONI. Island in the Adriatic Sea. Near Pola, it is the largest of a group all called Brione. Near here the Genoese fleet defeated the Venetians in 1379, and from the islands Venice obtained stones for its palaces. Brioni is now a pleasure resort.

BRIQUETTE (Fr. little brick). Fuel made of coal dust compacted into brick form. After washing and drying, the coal dust is mixed with pitch-tar, or other binding substance, and pressed into moulds by powerful

rams. Briquettes, first made in France, are used chiefly for locomotive and marine boilers and for puddling and other furnaces, and also for domestic heating.

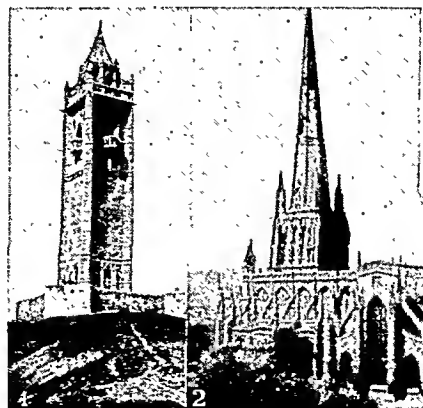
BRISBANE. Capital of Queensland, Australia. On the Brisbane river, 45 m. from its mouth in Moreton Bay, it has rly. connexion with Melbourne, Adelaide, Sydney, and other large towns, and is accessible to large vessels.



Brisbaue. Queen Street, the main thoroughfare, runs through the city to South Brisbane, across the river
Courtesy of the Australian Government

Brisbane is the seat of a Roman Catholic archbishop and an Anglican bishop. Notable buildings include the Parliament House, custom house, two cathedrals, law courts, and other buildings for state purposes. It is the seat of the university of Queensland, opened in 1911, and has a wireless station, botanical gardens, school of arts, and several parks and open spaces. In Albert Park stands the observatory. The industries include the manufacture of boots, tobacco, soap, and leather. The chief exports are sheep, frozen meat, coal, tallow, wool, and hides. Occupied as a penal station in 1824 by Sir Thomas Brisbane, after whom it was named, Brisbane in 1859 became the capital of the colony. In 1930 its mayor became a lord mayor. Pop. 295,430.

BRISEIS. In Greek legend, a Trojan maiden who became the captive of the Greek hero, Achilles. Agamemnon, having been forced to restore the captive Chryseis to stay the plague sent by Apollo to avenge the insult offered to her father, claimed the surrender of Briseis. This led to the famous quarrel between Agamemnon and Achilles and the



Bristol. 1. Cabot Tower, built in 1897 to commemorate the 400th anniversary of John Cabot's sighting of America. 2. Church of S. Mary Redcliffe, dating from the 15th century
Valentine

refusal of the latter to take any further part in the Trojan war. See Achilles; Iliad.

BRISOT, JEAN PIERRE (1754-93). Leader of Girondins in the French Revolution. Born at Chartres, Jan. 14, 1754, and trained as a lawyer, he was the author of two important treatises on criminal law, 1781-2. Imprisoned for four months in the Bastille, as the supposed author of a pamphlet against Marie Antoinette, on his release he went for safety to England, but returned to France in 1789. He was elected to the Legislative Assembly in 1791, and became leader of the republican Girondins, sometimes called after him the Brissotins. One of the first Girondins condemned, he was guillotined Oct. 31, 1793.



Jean Pierre Brissot,
French revolutionist

BRISTOL. City, county borough, and seaport on the west coast of England, mainly in Gloucestershire, but partly in Somerset. It stands on the Avon, 7 m. from the Bristol Channel, and 118 m. by rly. W. from London on the G.W. and L.M.S. Rlys.

The modern harbour was constructed in 1809 by diverting the course of the Avon, and forming the original waterway into a canalised dock (the floating harbour), well equipped with quays and warehouses. The port consists of the older docks in the city proper, together with the docks at Avonmouth and Portishead. Brewing, engineering, and the manufacture of tobacco, cocoa, chocolate, and soap are thriving industries, and there is a valuable foreign and coasting trade.

The see of Bristol was incorporated with that of Gloucester in 1836, but again became separate with its own bishop in 1896. The cathedral, originally the abbey church of the Augustinian Canons, was founded in 1142, and added to and rebuilt in the 13th, 14th, and 15th centuries. The nave is modern. The magnificent Perpendicular parish church of S. Mary Redcliffe, founded in the 13th century, and rebuilt in the 14th and 15th centuries, is a monument to the wealth of Bristol's most famous merchant prince, the younger Canynge. The first Wesleyan chapel was built in the Horsefair, Bristol, in 1739. Important public buildings are the exchange, Colston Hall, the Victoria Rooms, the city library, and the museum. In 1929 it was decided to erect new municipal buildings on College Green. Among educational institutions are the university, Clifton College, the grammar school and the Merchant Venturers' Technical College, now part of the university. The city has an aerodrome at Whitchurch. After the Great War Bristol adopted the French town of Bethune. Market day, Thurs. Pop. 385,700.

The university was founded 1909, in which year the local university college, dating from 1876, was dissolved. It has an agricultural and horticultural station at Long Ashton, and a research station at Chipping Camden. In 1926, to celebrate the jubilee of the foundation of university college, a magnificent range of new buildings was opened by King George V. In 1928 a physics laboratory, the gift of Mr. H. H. Wills, was opened. See Avonmouth.

BRISTOL.

In the British navy the name-ship of a class of five light cruisers, 430 ft. long, 47 ft. in beam, displacement 4,800 tons. H.M.S. Bristol, service in the

launched in 1910, saw much Great War. See illus. p. 305.

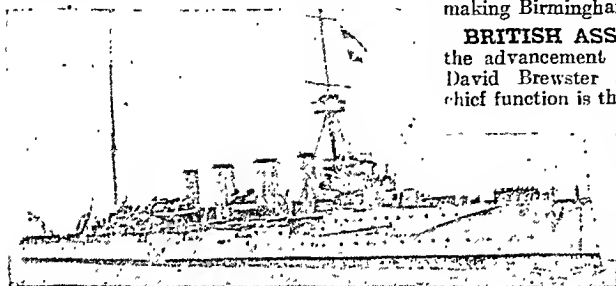
BRISTOL, EARL OF. British title held by the families of Digby and Hervey. John Digby (1580-1653), ambassador for James I at Madrid, was knighted in 1607, created Baron Digby in 1618 and 1st earl of Bristol in 1622, and was succeeded by his son George (1612-77), the friend of Charles II. On the death of the third earl the title became extinct.

In 1714 Sir John Hervey (1665-1751) was made earl of Bristol for his support of the Hanoverian succession. Frederick, 5th earl, was made a marquess in 1826, and from him the present marquess is descended. His seat is Ickworth Park, Suffolk.



George Digby,
2nd earl of Bristol.
After Van Dyck

BRISTOL CHANNEL. Largest inlet of the British Isles. An arm of the Atlantic Ocean, it extends about 85 m. from the



H.M.S. Bristol. Light cruiser engaged in the Great War. See page 304
Cribb, Southsea

Neptune in her left hand and a shield with her right, the sea at her feet, but with the Eddystone lighthouse on one side and on the other the outline of a ship.

BRITANNIA. Training ship for officers of the British navy. In 1859 a vessel of this name was made a training ship for naval cadets, was discarded, and the name transferred to the Prince of Wales, a vessel of 6,200 tons. First stationed at Portsmouth, it was moved to Dartmouth. In 1903 the scheme of naval education was altered and the Britannia was replaced by the R.N. Colleges at Osborne and Dartmouth.

Britannia was also the name of a British battleship of the King Edward VII class, sunk through being torpedoed near Gibraltar in Nov., 1918. It was also the name of the first Cunard liner.

BRITANNIA METAL. Alloy in which the predominant metals are tin and antimony, with, in some instances, small proportions of copper, zinc, lead, and bismuth. It is used in making Birmingham and Sheffield plate.

BRITISH ASSOCIATION. Society for the advancement of science founded by Sir David Brewster and others in 1831. Its chief function is the holding of an annual conference, at which an address is delivered by the president for the year. It is usually held in one of the large towns, but occasionally overseas. The Association grants financial aid for research, publishes papers, etc. The offices are at Burlington House, London, W.

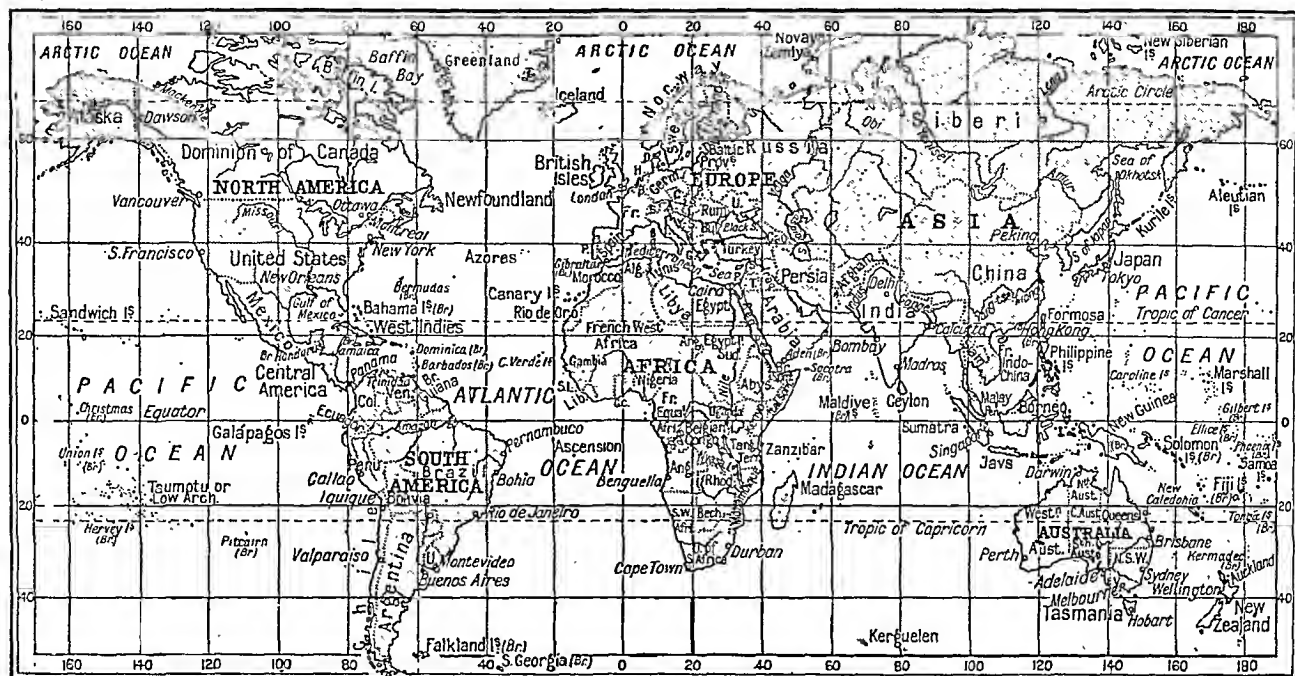
districts of the S.W. the climate is similar to that of the S. of England. Minerals include lead, copper, zinc, silver, gold, and coal.

The territory was under the Hudson Bay Company down to 1858, when it was constituted a crown colony. Vancouver I. was leased by the same company from 1843-49, when it also became a crown colony, and in 1866 united with British Columbia, which entered the Canadian Confederation in 1871. British Columbia is represented in the Senate by six members, and in the House of Commons by 14, and provincial government is by a lieutenant-governor and legislative assembly of 48 members. Victoria is the capital.

BRITISH EMPIRE. Union of lands ruled by the king of Great Britain and Ireland. It consists of (1) Great Britain and Northern Ireland; (2) six Dominions or self-governing units, Australia, Canada, Irish Free State, Newfoundland, New Zealand, and South Africa; (3) the empire of India; (4) crown colonies such as Nigeria, Ceylon, and Jamaica; (5) protectorates such as Kenya and Nyasaland, and (6) lands such as Tanganyika, that are governed under mandate from the League of Nations. The Empire belongs to the League, each of its Dominions being a distinct member with separate voting power.

The area of the Empire is 13,909,800 sq. miles and its pop. about 450,000,000. Every race and religion are found and it ranks as the greatest Moslem power in the world. Only about one-half of its inhabitants are white.

Africa	4,65
N. America .. .	3,5
Oceania	



British Empire. Map showing the extent of the British Empire, including the mandated territories. Portions shown white are British

mother country, which is represented in each by a governor-general. Their method of government with electors, parliaments and cabinets is modelled on that of Great Britain. India occupies a special position, and its relations with the rest of the Empire were the subject of exhaustive inquiries in 1928-30. The crown colonies are governed, wholly or partly, by officials sent out from Great Britain, with a certain amount of self-government in some of them.

In theory the Parliament at Westminster can legislate for the whole Empire, but it has virtually abandoned its right to legislate for the Dominions, save at their special request. Their legislation, however, needs the assent of the King to make it valid, but this is never refused. Throughout the Empire the position of the Judicial Committee of the Privy Council as the final court of appeal from all the law courts is recognized, though S. Africa and the Irish Free State have raised certain objections.

The affairs of the Empire, except India, are looked after by the Dominions and Colonial Office in London under a secretary of state. Until 1925 he was secretary for the colonies only, but in that year a secretaryship for the Dominions was established. The two offices, however, are held by the same person, but the change marked the recognition of the Dominions as Great Britain's equals. The only recognized body that deals with the affairs of the Empire as a whole is the Imperial Conference, which meets periodically in London.

The Empire may be said to date from 1583, when Newfoundland was settled. After that additions in almost every quarter of the globe were made, some by discovery, others by conquest, but in 1783 the most valuable of these, the American colonies, were lost. Expansion, however, continued, the most notable acquisition being India, but in the second half of the 19th century a halt was called. Then Egypt and the S. African republics were added, and the end of the Great War brought further extensions, chiefly of territories governed under mandate. In 1922 Egypt was given its independence and is no longer included in the Empire's area. More important perhaps was the division of Ireland and the creation of the Free State in 1922. See Australia; Canada; India, etc.

BRITISH EMPIRE, ORDER OF THE. British order instituted June 21, 1917. Consisting of two divisions, military and civil, the order



Order of the British Empire. Badge and star of First Class

is conferred for services rendered to the Empire, whether at home or abroad, and is given to women equally with men. Both divisions consist of five classes: knight grand cross (G.B.E.), knight commander (K.B.E.), commander (C.B.E.), officer (O.B.E.), and member (M.B.E.). In the case of women the two first classes are dame commander (D.B.E.); the others are the same.

BRITISH LEGION. Federation of ex-service men's societies, formed July 1, 1921, with Earl Haig as president. Its objects are to unite all who served in the Great War, to safeguard their interests and those of the dependents of the fallen. It organizes industries for disabled men, and conducts a factory at Petersham for the manufacture of poppies for sale on Armistice Day. Earl Jellicoe succeeded Earl Haig as president in 1928. The head offices are at 29, Eccleston Square, London, S.W.1.

BRITISH INDIA, ORDER OF. Military distinction conferred upon native officers of the Indian army. Instituted on April 17, 1837, in two classes, it is the highest decoration for which native officers can qualify and is awarded for "long, faithful, and honourable service." The insignia is a gold star of eight points, suspended by a crimson ribbon.

BRITISH MUSEUM, THE. Situated in Bloomsbury, London, it originated in the purchase for the nation of Sir Hans Sloane's collections in 1753. These comprised 50,000 books and MSS., 23,000 coins and medals, about 20,000 natural history specimens, and a great variety of other items. In 1754 Montagu House, in Great Russell Street, Bloomsbury, was purchased and adapted to its new purpose. The Cottonian collections of books and MSS. (made by Sir Robert Cotton, 1571-1631), which were already public property, and the royal collections made by successive sovereigns from the time of Henry VII, were added to the others, and the whole was named the British Museum. Since then great additions have been made by purchase, bequest, and gift. The Museum was first opened to the public on Jan. 15, 1759, but was not really accessible until 1810. (See Frontispiece.)



British India, Star of the Order

The valuable natural history collections were removed to South Kensington, 1880-83. The British Museum Library, containing 4,000,000 printed volumes, is the largest in the world.



British Museum, Great Russell Street front. The colonnaded façade, completed in 1852, in which is the main entrance to the Museum

To this library must be sent a copy of every book, newspaper, etc., published in the United Kingdom.

BRITISH WEST INDIES REGIMENT. Corps formed during the Great War from contingents of the inhabitants of the West India islands. The 1st and 2nd battalions distinguished themselves in the Palestine campaign.

BRITOMARTIS (sweet maiden, or maiden rich in blessing). Cretan goddess, reputed daughter of Zeus and Carmē. As virgin patroness of the chase and fishing, her cult came to be associated with that of Artemis. She was worshipped on the islands and coasts of the Mediterranean as far W. as Marseilles, and at Aegina under the name of Aphaea. See illus. p. 23



British West Indies Regiment badge

BRITON FERRY. Urban district and seaport of Glamorganshire. At the mouth of the river Neath, 7 m. E. of Swansea, on the G.W. Rly., it has docks, iron and steel works, and coal mines. Pop. 9,176.

BRITTANY (Fr. Bretagne). One of the provinces into which France was divided before the Revolution. Earlier still it was an independent duchy. It is now divided into the departments of Loire-Inférieure, Ille-et-Vilaine, Morbihan, Côtes-du-Nord, and Finistère. In the N.W. of the country, it is a peninsula bounded seawards by the



English Channel and Atlantic Ocean, and landwards by Normandy, Anjou, and Maine.

Of all France, Brittany most preserves an individuality of its own, owing partly to the religious and racial nature of its inhabitants, but more to its geographical situation—remote and formerly almost inaccessible from the rest of the country. This shows itself in the piety of the people; and the survival of their own language, legends, customs, and dress. The chief town is Rennes; other important ones are Nantes, Vannes, Dol, Dinan, Brest, and Lorient. The largest river is the Vilaine; the mouth of the Loire was in the old province.



Brittany. Top, family group from Quimper. Bottom, Paimpol woman in distinctive dress

BRIXHAM. Urban dist., seaside resort, and market town of Devon. It is pleasantly situated on Torhay, opposite Torquay, 32 m. by rly S. of Exeter, on the G.W.R. A coaling station, it has a secure harbour, from which an important fishing industry and a brisk coasting trade are conducted. Near are limestone quarries. William of Orange landed here in 1688. Brixham Cave (600 ft. long), discovered accidentally in 1858, contained bones of extinct animals. Market days, Tues. and Sat. Pop. 7,782.

BRIXTON. District of S.W. London. It is in the metropolitan borough of Lambeth, 3 m. S. of S. Paul's, and is served by the

Southern Rly. It has a prison, a theatre, and a free library, and is a popular shopping centre. In 1929 a picture theatre seating 4,000 people, one of the largest in London, was opened here. Called the Brixton Astoria, its interior represents an Italian landscape. At the bottom of Brixton Hill stand the municipal offices of the borough of Lambeth and Brixton parish church. See Lambeth.

BROACH. City of India. One of the oldest seaports in western India, it stands on the Nerbada river, about 200 m. N. of Bombay. Formerly noted for woven fabrics, it is now engaged in the manufacture of cotton and flour and the exportation of raw cotton and cereals. An English factory was established here in 1616 and a Dutch factory the following year. Pop. 43,500.

BROAD ARROW. Mark placed on naval and military stores, the clothing of convicts, and other government property in the United Kingdom. The pheon or broad arrow was the crest of Henry Sidney, earl of Romney, master-general of the ordnance in the 17th century, who used this mark to identify government property. By the Act of Parliament of 1698 all unauthorised persons found in possession of goods marked with the broad arrow are liable to a fine.



Broad Arrow, Government mark

BROADCASTING. Term used in wireless telephony to indicate the sending out of wireless messages, concerts, etc., to be received by those who have the necessary apparatus to listen-in. The term is used in connexion with the daily entertainment, news bulletin, weather reports, etc., broadcasted.

Broadcasting in England began with experimental transmissions from Chelmsford by the Marconi Co. in 1919. In 1920 permission was given for the first transmitting station for entertainment and educational purposes. This was erected at Writtle, near Chelmsford. At first only a short programme was given once a week. In May, 1922, the Marconi Co. began to broadcast a programme of speech and music from Marconi House, London (2 L O).

On October 18, 1922, the British Broadcasting Co. came into being as the result of a conference between the Postmaster-General and representatives of firms manufacturing electrical apparatus, six of the leading manufacturers guaranteeing to establish and maintain a broadcasting service for two years. Eight stations were to be provided, at London, Aberdeen, Birmingham, Bournemouth, Cardiff, Glasgow, Manchester and Newcastle. In return the B.B.C. received a licence giving them the exclusive right to broadcast entertainment in Gt. Britain. Broadcast receiving licences were issued at a cost of 10s. each, and it was made compulsory for the owner of a receiving set to take out one. Half the revenue from the licences went to the company, who also received a royalty on all receiving apparatus sold. Broadcasting began from the London, Manchester, and Birmingham stations on Nov. 15, 1922, and the remaining stations came into operation during the following twelve months.

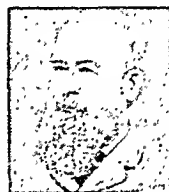
When the B.B.C. licence expired in 1924 it was renewed for a further two years. In April, 1925, a high-power broadcasting station was opened at Daventry (5 X X). Upon the expiry of the renewed licence in 1926 the Government took control of the British Broadcasting Co., which then became the British Broadcasting Corporation, with a royal charter. In August, 1927, an experimental station was set up at Daventry (5 G B), and in the following November a short-wave station was opened at Chelmsford (5 S W).

On October 15, 1929, Brookman's Park (Herts), the first of a series of high-powered,

two-wave regional stations, was opened, and superseded the London transmitter in Oxford Street, which had functioned since April, 1925. This station serves south-east England. Others are planned for the north and west, and one for Scotland. Daventry (5 G B and 5 X X) already constitutes a regional station, and serves the Midlands. In 1929 new headquarters for the B.B.C. in Portland Place, London, were planned.

The number of receiving licences in March, 1929, was 2,731,968, including 14,505 issued free to blind persons. The proportion of the licence fee received by the B.B.C. varies, diminishing as the number of licences increases. At March, 1929, the proportion was 7s. 1d. per licence. In 1926 an International Board was formed at Geneva.

BROADHURST, HENRY (1840-1911). British politician. Born at Littlemore, Oxfordshire, he became secretary of the Labour Representation League, 1873, and was M.P. for Stoke-on-Trent in 1880, for the Bordesley division of Birmingham in 1885, for Nottingham 1886-92, and for Leicester 1894-1906. He was under-secretary for the Home department in Gladstone's ministry of 1886, and was all his life identified with the Liberal party. He died at Cromer, Oct. 11, 1911. Consult his Autobiography, 1901.



Henry Broadhurst, British politician

BROADMOOR. State asylum for criminal lunatics in Berkshire. It is 2 m. from Wellington College station on the Southern Rly. Opened in 1863, it can take 700 inmates.

BROADS, THE. Low-lying district, mainly in Norfolk, but partly in Suffolk. It consists of a number of shallow lagoons connected by dykes with the rivers Yare, Bure, Waveney, Thurne, and Ant, and is navigable by small sailing boats drawing up to 4 ft. The lagoons alternate with marshes, the haunt of waterfowl. Among the principal broads are Wroxham, Salhouse, Horning, Barton, Oulton, Hoveton Great, Hoveton Little, Ranworth, Hickling, Filby, Rollesby, and Ormesby. The area is about 5,000 acres.

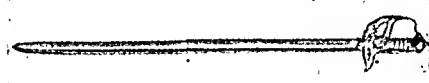
BROADSHEET or **BROADSIDE.** The earliest form of popular printed literature, generally a ballad or sensational narrative on a single sheet of paper. Though largely superseded by the chap-book in the 18th century, the broadsheet continued to be issued for Last Dying Speeches of executed malefactors well into the 19th century. Up to the 20th century popular songs were still sold in broadsheet form.

BROADSIDE. Discharge by a warship of every gun that will bear upon or within a few points of the beam. In the days of sailing ships, when guns were ranged round the sides, only one-half of the guns could be thus fired. Modern battleships and battle-cruisers have all their heavy guns mounted on the centre-line, and are thus able to concentrate their whole main battery on either beam. The term salvo has been substituted for broadside. See Battleship; Gun.

BROAD SOUND. Inlet on the W. coast of Queensland, Australia. Extending inland for about 55 m., it has a maximum breadth of 25 m., and affords secure anchorage. There are coal-beds in the neighbourhood.

BROADSTAIRS. Urban district with St. Peter's and watering-place in the Isle of Thanet, Kent, 2 m. N.E. of Ramsgate on the Southern Rly. It has a pier. It was immortalised by Dickens, who made Fort House his summer residence from 1837-51, popularly but erroneously identified with the Bleak House of his story of that name. Pop. 15,461.

BROADSWORD. Sword with a broad blade, and one or both edges sharpened, primarily designed for inflicting heavy cutting



Broadsword used by Oliver Cromwell, 1649

blows. This type of weapon was the most common until about the 16th century, when the light Italian thrusting rapier began to displace it. Provided with one sharp edge and a point, it is represented to-day by the sabre and claymore. The broadsword employed in fencing has a blade about $\frac{3}{4}$ in. wide, tapering to $\frac{1}{2}$ in. from the heel to point, is heavier than the fencing sabre, and is preferred by army instructors as being a closer approximation to the military weapon. It is a modification of the 16th century thrusting rapier. See Sword.

BROADWAY. Village of Worcestershire. It is 5 m. by rly. S.E. of Evesham by the G.W.R., and lies in the Cotswold Hills district at the foot of Broadway Hill. The church of S. Michael is Early English, and the old church of S. Eadburg, now used as the mortuary, is in Norman and later styles. There are 17th century stone houses and a building thought to have been the manor house of the abbots of Pershore. Pop. 1,860.

BROBDINGNAG. Imaginary country described in Swift's *Gulliver's Travels* as peopled by a race of men as tall as a church spire. Hence the term brobdingnagian has come to be applied to anything of gigantic size.

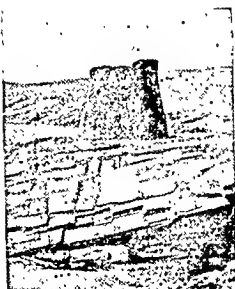
BROCCOLI (Ital. broccolo, sprout). Vegetable belonging to the natural order Cruciferae and the genus *Brassica*. It resembles the cauliflower, for which it is frequently mistaken. It is hardy and stands the winter well. By making sowings in succession broccoli can be obtained nearly every month in the year.

BROCH (old Norse, stronghold). Prehistoric round tower in Scotland. A fortified dwelling of un-mortared rubble, it was usually built to a height of 50 ft. on a base 60 ft. across. The inner court was roofless, and enclosed by a wall 15 ft. thick, penetrated by galleries and staircases. The windows faced the court, which sometimes contained a well. Typical examples are in the Shetlands, Caithness, etc.



Broccoli. Mammoth spring white broccoli, a vegetable resembling the cauliflower

BROCK, SIR OSMOND DE BEAUVOIR (b. 1869). British sailor. The son of a naval officer, he entered the navy in 1882. In 1914-15 he commanded the Princess Royal, which he led into action at the Dogger Bank and Jutland. In Nov., 1916, he was made chief of staff to the commander-in-chief (Beatty)



Broch. One of these prehistoric round towers in the Shetlands

of the Grand Fleet, and in 1919-21 a lord of the Admiralty. He was commander-in-chief in the Mediterranean 1922-25, and at Portsmouth, 1926-29.

BROCK, SIR THOMAS (1847-1922). English sculptor. Born at Worcester, he came to London in 1866 and entered the R.A. schools. His works include the bronze bust of Lord Leighton (1893) and the Leighton Monument in S. Paul's Cathedral (1900); the *Moment of Peril* (1880) and *Eve* (1900), both in the Tate Gallery. He was responsible for the designs for the coinage of 1893 and for the Queen Victoria Memorial in the Mall, London. Elected R.A. in 1891, knighted in 1911, he died Aug. 22, 1922.

BROCKEN or **BLOCKSBERG** (anc. Mons Bructerus). Mountain in Saxony, Germany, famous in legend. The highest point in the Harz Mts. (3,730 ft.), its bare summit is reached by a railway and by two carriage roads. In heathen times it was a place of worship where certain rites were celebrated on the eve of May 1. The spectre of the Brocken is an optical phenomenon, and consists of magnified shadows thrown on a wall of fog.

BROCKLESBY. Village of Lincolnshire. It is 9 m. from Great Grimsby and has a station on the L.N.E. Rly. Here is Brocklesby Hall, the seat of the earl of Yarborough, standing in a large park. The Brocklesby Hunt is one of the oldest in the country. In the chancel of All Saints' Church are memorials of the Yarborough family. The oldest dates from 1587

BROCKLEY. District of London. It is served by stations on the Southern Rly., and is partly in the borough of Lewisham and partly in that of Deptford.

BROCKVILLE. Town of Ontario, Canada. Capital of Leeds co., it is on the St. Lawrence river, 125 m. by rly. S.W. of Montreal, and is served by the C.N. and C.P. Rlys. An important rly. junction. It is a port of call for the St. Lawrence steamers. The town is named after Sir Isaac Brock (1769-1812), who was killed when repelling an American invasion near Niagara, Oct. 13, 1812. Pop. 10,043.

BROCKWELL PARK. London pleasure ground. It is in the borough of Lambeth between Herne Hill and Tulse Hill. Once the property of the Blades family, it was made over to the public in 1892.

BRODICK. Village of Arran, Scotland. A favourite watering place on Brodie Bay, it has a fine beach and a pier. Near by is Brodie Castle, the residence of the duke of Montrose, long a seat of the dukes of Hamilton.

BRODIE, WILLIAM (d. 1788). Scottish criminal. Born in Edinburgh, the son of a cabinet maker and town councillor, he succeeded to his father's business. A gambler from boyhood, he became the leader of three accomplished burglars, whose robberies in 1787 were numerous and successful. The burglars remained undetected until

March, 1788, when, after a robbery in Canon-gate, one of them turned king's evidence. Brodie escaped to Amsterdam, but was subsequently arrested and hanged in Edinburgh, Oct. 1, 1788. The play *Deacon Brodie* (1879), by R. L. Stevenson and W. E. Henley, produced in 1884, deals with his career.

BRODSKY, ADOLPH (1851-1929). Russian musician. Born March 21, 1851, he studied music in Vienna. From 1883-91 he was professor at the Leipzig Conservatoire, and from 1891-94 was a conductor in New York. From 1895 until his death, Jan. 22, 1929, Brodsky was principal of the College of Music, Manchester.

BRODY. Town of Ukraine. It is close to the former Austro-Russian frontier, 55 m. N.E. of Lemberg. It gives its name to a battle fought between the Germans and the Russians, July, 1916, resulting in its capture by the latter. Pop. 18,055.

BROKE. British destroyer of the Dover Patrol. Her displacement was 1,850 tons, and she carried an armament of six 4-in. and two machine tubes for 21-in. torpedoes. Under Admiral E. R. G. R. Evans, in company with the Swift, she fought an action with six German destroyers, April 20, 1917, off the Belgian coast in complete darkness. Consult *Keeping the Seas*, E. R. G. R. Evans, 1920.

BROKEN HILL. Town of Australia. On the W. border of New South Wales, it is 925 m. W. of Sydney and connected by rly. with Port Pirie and Adelaide. It is the centre of a great pastoral region, and has the largest silver mine in the world, the Proprietary. Gold, lead, copper, and tin are also worked. Pop. 23,430.

There is another Broken Hill, also a well known mining centre. In a cave here, in 1921, was found the Broken Hill or Rhodesian skull, representing an extinct type of man.

Broker. Word meaning an agent, but generally used in a more special sense for one who buys or sells on behalf of another.

BROMBERG, or **BYDGOSZCZ.** Town of Poland, formerly in the Prussian prov. of Posen. A railway junction, it stands on the Brahe (Brda), not far from its junction with the Vistula. 32 m. from Thorn. It owes its modern importance to Frederick the Great, who carried through it the canal he built between the Brahe and Netze (Notec), thus connecting the Vistula and Oder. Part of Poland until 1772, it passed at the partition to Prussia, but again became a Polish town in 1919. Pop. 87,848.

BROMBOROUGH. Urban dist. (with Bebington) of Cheshire. It is on the left bank of the Mersey estuary, 5 m. S.E. of Birkenhead on the G.W. and L.M.S. Rlys. The tidal Bromborough Pool has large candle works and also wharves and a dock of the model village of Port Sunlight. Pop. 19,104.

BROMIDE (Gr. bromos, stink). Name given to a compound of bromine with other elements except chlorine, oxygen, and fluorine. (See Bromine.)

Bromide paper for printing photographs from negatives is coated with an emulsion of silver bromide in gelatin. Its sensitiveness to light is such that exposure of the paper through the negative for a few seconds to a



Sir Thomas Brock at work on the huge figure of Victory which surmounts the Queen Victoria Memorial, London



William Brodie, Scottish criminal
From an old engraving

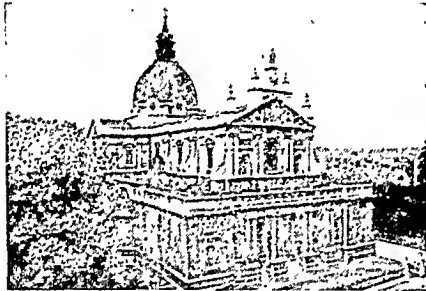
candle or electric lamp suffices to impress the picture. The impression is invisible, and requires to be developed and fixed. Bromide prints thus made are black or blue-black, but are often toned to a sepia colour or to a purplish hue. See Photography.

BROMINE. Non-metallic element, symbol Br, atomic weight 79.9, atomic number 35. It does not occur in the free state in nature, but combined with magnesium, potassium, and sodium. Bromine is a dark brown-red liquid with a penetrating odour, and gives off vapours which cause irritation when in contact with the mucous membrane. Sources of bromine are bitterns (the mother liquor of the salt works), the liquors which remain after the manufacture of potash salts at the Stassfurt mines, and the ashes of sea plants. It exists chiefly as bromide of magnesium.

The bromides of sodium, potassium, ammonium, and strontium are employed in medicine chiefly as sedatives in cases of epilepsy, to allay pain in migraine, and as a hypnotic in insomnia. When taken for too long, symptoms of poisoning (bromism) appear.

BROMLEY. Borough and market town of Kent. On the Ravensbourne river, 11 m. by rly. S.E. of London, of which it is a residential suburb, it has two stations on the Southern Rly. The church of S. Peter and S. Paul contains the tomb of Francis Atterbury. Market day, Thurs. Pop. 35,052.

Another Bromley, in full Bromley-by-Bow, is a district of the London borough of Poplar, on the L.M.S., L.N.E., and District Rlys



Brompton Oratory. Roman Catholic basilica in London. It is in the Italian Renaissance style
Humphrey Joel

BROMPTON. Residential district of Kensington, London, between Knightsbridge and Chelsea. It contains the Brompton Oratory (served by priests of the order of the Oratory of S. Philip Neri), the Imperial Institute, S. Kensington Museums, a consumption hospital, and a cemetery. See London.

BROMSGROVE. Urban district and market town of Worcestershire, 12 m. N.E. of Worcester by the L.M.S. It has a Gothic church and a school founded in 1553. Market day, Tues. Pop. 9,449.

BRONCHITIS. Acute or chronic inflammation of the bronchial mucous membrane. The symptoms of an acute attack begin as those of an ordinary cold, and are followed by a rise in temperature, feeling of rawness in the chest, and severe cough, at first dry, and later accompanied by abundant expectoration. In infants there is serious risk of the condition extending to the lungs, and death occurring from broncho-pneumonia.

Chronic bronchitis may follow repeated attacks of acute bronchitis or may accompany heart disease, Bright's disease, or gout. The disease is not serious until, in the later stages, it is accompanied by extensive changes in the lungs and heart.

BRONDESBURY. District of London. Within the urban district of Willesden, it is 8½ m. N.W. of London (Broad Street) by the L.M.S. Rly and is also served by the Met. Rly.

BRONTE. Town of Sicily, in the prov. of Catania. It stands on the W slope of Mt. Etna, 34 m. by rly. N.W. of Catania: alt. 2,600 ft. The neighbourhood produces good wine. It was founded by Charles V, and was granted by Ferdinand I of Naples as a dukedom to Nelson in 1799. Pop. 18,260.

BRONTË. Name of a family famous in English literature. The three sisters, Charlotte, Emily Jane, and Anne Brontë, were all born at Thornton,



Brontë. Portrait of Charlotte Brontë by G. Richmond

now part of Bradford, Yorks. Their father, Patrick Brontë (1777-1861), was incumbent of Haworth. His wife, Maria Branwell (1783-1821), was a Cornish woman. Of the six children of the marriage, the eldest, Maria, and the second daughter, Elizabeth, died in 1825. The remaining children—Charlotte, born April 21,

1816, Patrick Branwell, June 26, 1817, Emily Jane, July 30, 1818, and Anne, Jan. 17, 1820—became writers of poetry and prose, though nothing the brother wrote was published during his lifetime. After an unsuccessful attempt to start a school at Haworth, the sisters turned to their poems, which had been written secretly at different times. Charlotte compiled a small book from the selected MSS., which was published under the names of Currer, Ellis, and Acton Bell. The book was published in 1846, but only two copies were sold. Nothing daunted, the sisters decided

to try prose, and sent three separate novels the rounds of the publishers. Charlotte's was *The Professor* (published in 1857, after her death); Emily produced *Wuthering Heights*; and Anne, *Agnes Grey*. The MSS. of Emily and Anne were accepted, but Charlotte's was rejected. She then quickly wrote *Jane Eyre*, which was published before her sisters' novels.

Charlotte's second novel, *Shirley*, a weaker but pleasanter work, was interrupted by the illness and death of her brother, Sept. 24, 1848, and on Dec. 19 Emily died of consumption, as her brother had done: within six months the youngest sister, Anne—who



Brontë. Anne, Emily, and Charlotte, from a painting by their brother

had published a second novel in 1848, *The Tenant of Wildfell Hall*—also died of the same disease, May 28, 1849. Charlotte rallied sufficiently to finish *Shirley*, which was published in Oct., 1849, but *Villette*, her last novel, did not appear until 1853. On June 20, 1854, Charlotte married her father's curate, the Rev. A. B. Nicolls. She died at Haworth, March 31, 1855.

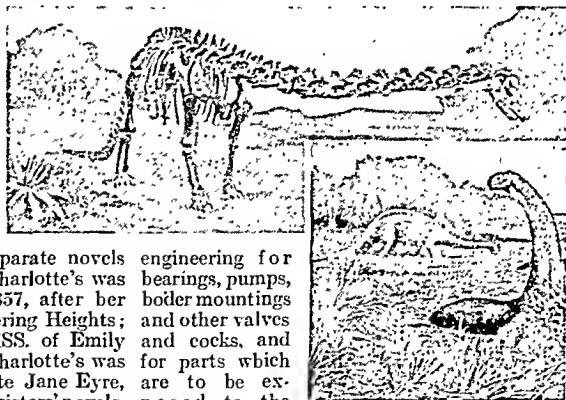
The cult of the Brontës was fostered by the inauguration of the Brontë Society in 1894 at Bradford. A Brontë museum was opened the following year at Haworth, near the old parsonage in which all the novels were written. In 1928 the parsonage itself was opened as a Brontë museum. It was given to the public by Sir James Roberts, Bart.

BRONTOMETER (Gr. brontē, thunder; metron, measure). Instrument for recording the phenomena of thunderstorms. It was invented by G. J. Symons, and first constructed in 1890. The records are made by pens on an endless roll of paper driven by clockwork. It registers the duration of each peal of thunder and flash of lightning, changes in atmospheric pressure, the amount of rainfall, and the velocity of the wind. See Meteorology.

BRONTOSAURUS (Gr. brontē, thunder; sauros, lizard). Gigantic extinct reptile. It belongs to the sub-order Sauropoda of the order Dinosauria, and its fossil remains occur in the Jurassic strata of Wyoming, U.S.A. It was four-footed, with a short, thick body, small head, and long neck and tail, and fed chiefly on water plants. Unlike the carnivorous Dinosaurius, its limb bones were solid, and not hollow. See Fossil.

BRONZE (Lat. aes Brundisium, brass from Brindisi). Name given to alloys composed chiefly of copper and tin as distinguished from brass, in which the second preponderating metal is zinc. It was the first compound metal deliberately made and used by man.

Bronze is harder, stronger, and more durable than copper or brass. It is largely used in



Brontosaurus. Reconstructions of this gigantic prehistoric lizard. It was about 60 feet long and weighed 20 tons

engineering for bearings, pumps, boiler mountings and other valves and cocks, and for parts which are to be exposed to the action of water or corrosion. In the arts it is employed for statuary and ornaments, and for domestic and other utensils of an ornamental character. At one time cannon were made of bronze. See Alloy; Brass; Metallurgy.

BRONZE AGE. This is an archaeological term denoting a cultural phase conditioned by the use of bronze in the arts of life prior to the use of iron (1000 B.C.). It followed the age of copper, and is divisible into five geographical regions: S. or Mediterranean (Aegean, Italy, Spain); W. (Gaul, Britain); Central or Danubian (Hungary, Switzerland); E. or Uralian (Siberia; Black Sea); and N. or Scandinavian. As the earliest bronze period is alternatively called the late copper period there remain three clearly defined bronze periods, early 1800-1600; middle 1600-1200; late 1200-1000. To these may be added, for Britain, Scandinavia, and elsewhere, a latest period which synchronised with the Danubian early age of iron. See Archaeology.

BROOCH (late Lat. broca, pointed stick). Development of the skewer and pin method of dress fastening and a precursor of the button.

The main types are (1) the safety-pin; (2) the fibula; (3) the half ring with pin or tongue hinged to the back; (4) the complete ring with spring or hinged pin; (5) the disk with pin at back. All are of ancient origin and, except the half ring, are still in use under modified forms. Scottish brooches, worn on plaid and bonnet, are a combination of the ring and the disk types.

BROODSEINDE. Village of Belgium, in the prov. of West Flanders, 5½ m. E.N.E. of Ypres. It was prominent in the Great War, particularly in the battles of Ypres (q.v.).

BROOKE, SIR JAMES (1803-68). British administrator. Born in India, April 29, 1803, he was educated in England and entered the army of the E. India Co. In 1839, having inherited a fortune, he went to Borneo, where he assisted the sultan to crush a serious rebellion. As a reward he was given Sarawak to govern and made its rajah, and there his rule resulted in the establishment of order, the Dyaks being suppressed and piracy ended. The British Government made him governor of Labuan and consul-general for Borneo. In 1847 he was knighted, and he died at Burrator, his Devonshire home, Jan. 11, 1868.

As rajah Brooke was succeeded by his nephew Charles Johnson Brooke (1820-1917), and the third rajah was the latter's son, Charles Vyner Brooke, knighted in 1927.

BROOKE, RUPERT (1888-1915). British poet. Born Aug. 3, 1888, at Rugby, where his father was a house master, he was educated at that school, and at King's College, Cambridge. In 1911 his first volume of poems was published. On the outbreak of the Great War he received a commission in the R.N.D. and went to Antwerp, thence to the Mediterranean. He fell sick after a slight sunstroke at Lemnos, and died in hospital at Seyros, April 23, 1915. Several volumes of his poems and other writings were published after his death.

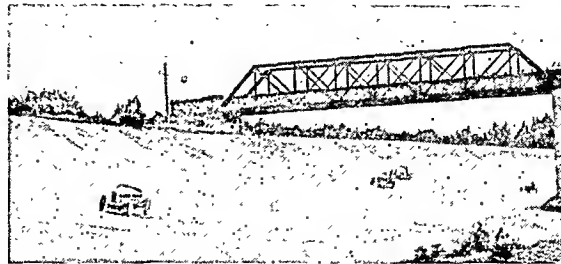
BROOKE, STOPFORD AUGUSTUS (1832-1916). British writer. Born at Letterkenny, Donegal, Nov. 14, 1832, in 1857 he was ordained to a curacy in London. From 1876-94 he was minister of Bedford Chapel, New Oxford Street, London, a proprietary chapel, and he remained there when, in 1880, he seceded from the Church of England and became a Unitarian.

Brooke's English Literature, 1880, widely influenced popular taste. His other volumes include the *Life and Letters of F. W. Robertson*, 1865; a study of Tennyson, 1894; and *The Poetry of Robert Browning*, 1902. He died March 18, 1916.

BROOKITE. Mineral compound of titanium dioxide, identical in composition with rutile and anatase. It occurs in thin red-brown plates associated with albite at Tremadoc in Carnarvonshire, and is found together with rutile in Norway and Brazil.

BROOKLANDS. Motor racing track near Weybridge, Surrey, England. It is on the Southern Rly., 20 m. S.W. of London. The

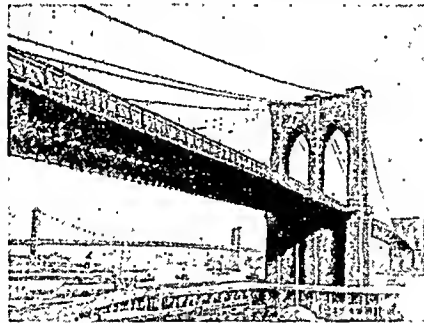
track has a minimum circuit of 2 m., a maximum of 3½ m., and a width of 100 ft., and is used for testing engines and speeds of automobiles. It was opened in 1907 and, having



Brooklands. The Members' Bridge over a section of the concrete banking

been used by the R.A.F. during the Great War, was reopened for racing in 1920. Several world's records have been established here.

BROOKLYN. Former city and now a borough of New York City, U.S.A. It lies at the S.W. end of Long Island, opposite Manhattan, with which it is connected by three bridges across East river, and a tunnel. The buildings of the borough include the city hall, hall of records, post office, and court house. Among seats of learning are the



Brooklyn Bridge, opened in 1883, at which time it was the longest span bridge in the world

Brooklyn Institute of Arts and Sciences, the Polytechnic, Pratt Institute and Packer Institute. There is a wireless station. To the W. of Prospect Park is the beautiful Greenwood Cemetery. Ridgewood reservoir, with a capacity of nearly 300,000,000 gallons, is the property of the borough. A memorial to Lafayette was unveiled May 10, 1917. The noted suspension bridge connecting Brooklyn and New York was opened to traffic in 1883, and at the time of its erection was the longest span bridge in the world. The main suspension span measures 1,595 ft. between towers. Pop. 2,203,991.

BROOKMAN'S PARK. District of Herts, near Hatfield. Here is the high power twin wave-length broadcasting station for S.E. England. See Broadcasting; also illus. p. 25.

BROOKS, CHARLES WILLIAM SHIRLEY (1816-74). British author. Born in London, April 29, 1816, son of an architect, and educated for the law, he took to journalism. In 1851 he joined the Punch staff, and wrote for twenty years the *Essence of Parliament*. In 1870 he became editor, and remained so until his death, Feb. 23, 1874.

BROOKS, PHILLIPS (1835-93). American divine. Born at Boston, Massachusetts, Dec. 13, 1835, he was rector of churches in Philadelphia from 1859 to 1862 and in Boston from 1869 to 1891. In 1891 he was elected bishop of Massachusetts. He died Jan. 23, 1893.



Shirley Brooks, British author

BROOKWOOD. District in the parish of Woking, Surrey. The London necropolis is here, with a crematorium erected in 1889. There is a station on the Southern Rly.

BROOM (Cytisus scoparius). Shrub of the order Leguminosae. A native of Europe, N. Asia, the Canaries, and the Azores, it attains a height of about 6 ft., and grows on heatlands. The branches are green and furrowed. The leaves have three leaflets, covered with short, silky hairs. The flower is of the pea type, and bright yellow. The seeds are produced in a black two-valved pod, and have an oily body attached which is eaten by ants.

Broom corn is a name for Indian millet. Its branches are used to make carpet brooms, clothes brushes, and similar articles.

Broom rape is the name of an extensive genus (*Orobanchae*) of leafless root parasites. Except just before flowering time the plant is entirely subterranean, the root-stock being attached to roots of furze, broom, ivy, etc. The stem is a fleshy growth, usually brown, clad with scales, and ending in a spike of two-lipped flowers.

Broom (Cytisus scoparius), a heath and moorland shrub

BROOME. Coast village of W. Australia, in the West Kimberley district. It stands on Roebuck Bay, has a submarine and wireless telegraph station, and is the centre of the mother-of-pearl shell industry. It is named after Sir F. N. Broome (1842-96), governor of Western Australia, 1882-90. An aeroplane leaves Perth for Broome every Saturday.

BROSE (old Fr. brouez, broth). Scottish dish of oatmeal on which boiling milk, water, or meat liquor is poured and stirred immediately. The various kinds of brose are named according to the ingredient added, such as water brose.

BROSELEY. Town of Shropshire. It stands on the Severn, 14 m. S.E. of Shrewsbury on the G.W.R., and is in the borough of Wenlock. The parish church, rebuilt in 1845, is Perpendicular. Broseley is noted for its clay churchwarden pipes and bricks, and has coal and iron mines. Pop. 3,037.

BROTHERHOOD. Primitive institution setting up a fraternal relationship between two men not brothers by birth or marriage. In some form of blood-brotherhood the compact is sealed by an exchange of blood through transfusion or suction. The blood-covenant may be made between man and woman or between two women. It may extend to animals, disembodied spirits, or supernatural beings.

Another kind of brotherhood is an association of men for religious or social objects. Such societies have been common in the Roman Catholic Church since the Middle Ages. The modern Brotherhood movement is a development of the Pleasant Sunday afternoon

Broom rape. See above

services, and connected with it are Sisterhoods, Bible Classes, Men's Meetings, etc. The headquarters are at 37, Norfolk Street, Strand, London, W.C. The movement, which is undenominational, has taken root in Canada and Australia.

BROTHER JONATHAN. Popular nickname for a citizen of the U.S.A., corresponding somewhat to the British John Bull. Its origin is doubtful; possibly it is derived from Jonathan Trumbull, governor of Connecticut during the War of Independence. When asked a difficult question Washington often said, "We must consult Brother Jonathan."

BROUGH, LIONEL (1835-1909). British comedian. Born at Pontypool, the son of a brewer, he was educated at Manchester Grammar School, and made his first appearance on the stage at The Lyceum, London, in 1854. He played in comic opera, Shakespeare, or monologue: but was seen to advantage in parts such as Tony Lumpkin, Bob Acres, and Sir Toby Belch. He died Nov. 8, 1909.



Lionel Brough,
British actor

BROUGHAM. Covered carriage for four persons with box seat for driver and footman, and drawn by one or two horses. It was named after Lord Brougham, the designer of the first vehicle of the kind.

BROUGHAM. Village of Westmorland. The Roman Brovacum, it is 2 m. S.E. of Penrith, and contains the ruins of an old Norman castle, formerly the seat of the Brougham family. The ruins were given by Lord Hothfield to the nation, and in 1928 the Office of Works restored the castle, which was long a seat of the powerful Clifford family. Brougham Hall, the present residence of the Brougham family, is a magnificent structure often called the Windsor of the North.



Brougham. Type of horse-drawn covered carriage designed by Lord Brougham early in the 19th century

BROUGHAM, HENRY PETER BROUGHAM, 1ST BARON (1778-1868). British lawyer. Born in Edinburgh, Sept. 19, 1778, he was educated at Edinburgh high school and university, and became an advocate in 1800. He was one of the founders of The Edinburgh Review, 1802, and in 1805 settled in London, associated himself politically with the Whigs, and in 1808 was called to the bar. In 1810 he secured a seat in Parliament as M.P. for Camelford. On the formation of the Whig ministry of 1830, Brougham became lord chancellor, taking the title of Baron Brougham and Vaux. He at once started on the law reforms which he had long advocated, and besides speeding up the methods of the court of chancery, established the judicial committee of the privy council and the central criminal court. He left office in 1835 and died at Cannes, May 7, 1868. His title is still held in the family.



Lord Brougham,
British lawyer

BROUGHTY FERRY. Former burgh of Angus. In 1914 it was incorporated with Dundee. On the Firth of Tay, with a station on the L.N.E. and L.M.S. Rlys. it is a seaport and watering place. Pop. 11,058. See Dundee.

BROWN, FORD MADOX (1821-93). British painter. Born at Calais, of British parents, April 16, 1821. He exhibited first at Ghent and in London at the R.A. in 1841. He was the master of Dante Gabriel Rossetti, and intimate with the Pre-Raphaelites. From 1861 Brown was actively associated with William Morris, mainly as a designer of stained glass. He died in London, Oct. 6, 1893. His three children all had artistic gifts. Oliver died in 1874 and the daughters married W. M. Rossetti and Franz Hueffer.



Ford Madox Brown,
British painter

BROWN, GEORGE (1818-80). Canadian politician. Born at Edinburgh, Nov. 29, 1818, he settled in Toronto in 1843 and started The Globe. He entered the legislature of the province in 1851, and soon became the leader of the radicals. In 1858 he was for two days prime minister. To bring about the federation of Canada, Brown in 1864-65 joined Sir John Macdonald in a coalition ministry, but resigned before the Dominion Parliament met in 1867. In 1873 he was made a senator, and on May 9, 1880, he died of wounds inflicted by a former employee.



George Brown,
Canadian politician

BROWN, GEORGE DOUGLAS (1869-1902). Scottish novelist. Born at Ochiltree, Ayrshire, he was educated at Glasgow University and at Balliol College, Oxford. His The House With the Green Shutters, a sombre story of Scottish life and character, published in 1901 under the name of George Douglas, won immediate recognition. He died suddenly, Aug. 28, 1902.

BROWN, JOHN (1735-1788). Scottish physician. Born at Bunel, Berwickshire, of humble parentage, he was for some time a pupil teacher at Duns. He graduated in medicine at St. Andrews, 1779, and devoted his time to exposing the errors of the existing medical systems. In 1780 he set forth his own views in Elementa Medicinæ, a book which was translated into several languages. In 1786 he settled in London, where he translated his Elementa Medicinæ, wrote and lectured, and where he died Oct. 17, 1788. Brown's doctrine, known as the Brunonian, attracted great attention abroad, especially in Germany.



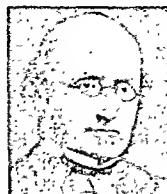
John Brown,
American abolitionist

BROWN, JOHN (1800-1859). American abolitionist. Born in Connecticut, May 9, 1800, he led a wandering life until middle age. On Oct. 16, 1859, with his sons and fewer than 20 followers, he seized the arsenal at Harper's Ferry, hoping to encourage a general rising of the slaves, but Robert

E. Lee recovered it. Brown did not surrender until he had been seriously wounded and two of his sons killed. He was tried, found guilty and hanged at Charlestown, Dec. 2, 1859. He was generally regarded by the abolitionists as a martyr, and in the North a popular song immortalised his name:

John Brown's body lies a-mouldering in the grave,
But his soul goes marching on.

BROWN, JOHN (1810-82). Scottish writer and physician. Born at Biggar, Lanarkshire, Sept. 22, 1810, the son of a minister, he was educated at the high school and university of Edinburgh. Having qualified as a doctor, 1833, he practised in that city until a short time before his death, May 11, 1882.



John Brown,
Scottish writer

Brown was the author of Rab and his Friends, 1859, and of three volumes of Horae Subsecivæ—Leisure Hours—humorous essays, with something of the charm of Lamb, on a variety of subjects, medical, artistic, and others.

BROWN, JOHN (d. 1883). Servant to Queen Victoria. A Highlander, he entered the royal service in 1849, and was for many years confidant and friend of the queen. He died March 27, 1883. Victoria dedicated to his memory More Leaves from the Journal of a Life in the Highlands, 1862-82.



John Brown,
Queen Victoria's
servant
Docteny

BROWN, JOHN ALFRED ARNESBY (b. 1860). British artist. Born and educated in Nottingham, he studied under Sir H. Herkomer at Bushey, and first exhibited at the Academy in 1890. In 1903 he was elected A.R.A., and in 1915 a full R.A.

BROWN, LANCELOT (1715-83). British landscape gardener, known as Capability Brown. Born in Northumberland, he became a gardener at Stowe House, Buckingham, where he showed remarkable ability in planning gardens. To employ Brown became a fashion among the rich, and he was responsible for gardens at many of the greatest houses in England, including Blenheim, Bowood, and Kew. He also developed abilities as an architect of country houses, Croome Court being his work. He died Feb. 6, 1783.

BROWN, THOMAS EDWARD (1830-97). British poet. Born at Douglas, Isle of Man, and educated at King William's College, and Christ Church, Oxford, he became fellow of Oriel, 1854, and was ordained in 1855. From 1864-93 he was an assistant master at Clifton College. He died at Clifton, Oct. 30, 1897. His poems, some in the Manx dialect, are characterised by imagination and genuine feeling. His Collected Poems were edited by W. E. Henley, in 1900.

Browne, CHARLES FARRAR (1834-67). American humorist, better known under his pseudonym, Artemus Ward (q.v.).

BROWNE, HABLOT KNIGHT (1815-82). British artist, chiefly remembered as Phiz, the illustrator of the works of Dickens. Born at Kennington, London, June 13, 1815, his connexion with Dickens began in 1836. After 1860 he illustrated some of the novels of Lever and Harrison Ainsworth. Partially paralysed in 1867, he kept at work until he died, at Brighton, July 8, 1882.



Hablot K. Browne
(Phiz), British artist

BROWNE, SIR THOMAS (1605-82). English physician and author. Born in Cheapside, London, Oct. 19, 1605, the son of a prosperous mercer, he was educated at Winchester and



Sir Thomas Browne,
English physician
From a painting in the
Hall of Physicians

Broadgates Hall (Pembroke College), Oxford. After studying medicine at Oxford, Montpellier, Padua, and Leiden, he settled as a physician at Norwich, where he spent the rest of his life. He was knighted by Charles II in 1671, and dying Oct. 19, 1682, was buried in the church of S. Peter Mancroft, Norwich. As a writer, Browne developed the grand style in English prose, but is often obscure through his habit of seeking to express a thought in a single word, in quest of which he chose Latin or Latinised English. *Religio Medici*, or the religion of a physician, an attempt to reconcile faith and reason, appeared in 11 editions between 1643-81. *Hydrotaphia*, 1658, a dissertation on funeral customs, was inspired by the discovery of sepulchral urns in Norfolk, and closes with a passage of unsurpassable eloquence. Consult *Life*, E. Gosse, 1905.

BROWNE, THOMAS ARTHUR (1870-1910). British artist. Familiar as Tom Browne, he was born at Nottingham, where in 1897 he founded the colour printing firm of Tom Browne & Co. He was elected to the R.B.A. in 1898 and the R.I. in 1901. He excelled in humorous line work, and was one of the leading caricaturists of his time. He died March 16, 1910.

BROWNHILLS. Urban district of Staffordshire. On Watling Street, 6 m. W. of Lichfield by the L.M.S., it is the centre of the Cannock Chase colliery district. Pop. 20,693.

BROWNIE. Fairy of Scottish tradition. Mostly of a helpful kind, if placated by a bowl of milk set aside for them, brownies would perform various kinds of domestic work while the household slept. This fairy is described as taking the form of a tall man.

Brownie is also the name given to the youngest grade of the Girl Guides. They are girls between the ages of 8 and 11. See *Girl Guides*.

BROWNING, ELIZABETH BARRETT (1806-61). British poet. Born at Coxhoe Hall, near Durham, March 6, 1806 her girlhood was passed at Hopton End, Herefordshire. Her precocity was shown by the composition of an epic in four books on the battle of Marathon in her fourteenth year; her scholarship by a translation of *Prometheus Bound*, 1833. When fifteen, a fall from a pony left her an invalid for many years. The publication of *Poems*, 1844, was an event of importance in Victorian literature. Her romantic marriage with Robert Browning, Sept. 12, 1846, brought her happiness, marred only by the fact that her father never forgave her. Her *Sonnets from the Portuguese*, inspired by Browning's courtship, constitute her most notable work. Her death took place in Florence, June 29, 1861, and she was buried in the English cemetery there.

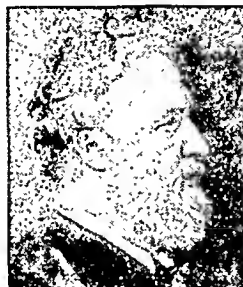


E. Barrett Browning,
British poet
From a drawing by F.
Talourd Nat. Port. Gallery

BROWNING, SIR MONTAGUE EDWARD (b. 1863). British sailor. Born Jan. 18, 1863, he entered the navy in 1876 and saw service in Egypt and China. In 1909 he was made chief of the staff of the Channel Fleet and in 1911 inspector of target practice. During the

Great War he commanded a squadron of the Grand Fleet except in 1916-17, when he was commanding the N. American station. In 1917 he was knighted. In 1919-20 he was second sea lord, and from 1920-23 commander-in-chief at Plymouth.

BROWNING, ROBERT (1812-89). British poet. He was born at Camberwell, May 7, 1812. He visited Russia in 1834 and Italy in 1838, the latter journey being the beginning of a long and intimate connexion with Italy which profoundly influenced his work. But already his poetic career was begun. Pauline, 1833, was succeeded by *Paracelsus*, 1835; in 1837 *Stratford* was produced by Macready at Covent Garden. The beautiful *Pippa Passes*, 1841, a collection of dramatic scenes rather than a drama, opened the series entitled *Bells and Pomegranates*. It was followed by *King Victor and King Charles*, 1842; by *The Return of the Druses* and *A Blot in the Scutcheon*, 1843, and by *Colomb's Birthday*, 1844, the last play he wrote for the stage. Besides the dramas, Browning had found time during those years for the obscure *Sordello*, 1840, as well as for a number of dramatic lyrics and dramatic romances. His later works include *Christmas Eve and Easter Day*, 1850; *Men and Women*, 1855; *Dramatis Personae*, 1864; and *The Ring and the Book*, 1868-69.



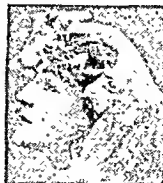
Robert Browning,
British poet
Portrait by G. F. Watts, R.A.

Browning made the acquaintance of the poet Elizabeth Barrett, whom he married in 1846. They settled at Florence, and their home was the Casa Guidi until the death of Mrs. Browning in 1861. After 1861 Browning made his home in London until 1878, when he returned to Italy. He died at Venice, Dec. 12, 1889.

The Browning Settlement was founded in his memory in 1895, in York Street, Walworth, London, S.E.

BROWNLOW, EARL. English title borne by the family of Cust since 1815. Sir Brownlow Cust was made a baron in 1776, and John, the 2nd baron, was made an earl in 1815. The family seat is Belton House, Grantham, and the eldest son is known as Viscount Alford. Ashridge (q.v.) was formerly the family home.

BROWN-POTTER, CORA URQUIART (b. 1859). Anglo-American actress. Born in New Orleans, May 15, 1859, she made her debut at Brighton in March, 1887, and a few days later appeared for the first time in London. She toured through India, Australia, and China, and in 1892 was again playing in London. In 1898 she played *Charlotte Corday*, after which she was associated with Beerholm Tree at Her Majesty's and at the Haymarket. In 1904 Mrs. Brown-Potter took over the management of *The Savoy*.



Cora Brown-Potter,
actress
Lottie Charles

Brown Willy. Highest summit of Cornwall. About 10 m. N.E. of Bodmin, its height is 1,375 ft.

BROXBURN. Parish and town of Linlithgowshire. It is 11 m. W. of Edinburgh, on the L.N.E.R., and is noted for its shale oil works, and makes chemical manure, etc. Pop. 7,987.

BRUCE, CHARLES GRANVILLE (b. 1866). British explorer. A younger son of the 1st Lord Aberdare, he was born April 7, 1866, and entered the Indian Army. He saw much service on the frontiers and during the Great War was in Egypt and Gallipoli. Having left the army in 1920, Bruce explored the Himalayas and was the leader of the two expeditions that climbed Mt. Everest in 1922 and 1924. He wrote *The Assault on Mount Everest*.

BRUCE, JAMES (1730-94). Scottish explorer. Born at Kinnaird, Stirlingshire, he was educated at Harrow. He was consul at Algiers, 1763-65, after which he visited the historic ruins in Northern Africa. In 1770 he went to Abyssinia for about two years. He then went on his best known journey, in which he reached the source of the Blue Nile, being the second European to visit it. He died from a fall, April 27, 1794.



James Bruce,
Scottish explorer
From an engraving
by Freeman

BRUCE, ROBERT (1274-1329). King of Scotland, known as Robert I. He was grandson of the Robert Bruce who with John Balliol and other candidates claimed the throne of Scotland in 1290, and the son of another Robert Bruce who married Marjorie, the daughter and heiress of the earl of Carrick.

The date of his birth is usually given as July 11, 1274. He took part in the struggles for independence and in 1306 was crowned king. His successful attacks on the English strongholds forced Edward II to lead an army into Scotland; but Bruce inflicted upon the English an overwhelming defeat at Bannockburn, 1314. In 1328, after much desultory fighting, King Robert's title and the independence of Scotland were recognized in the treaty of Northampton. The king died of leprosy June 7, 1329, at Cardross and was buried at Dunfermline. His daughter Marjorie married Walter the Steward, whose son Robert II was the first king of the Stewart dynasty. His own immediate successor was his young son David II. See *Bannockburn*.

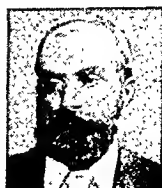
BRUCE, STANLEY MELBOURNE (b. 1884). Australian statesman. Educated at Melbourne



Stanley M. Bruce,
Australian Premier
Downey

Grammar School and Trinity Hall, Cambridge, where he rowed in the University boat race in 1904, he entered on a business career in Australia. He served in the Great War, gaining the M.C. and being twice wounded. Elected to the House of Representatives in 1918, he became premier in Feb., 1923, and remained in office until his government was defeated in 1929. In Mar., 1927, he was made a Companion of Honour.

BRUCE, WILLIAM SPEIRS (1867-1921). Scottish explorer and scientist. Born at Edinburgh, Aug. 1, 1867, the son of a doctor, he accompanied the Scottish Antarctic Expedition, 1892-93, the Jackson-Harmsworth Expedition, 1896-97, and later expeditions to the Arctic regions. In 1908 he led the Scottish Antarctic Expedition, discovering 150 m. of coastline in Antarctica, after which he explored and surveyed in Spitsbergen. He was director of the Scottish Oceanographical Laboratory, and died Oct. 28, 1921.



William S. Bruce,
Scottish explorer

BRUCE-JOY, ALBERT (1844-1924). Irish sculptor. Born at Dublin, he studied under John Foxy, at South Kensington, the Royal Academy, and in Rome. He first exhibited at the Royal Academy in 1866. His works include the statues of Gladstone at Bow, London, and John Bright at Manchester, the busts of Lord Salisbury at the Mansion House, London, and Mary Anderson at Stratford-on-Avon, the colossal lion at Lowell, Boston, U.S.A., and the Harvey Memorial at Folkestone. He died Sept. 22, 1924.

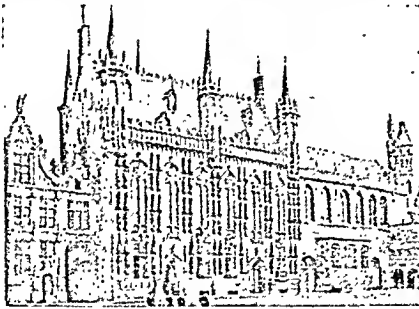
BRUCINE. Alkaloid which occurs with strychnine in the seeds of *Strychnos nuxvomica* and *Ignatia amara* or *S. Ignatius*' beans. Chemically brucine is dimethoxystrychnine. It resembles strychnine, but is more soluble in water and less poisonous. See Strychnine.

BRUCITE. Mineral composed of magnesium hydroxide, named after the American mineralogist, A. Bruce. It is white, grey, blue, or green, and has a pearly lustre. The crystals are rhombohedral. Brucite occurs chiefly in serpentine, found at Texas, and is used in sugar refining.

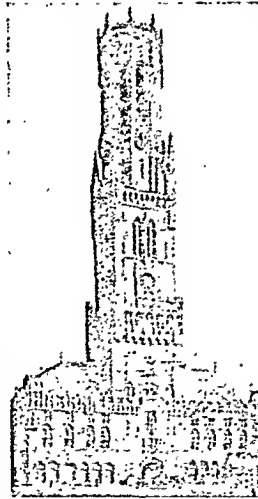
BRUEGHEL, PIETER. Flemish painter of the 16th century. Born at Brueghel, near Bruges, of poor parents, most of his life was passed in Antwerp or Brussels, and there he painted his pictures, his subjects being taken mainly from the humorous side of rustic life. He died about 1570.

A son, Jan Brueghel (1568-1625), the friend of Rubens, was a landscape painter and is represented in many European galleries. Either from his habit of dressing in that material, or from the smoothness of his technique, he was called Velvet Brueghel.

BRUGES (Flem. Brugge). City of Belgium, capital of the province of West Flanders. Famous in the Middle Ages as the Venice of the North, it is still the most interesting city in Belgium to the artist and antiquary. It



Bruges. Left, the Hôtel de Ville and chapel of the Holy Blood. Right, the Halles (markets), with the 13th century belfry in the Grand Place



has many industries, and the ship canal to Zeebrugge made it once more a seaport, as it was in the Middle Ages.

Among notable buildings are the cathedral of S. Sauveur, the church of Notre Dame, with the tombs of Charles the Bold and his daughter Mary; the churches of S. Gilles, of the Sepulchre, S. Anne, and the Madeleine, and the chapel of the Holy Blood. The hospital of S. Jean, dating from the 12th century, contains the shrine of S. Ursula, the panels being among the masterpieces of Hans Memling. Close to it is the Beguinage, founded by Joan of Constantinople in the 12th century. Among secular buildings the Halles, with the famous 13th century belfry, the hôtel de ville, the Gruuthuuse, the House of the Franc, the S. Sebastian guildhouse, the White Bear guildhouse, and the weighing house are remarkable. In 1928 the House of Refuge was destroyed by fire. Captured by the Germans on Oct. 14, 1914, Bruges was in their possession until reoccupied by Belgian infantry, Oct. 18, 1918. Pop. 51,686.

BRUISE. Injury caused by rupture of a blood vessel beneath the skin causing bleeding into the tissues. A blow on the upper part of the arm may be followed by a bruise on the elbow, the blood having travelled down beneath the tissues before reaching the surface. A blow on the skin immediately over a bone such as the shin is apt to cause more extensive bruising than one on a soft part such as the abdomen. Treatment should consist first of a firm cold application in order to seal the broken blood vessels. A piece of lint soaked in lead lotion should be bound over the bruise and kept wet with the lotion.

BRUMAIRE (Fr. the month of fog). Second month in the year as rearranged during the French Revolution. It began on Oct. 22 or 23. In 1799, on 18 Brumaire (Nov. 9), Napoleon abolished the Directory.

BRUMMELL, GEORGE BRYAN (1778-1840). A British dandy, known as Beau Brummell. Born in London, June 7, 1778, he went to Eton in 1790, and after a year at Oriel College, Oxford, obtained in 1794 a commission in the army, which he left when he inherited £30,000. Setting up as a man of fashion, and backed by the Prince Regent, his unerring taste in dress, and his superb self-possession, he quickly became recognized as a social dictator. He died at Caen, March 30, 1840.



Beau Brummell, British dandy

BRUNAN-BURH. Site of a famous battle fought in 937. Here the Anglo-Saxons, under Athelstan, won a decisive victory over the Scots and Danes. Recent scholarship places the locality in Dumfriesshire, near the Roman camp Birrens. The story is preserved in a ballad in the Anglo-Saxon Chronicle.

BRUNEI. British protected state in the N.W. of Borneo, between Sarawak and British

North Borneo. The climate is hot and moist. Most of the interior is jungle. The area is about 2,500 sq. miles. The products include coal, cutch, rubber and coconuts. Oil exists, but awaits development. There is a wireless station at Brunei, and also in the Temburong district, and in the Belait district. In 1906 the sultan handed over the general administration to a British resident. The governor of the Straits Settlements is high commissioner of Brunei. Pop. 25,500.

Brunei, the capital, is 770 m. from Singapore. It stands on an expansion of the Brunei or Limbang river. Pop. 12,000. See Borneo; Sarawak.

BRUNEL, ISAMBARD KINGDOM (1806-59). British engineer. Born at Portsmouth, April 9, 1806, the only son of Sir Marc Isambard Brunel, he began his career as assistant to his

father in the construction of the Thames Tunnel. Appointed in 1833 engineer to the G.W.R., he adopted the 7 ft. gauge. He planned the Clifton suspension bridge, 1829, and the Hungerford suspension bridge at Charing Cross, London, 1841-45. As a naval architect he designed in 1845 the Great Britain and the Great Eastern, 1858, and he was the inventor of the polygonal system of rifling small arms and large guns. He died Sept. 15, 1859.

His father, Sir Marc Isambard Brunel (1769-1849), was born in Normandy, near Gisors, April 25, 1769. During the Revolution he left France and went to New York, 1793. At first a surveyor and later an architect, he was appointed engineer of New York City. Later he settled in England, where his great work was the building of the Thames Tunnel, 1825-42. Knighted in 1841, he died Dec. 12, 1849.

BRUNELLESCHI, FILIPPO (1377-1446). Italian architect. Born at Florence, he first practised as a goldsmith, and then as a sculptor. Deciding to become an architect, he studied at Florence and in Rome, and, returning to Florence in 1417, was commissioned to roof the unfinished cathedral with a dome. In this great undertaking he worked from 1420 to his death. He was employed on many other churches in Florence, and on the Pitti palace. He died at Florence, April 16, 1446.

BRUNETIÈRE, FERDINAND (1849-1906). French critic. Born at Toulon, July 19, 1849, he began to write in 1875 for the *Revue des Deux Mondes*, of which he became editor in 1893. He published collections of his critical essays and lectures, the later volumes, especially after he became a Roman Catholic in 1896, being marked by a definite conviction that art must be subordinated to morality, and that the theory of art for art's sake, and the teaching of the naturalistic school of writers, represented by Zola, were false. He died Dec. 9, 1906.

BRUNHILD OR BRUNHILDA. Most famous of the Valkyries or warrior maidens of Norse mythology. Placed by her father Odin (Wotan) on a fire-girt rock, she lay in spellbound sleep until the hero, Sigurd, rode through the flames and woke her. Faithless to his plighted troth, Sigurd afterwards helped Gunnar, the king's son of Rhineland, to win Brunhild by a cunning ruse and claimed as reward the hand of Gudrun, Gunnar's sister. When Brunhild learnt, through Gudrun's jealous tongue, of Sigurd's deed, she plotted his death, and, her vengeance accomplished, threw herself on his funeral pyre. So runs the *Volsung Saga*.

In the song of the Nibelungs, Siegfried, the hero, dons the Tarnkappe, which makes him invisible, and wins Brunhild for Gunther of Burgundy by conquering her in many trials of strength. In Wagner's cycle of four music dramas of the Ring of the Nibelungs, Brunhild, daughter of Wotan and Erda, is the heroine of *The Valkyrie*, the second opera.

BRÜNN (Czech, Brno). City of Czechoslovakia, formerly the capital of Austrian Moravia. It lies at the base of the Spielberg (846 ft.), where the Schwarzwasser joins the Svitava, 89 m. N. of Vienna. It has a 15th century cathedral. The Gothic church of S. James has good stained glass, and there are fine frescoes in the church of the Minorites. Other notable buildings are the 16th century Rathaus and the university, opened in 1918. Its old citadel is on the Spielberg. Pop. 221,800.

BRUNNER, SIR JOHN TOMLINSON, BART. (1842-1919). British politician. Born Feb. 8, 1842, the son of a Swiss pastor who settled in Liverpool, he entered business life and in 1873



Sir Marc L. Brunel, Franco-British engineer



Isambard K. Brunel, British engineer

he and Ludwig Mond established al ali works at Northwich. In 1885 Brunner entered Parliament as Liberal M.P. for the Northwich

Brunswick. On Nov. 8, 1918, the duke was deposed, and Brunswick was declared a republic. The German name is Braunschweig.



Brussels. Map of the central part, showing the boulevards and principal buildings

division of Cheshire, which he represented almost continuously until 1910. Made a baronet in 1895 and a privy councillor in 1906, he died July 1, 1919.

His eldest son, Sir John F. L. Brunner (d. 1929), sat in the House of Commons 1906-18. The firm of Brunner, Mond & Co. is now included in Imperial Chemical Industries.

BRUNO, GIORDANO (1548-1600). Italian philosopher. Born at Nola, in Naples, he entered the Dominican order and was ordained in 1572. On ceasing to believe in Christianity he fled from Naples, 1576, and for many years led a wandering life. He was in England 1583-85, after which he was imprisoned at Rome for six years by the Inquisition, and was burnt Feb. 17, 1600. Bruno's view of the world was a revival of that of the Stoics—a naturalistic pantheism.

BRUNSWICK. Republic of Germany, formerly a duchy and state of the German Empire. It is divided into nine distinct districts, the largest lying between the Prussian provinces of Hanover and Saxony. The country is fertile and largely agricultural. Brunswick is the capital. Its diet consists of 48 members, the Socialists being the dominant party. The area is 1,424 sq. m. and the pop. 501,875.

The duchy originated when the lands of Henry the Lion, duke of Saxony, were broken up in 1181. Like other German states, it was several times divided, one division being in 1634, when the duchy was divided between the two dukes of Lüneburg. The duke of Lüneburg Celle called his land Hanover, and his descendants were electors of Hanover and kings of England. For this reason George I and his successors on the English throne are sometimes called the house of Brunswick.

Brunswick proper passed in 1634 to the other duke of Lüneburg. He and his descendants called themselves dukes of Brunswick-Wolfenbüttel, and later simply dukes of

There is a suburb of Melbourne, Australia, called Brunswick. It is an industrial centre.

BRUNSWICK, CHARLES WILLIAM FERDINAND, DUKE OF (1735-1806). German soldier. Born at Wolfenbüttel, Oct. 9, 1735. he was nephew of Frederick the Great and husband of Augusta, daughter of George III of England. He served in the Seven Years' War, and in 1792 commanded the united forces of Austria and Prussia against the French at Valmy. He suffered a severe defeat at Auerstädt, Oct. 14, 1806, and died Nov. 10 from wounds. Owing to their heavy losses at Auerstädt the Brunswick regiment wore mourning dress and were called the Black Brunswickers.

His son, Frederick William (1771-1815), entered the British service in 1809. He fought throughout the Peninsular War, and was killed at Quatre Bras, June 16, 1815.

BRUSA, BROUSSA OR BROSSA (Turk. Brusa). City of Turkey. Capital of the vilayet of Brusa, it is in Asia Minor at the foot of Mt. Olympus, about 60 m. S.E. of Constantinople. The ancient Prusa, capital of Bithynia and for a time of the Turkish Empire, it is a commercial centre. Its port Mudania is connected by rly. Brusa is the seat of Greek and Armenian archbishops. Pop. 61,450.

BRUSH, CHARLES FRANCIS (1849-1929). American inventor. Born at Euclid, Ohio, March 17, 1849, in 1870 he entered business in Cleveland as a chemical expert. About 1878 he invented the Brush electric arc lamp, and then the storage battery for electricity. He founded the Brush Electric Co., and died June 15, 1929.

BRUSH TURKEY (*Cathartus lathami*). Large bird of the mound-builder group, found in Australia and the East Indies. The bird resembles a small turkey, and deposits its eggs in mounds of decaying vegetable matter.

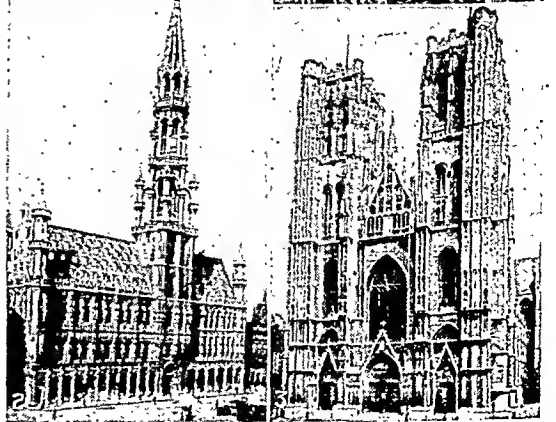
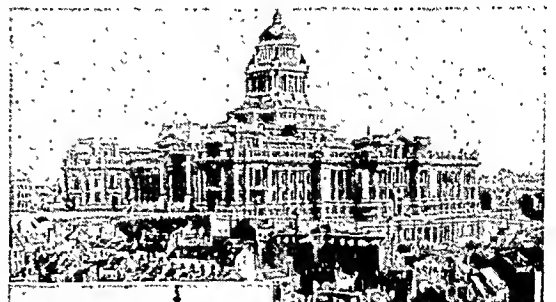


Brush Turkey, large bird of the Antipodes
Bertridge

BRUSILOFF, ALEXEI ALEXEIEVITCH (1861-1926). Russian soldier. He saw service in the Russo-Turkish War of 1877-78, and played a part in the conquest of Galicia under Ivanoff in 1914. He followed Ivanoff in 1916 as commander-in-chief of the Russian armies between the Pripiet and the Pruth, and in June, 1917, he became commander-in-chief of the Russian army, but was soon superseded by Korniloff. He was arrested in Sept., 1918, and his death was reported in March, 1926.

BRUSSELS (Fr. Bruxelles). Formerly capital of Brabant and of the duchy of Burgundy, and since 1831 of the kingdom of Belgium. Situated on the river Senne, a tributary of the Schelde, the city has an excellent rly. system communicating with France, Germany, and Holland. Brussels is connected by the Willebroeck canal with Antwerp via Vilvorde, and by the Charleroi canal with the industrial district on the Sambre. A third canal connects the city with the Rupel, and thence with the Schelde. The terminus of the London-Brussels air service is in the suburb of Haecren. Pop. 815,198.

Brussels is the seat of a university. The Gothic collegiate church—not cathedral, although often so called—of S. Gudule is one of the most imposing buildings in Europe



Brussels. 1. Palais de Justice (Law Courts), dominating the entire city. 2. The 15th century Hotel de Ville (Town Hall). 3. Church of S. Gudule, a beautiful specimen of pure Gothic architecture

The bulk of the building dates from the 15th century, and the massive towers and Gothic chapel of the sacrament were added early in

the 16th century. A feature is the magnificent old glass windows, some dating from the 15th century. It contains a pulpit by Verhuggen, representing the Fall. The town hall is almost entirely of the 15th century. The most unusual feature is the spire, 370 ft. high, surmounted by a gilded figure of S. Michael, the original patron saint of Brussels. The Grand Place has many historical associations.

Other notable buildings are the church of the Sablon—strictly Notre Dame des Victoires—built in the 13th century by the guild of crossbowmen to celebrate the Crusades; and the palace of the duke of Arenberg, now known by its old name of Palais d'Egmont. The magnificent Palais de Justice dominates the entire city. The art collections of Brussels are almost equal to those of Antwerp.

Throughout the greater part of the Great War Brussels was occupied by the Germans, who entered it on Aug. 20, 1914, and remained in possession until November, 1918. On Nov. 22 King Albert made his formal re-entry into his capital.

Brussels has been the seat of several international conferences. In 1899–1900 a conference took place to discuss the suppression of the African slave trade. The financial conference of 1920, held under the auspices of the League of Nations, sat in Brussels.

BRUSSELS SPROUTS. Vegetable of the natural order Cruciferae and the genus Brassica. It differs from other species of the genus in producing the small, well-known heads up the stem of the plants, for a season ranging from Oct. until March. Even after the sprouts have been cut the tops serve as an edible vegetable. In spite of its name it is a native of Britain.



Brussels sprouts

BRUTUS, LUCIUS JUNIUS. First consul of ancient Rome. A nephew of the tyrant Tarquinius Superbus, he escaped death at his uncle's hands by feigning madness; hence his surname Brutus (dullard). Indignant at the shameful treatment of Lucretia (q.v.), wife of Collatinus, Brutus put himself at the head of a movement to expel the Tarquin family. The movement succeeded, and Brutus and Collatinus became the first consuls of Rome in 509 B.C. When his two sons were detected in conspiracy to restore the Tarquins, Brutus had them put to death in his presence. He was slain in single combat by one of the Tarquins, who was also killed.



Lucius Junius Brutus, Roman consul
From a bust

BRUTUS, MARCUS JUNIUS (85–42 B.C.). One of Caesar's murderers. From his uncle the younger Cato he imbibed the principles of the republican aristocracy, and in the civil war took the side of Pompey against Caesar. After the battle of Pharsalus (48) he was pardoned by Caesar, who made him governor of Cisalpine Gaul, but he was soon easily persuaded by Cassius to join in the conspiracy against Caesar. It is said that when the blow of Brutus fell, the dying Caesar turned to him with the words *Et tu, Brute* (You too, Brutus). Brutus and Cassius led the army which opposed Antony and Octavian at Philippi in 42, when Brutus committed suicide.

Another of Caesar's murderers was Decimus Junius Brutus (84–43 B.C.). During the civil war he was on Caesar's side.

BRYAN, WILLIAM JENNINGS (1860–1925) American politician. Born at Salem, Illinois,

March 19, 1860, he became a barrister in 1883. In 1891 he was returned to the House of Representatives as a Democrat, having made a reputation by his speeches in the campaign of 1888.



William J. Bryan, American politician

During the next four years he ardently supported the cause of hi-metallism. In 1896 his party selected him as candidate for the presidency. He was, however, beaten by McKinley, as he was also in 1900. It was in 1900, too, that he founded a weekly paper, *The Commoner*. In 1908 Bryan was again an unsuccessful candidate, his opponent being W. H. Taft. In the convention of 1912 he was largely responsible for the nomination of Woodrow Wilson, after whose election Bryan held office as secretary of state from March, 1913, to June, 1915. He was an advocate of international arbitration. He died July 26, 1925.

BRYANSTON. Public school in Dorset. Near the town of Blandford, the estate, through which the river Stour passes, was long the property of the Portman family. In 1907 the house, a fine modern building, was sold by Viscount Portman and converted into a public school. Bryanston Square, London, is part of the Portman estate.

BRYANT, WILLIAM CULLEN (1794–1878). American poet and journalist. Born at Cummington, Massachusetts, Nov. 3, 1794,



William C. Bryant, American poet

he went to New York in 1825. He was made assistant editor of *The Evening Post* in 1826 and editor in chief in 1828, a post which he held until his death, June 12, 1878. His earliest work was *The Embargo*, a satire in the manner of Pope; it was published in 1808, and his mortuary poem, *Thanatopsis*, in *The North American Review*, in 1817.

BRYCE, JAMES BRYCE, VISCOUNT (1838–1922). British statesman and historian. Born at Belfast, May 10, 1838, he had a most distinguished career at Oxford. In 1880 he entered Parliament as Liberal M.P. for the Tower Hamlets, and from 1885–1907 was M.P. for S. Aberdeen. He was under-secretary for foreign affairs in 1886, and in 1892 entered the cabinet as chancellor of the duchy of Lancaster. He was president of the Board of Trade 1894–5. When the Liberals returned to power in Dec., 1905, he took the position of Irish secretary, resigning in 1907 to become British ambassador at Washington, whence he retired in 1913. In 1907 Bryce received the Order of Merit, and his viscounty was conferred in 1914. He died on Jan. 22, 1922. His writings include *The Holy Roman Empire*, 1864, and *The American Commonwealth*, 1888.



Viscount Bryce, British statesman

BRYNAMMAN. Village of Carmarthenshire. It is seated near the Longhor river 18 m. N.E. of Llanelly, on the L.M.S. and G.W. Ryds. There are extensive collieries in the neighbourhood. Pop. 5,000.

BRYNMAWR. Urban dist. and market town of Brecknockshire. It stands on a tributary of the Usk, 8 m. S.W. of Abergavenny, on the L.M.S. Rly. It is a coal-mining centre, but in 1930 it was proposed to make it a pleasure resort. Market day, Sat. Pop. 8,500.

BRYONY. Common name of two unrelated perennial climbing herbs. White hryony (*Bryonia dioica*), a native of Europe, N. Africa, and W. Asia, belongs to the order Cucurbitaceae. Its leaves are lobed and the flowers are greenish white. The fruit is a spherical herry, at first green, but red when ripe. The root-stock is fleshy, tuberous, white, and of large size, and has purgative properties.



Bryony, Black variety, *Tamus communis*

Black hryony (*Tamus communis*), is a native of Europe and the Mediterranean region. Its underground root-stock is egg-shaped, fleshy, and black. The leaves are large and heart-shaped; the greenish flowers are small and inconspicuous. The berries are oblong, first green, then orange, and red when ripe.

BRYOPHYTA (Gr. hryon, mossy seaweed; phyton, plant). Botanical group, including liverworts and mosses. It exhibits well-marked features which distinguish it from the Algae and Fungi. In most Bryophyta the plant-body shows in the differentiation of its tissues a greater division of physiological labour. See Liverwort; Moss.

BRYTHON. Later branch of the Celtic-speaking peoples, who carried to Britain the Brythonic speech. This developed into the Welsh, the Breton, and the Cornish dialects. The Brythons brought the iron age culture into Britain about 400 B.C. See Celt.

BUBASTIS. Ancient city near Zagazig, Lower Egypt, the Pibseth of Ezek. 30. Occupied in the Pyramid age, it became a royal residence under Shishak I, whence the XXII dynasty is called Bubastite. The temple, extended by Osorkon II, was uncovered by Naville in a mound called Tell Basta, 1887–89. It was sacred to the cat-headed goddess Bast, with an extensive cat cemetery. See Egypt.

BUBONIC PLAGUE (Gr. bubon, groin). Acute infectious disease caused by the bacillus pestis. The epidemic in the 14th century known as the Black Death was bubonic plague. The name is derived from the fact that in one form of the disease the lymphatic glands become enlarged and inflamed, sometimes forming buboes, or swellings. See Black Death; Plague.

BUCCANEER. Name applied chiefly to the maritime adventurers, British and French, who established themselves in the West Indies and waged war upon Spain and Spanish commerce throughout the 17th century. Sir Henry Morgan was perhaps the most famous of the "admirals" of the buccaneers.

BUCCLEUCH, DUKE OF. Scottish title borne by the family of Scott since 1663. The present holder represents three dukedoms, Buccleuch, Queensberry, and Montagu, as is shown by the family surname of Montagu-Douglas-Scott. Walter Scott was created an earl in 1619, and after his death his granddaughter Anne became Countess of Buccleuch. In 1663 she married the duke of Monmouth, who was then made duke of Buccleuch. The titles passed to her grandson, Francis, the 2nd duke, who was restored to the honours his grandfather had forfeited.

Henry, the 3rd duke (1746–1812), inherited in 1810 the title and estates of the duke of Queensberry, and his wife received from her father the property of the dukes of Montagu. The duke's chief residences are Dalkeith Palace, near Edinburgh, and Drumlanrig Castle, the old seat of the dukes of Queensberry, in Dumfriesshire. His eldest son bears the courtesy title of earl of Dalkeith. Buccleuch itself is in Selkirkshire.

BUCEPHALUS (Greek bous, ox; kephale, head). Alexander the Great's warhorse. It died 326 B.C., on the banks of the Hydaspes,

the modern Jhelum, in the Punjab, where the king built the city of Bucephala in honour of his favourite. Tradition says that Alexander when a boy broke in the horse, a necessary preliminary, according to the oracle, to securing the throne of Macedonia.

BUCHAN. District of N.E. Aberdeenshire. Between the Ythan and Deveron rivers, it embraces the towns from Peterhead to Fraserburgh. The coastline, 40 miles long, is precipitous, and at the famous Bùllers ("boilers") of Buchan, 6 m. S. of Peterhead, is a cavern amid rocks where the sea rushes through an arch and "boils" during storms. Buchan Ness, or Boddam Point, 3 m. S. of Peterhead, is the most easterly point of the Scottish mainland. It has a lighthouse with a flashing light, visible for 18 m.

EARL OF BUCHAN. This Scottish title has been held by the Comyns, the Stewarts, and, since 1617, by the Erskines, the descendants of whom still retain it. The earl's eldest son is called Lord Cardross.

BUCHAN, ALEXANDER (1829-1907). Scottish meteorologist. Born April 11, 1829, the son of a weaver in Kinross, he was educated at Edinburgh University. In 1860 he was appointed secretary of the Scottish Meteorological Society, which under his influence built an observatory on Ben Nevis. Buchan made a reputation by his weather studies. He put forward a theory of periods, six cold and three warm, in a year, and these have proved remarkably useful. He died May 13, 1907.

BUCHAN, ELSPETH (1738-91). Founder of the Scottish sect of Buchanites. Daughter of an innkeeper in Banffshire, Scotland, she moved to Glasgow and declared she was the woman clothed with the sun mentioned in Rev. 12. Expelled from Irvine, 1784, she with some 40 followers called Buchanites settled at New Cample, near Thornhill, where they lived a communal life and awaited a millennium. The sect did not long survive her death.

BUCHAN, JOHN (b. 1875). British author. Born in Peeblesshire, Aug. 26, 1875, he was called to the bar in 1901. His works include *John Burnet of Barns*, 1898; *Prester John*, 1910; *Salute to Adventurers*, 1915; *Lives of Sir Walter Raleigh*, 1911, and *Montrose*, 1913; and a sensational trilogy, *The Thirty-Nine Steps*, 1915; *Greenmantle*, 1916; and *Mr. Standfast*, 1919. His later stories include *Huntingtower*; *Midwinter*; *John Maenab*; *The Dancing Floor*; *Witch Wood*, and *The Runagates Club*. He was elected Unionist M.P. for the Scottish universities in April, 1927.

Buchan's sister Anna, under the pen name of Olive Douglas, has written several novels, including *Tho Setons*, *Penny Plain*, and *Tho Proper Place*.

BUCHANAN, GEORGE (1506-82). Scottish scholar. Born at Killearn, Stirlingshire, he graduated at St. Andrews in 1525, and went to Paris, but on becoming tutor to the son of the earl of Cassilis, accompanied his pupil back to Scotland in 1537. About this time, through writing against the monastic orders, he was imprisoned in the castle of St. Andrews, but escaped to France in 1539, and passed some years there and in Portugal. Buchanan was made classical tutor to Queen Mary in 1562, and principal of St. Andrews in 1566. He now openly identified himself with Protestantism and, appointed moderator of the general assembly in 1567, was conspicuously hostile to Mary. In 1570 he was appointed tutor to the young king James VI. He died at Edinburgh, Sept. 28, 1582.



George Buchanan, Scottish scholar
Painting by F. Pourbus

BUCHANAN, JAMES (1791-1868). President of the United States. Born in Pennsylvania, April 23, 1791, he became a lawyer in 1812. After serving in the war against Great Britain, 1812-14, he entered political life, membership of the legislature of Pennsylvania leading to a seat in Congress in 1820. He was secretary of state under Polk 1845-49, minister to Great Britain 1853-55, and was elected president in 1856. His policy on the question of the day, slavery, was hesitating and weak, and at the end of his term civil war began. He retired from public life soon after Lincoln's election in 1860, and died June 1, 1868.



James Buchanan, American President

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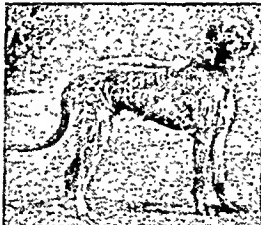
BUCHANAN, ROBERT WILLIAMS (1841-1901). Scottish poet, novelist, and playwright. Born at Caverswall, Staffordshire, Aug. 18, 1841, he came to London in 1860 and obtained employment on *The Athenaeum*, *All the Year Round*, and other periodicals. With his London Poems, 1866, his reputation was established as a writer of narrative poetry. From 1866-76 he was engaged in a controversy with D. G. Rossetti and Swinburne, whom he attacked as leaders of *The Fleshly School of Poetry*. It resulted in a successful libel action against Swinburne, 1876, and an apology to Rossetti, 1882. In 1876 Buchanan published his first novel, *The Shadow of the Sword*, and in the next 14 years some 20 works of fiction, including *God and the Man*, 1881. He died June 10, 1901.



Robert Buchanan, Scottish poet

Bucharest. Variant spelling of the name of the Rumanian capital, Bukarest (q.v.).

BUCKFASTLEIGH. Urban district of Devon. It is 7 m. N.W. of Totnes, on the G.W.R. The Cistercian abbey was partly restored in the 19th century by French Benedictines. Near is a Tudor mansion called Buckfastleigh Abbey. Not far from the abbey ruins the Benedictine monks, with their own hands, have erected a set of monastic buildings, including a beautiful church. Pop. 2,265.



Buckhound, an almost extinct breed once used for hunting

BUCKHAVEN. Town and police burgh of Fifeshire, forming with Methil a burgh. On the N. shore of the Firth of Forth, 7 m. N.E. of Kirkealdy by the L.N.E.R., with a good harbour and pier, it has had a brisk fishing industry for several hundred years. Pop. 16,663.

BUCKHOUND. British breed of hound resembling the staghound. Largely used in the Middle Ages for buck hunting, it is now seldom seen. A royal perk was maintained until 1901. See Dog; Staghound; illus. above.

BUCKHURST HILL. Urban district of Essex, 10½ m. N.E. of London. On the L.N.E.R., it is within easy access of Epping and Hainault Forests. Pop. 5,487.

BUCKIE. Burgh and fishing town of Banffshire. It stands on Buckie burn, which divides it into Easter and Nether Buckie, and is 14 m. N. of Keith, by the L.M.S. & L.N.E. Rlys. Pop. 8,690.

BUCKINGHAM. Borough and market town of Buckinghamshire. On the Ouse, 61 m. by rly. N.W. of London, it is served by the L.M.S. Rly. and a branch of the Grand Junction Canal. It has a trade in agriculture and manufactures flour, malt, and pillow lace. Its grammar school was founded in 1548 by Edward VI. Buckingham formerly had an extensive trade in wool. Near is Stowe (q.v.), now a public school. Market day, Sat. Pop. 3,059.



Buckingham. The old gaol in this English market town
Valentine

BUCKINGHAM, DUKE OF. English title borne by the families of Stafford, Villiers, Sheffield, and Grenville, with intervals, from 1444 to 1889. In 1377 Thomas, duke of Gloucester, was made earl of Buckingham, and the title descended to his grandson, who was made a duke in 1444. He was killed in battle, July 10, 1460, and was succeeded by his grandson, Henry Stafford (c. 1453-1483), who was executed for having gone over to the side of Henry Tudor. The title became extinct when his son Edward, the 3rd duke, was executed in 1521.

In 1617 the earldom was revived by James I for his friend George Villiers, who, in 1623, became a duke. This title became extinct when the 2nd duke died in 1687. It was revived in 1703 for John Sheffield, marquis of Normanby, but became extinct on his death in 1735. In 1784 George Grenville, Earl Temple, was made marquis of Buckingham, and in 1822 his son Richard, the 2nd marquis, who had married the only child of the third and last duke of Chandos, was created duke of Buckingham and Chandos.

Of the Grenville family there were three dukes. The last Richard (1823-89) was colonial secretary, 1866-68. He died without sons in 1889, when the dukedom and marquessate became extinct.

BUCKINGHAM, GEORGE VILLIERS, 1ST DUKE OF (1592-1628). English courtier. A son of Sir George Villiers, he was born at Brooksby, Leicestershire, Aug. 28, 1592. A companion of Charles, prince of Wales, he became earl of Buckingham in 1617, and duke in 1623. From 1618 onwards he aspired to be the real ruler of the country, and exercised complete control over James and Charles. Appointed lord high admiral in 1619, he brought about the futile naval expedition to Cadiz in 1625; and was only saved from impeachment by the dissolution of Parliament in 1626. In 1627 he led the expedition to the isle of Ré, which failed to relieve Rochelle. In 1628 he was fiercely attacked by Parliament, and he was leading another expedition to Rochelle, when he was murdered at Portsmouth, Aug. 23, 1628.

BUCKINGHAM, GEORGE VILLIERS, 2ND DUKE OF (1628-87). English courtier. Born Jan. 30, 1628, he was a son of the 1st duke



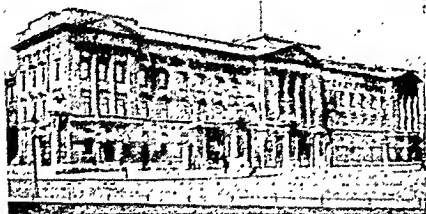
George Villiers, 1st Duke of Buckingham
Painting by Jansen



Henry Stafford, 2nd Duke of Buckingham
From an old print

whom he succeeded in August, 1628. Brought up with Charles I's children, he served on the royalist side in the Civil War. In 1651 his estates were sequestered, but in 1657 he married the daughter of the parliamentary general Fairfax, to whom most of his estates had been assigned under the Commonwealth. After Clarendon's fall, which was largely due to him, he was the most influential of the king's advisers. In 1668 he was a chief member of the Cabal ministry, but after attacking Arlington in 1673 he lost favour. Buckingham died April 16, 1687, and the dukedom became extinct. Satirised as Zimri in Dryden's *Absalom and Achitophel*, he was a wit, a writer of verses, and a dabbler in chemistry.

BUCKINGHAM PALACE. Royal residence in London. Built in 1703 by a Dutch architect for John Sheffield, duke of Bucking-



Buckingham Palace, London. Front of the palace, showing the facade added by Sir Aston Webb in 1913
H. N. King

ham, it was acquired by George III in 1761 for £21,000. Reconstructed 1825-36 in the Palladian style, from designs of John Nash, a new wing was added in 1846 by James Blore. In 1856 the hall room was added, measuring 111 ft. by 60 ft.

In 1913 a new front was built from designs by Sir Aston Webb. It is of a straightforward Renaissance design and of Portland stone. The principal state apartments are the throne room, the drawing room, and the picture gallery, which contains many works of the English, Dutch, Flemish, and French schools, Reynolds, Wilkie, Lely, Rembrandt, Rubens, Claude Gellée, and Watteau being worthily represented. Part of the collection was got together by George IV; it was enriched by the gallery of Sir Francis Baring.

BUCKINGHAMSHIRE or **BUCKS.** Inland county of England. Bounded N. by Northamptonshire, E. by Bedfordshire, Hertfordshire, and Middlesex, S. by the Thames, and W. by Oxfordshire, its greatest length is 53 m., greatest breadth 27 m., and its area 749 sq. m. Next to the Thames, with its tributaries the Colne and Thame, the Ouse is the largest river. Mainly undulating, the surface is relieved by the Chiltern Hills, culminating in Wendover Hill (852 ft.). Wheat and oats are important crops, while the Vale of Aylesbury is noted for dairy produce, ducks, and sheep. Beech and oak trees are plentiful, the wood of the former being used in making brush-stocks, chairs, etc.

The county is served by the L.M.S., Metropolitan, L.N.E., and G.W. Rlys., and the Grand Junction Canal. The district of Chiltern Hundreds is within the county. Aylesbury is the county town; others are High Wycombe or Chipping Wycombe, Slough, Buckingham (the former county town), and Chesham. The county returns three members to Parliament. Pop. 236,171.

Derived from the county is the title of Earl of Buckinghamshire, held by the family of Hobart-Hampden. It dates from 1746, when it was given to John, Baron Hobart. The 4th earl, Robert (d. 1816), a politician and secretary for the colonies, gave his name to Hobart Town in Tasmania. The 5th earl succeeded in 1824 to the Buckinghamshire estates of the Hampdens, whereupon he added that name to his own.

LITERARY ASSOCIATIONS. At Horton Milton wrote *Comus*, *L'Allegro*, and other lyric poems; at Chalfont St. Giles, where he finished *Paradise Lost*, his cottage remains. At Jordans William Penn is buried. Burke lived and is buried at Beaconsfield and Disraeli at Hughenden. Stoke Poges was the scene of Gray's *Elegy* and the place of the poet's burial. Consult *Highways and Byways of Buckinghamshire*, C. K. Shorter, 1910.

BUCKLAND, FRANCIS TREVELYAN (1826-80). British naturalist. Born Dec. 17, 1826, he became a surgeon. Appointed in 1867 an inspector of fisheries, he did valuable work in discovering and remedying the causes of the decline of the salmon and other fisheries. He established the museum of economic pisciculture at South Kensington. He died Dec. 19, 1880.



Francis Buckland, British naturalist

BUCKLAND, HENRY SEYMOUR BERRY, 1ST BARON (1877-1928). British financier. Eldest son of John Mathias Berry, of Merthyr Tydfil, and elder brother of Lord Camrose and Sir J. Gomer Berry (q.v.), he became associated with the large commercial enterprises of D. A. Thomas (later Lord Rhondda). Later he became chairman of Guest, Keen, and Nettelfolds, and was a director of other companies. He was created a baron in 1926, and was killed while riding, May 23, 1928. The title then became extinct.

BUCKLE, HENRY THOMAS (1821-62). British historian. Born at Lee, in Kent, Nov. 24, 1821, he became a remarkable linguist, and in 1850 could speak seven languages and read in nineteen. His studies bore fruit in 1857, when the first volume of the *Introduction to the History of Civilization in England* appeared, followed by a second volume in 1861. He died at Damascus, May 29, 1862. Buckle was a great chess player.

BUCKLER'S HARD. Village of Hampshire, on the Beaulieu river, New Forest. In the days of the wooden navy it was a centre for building warships. Oak was felled in the New Forest and turned into ships at Buckler's Hard, where the slips still remain.

BUCKLEY. Urban dist. of Flintshire. It is 3 m. E. of Mold, on the L.M.S. Rly. Fire-bricks, earthenware, and tiles are manufactured, and there are coal mines. Pop. 6,734.

BUCKMASTER, STANLEY OWEN BUCKMASTER, 1ST BARON (b. 1861). British lawyer and politician. Born Jan. 9, 1861, he was called to the bar in 1884, and became a K.C. in 1902. He was Liberal M.P. for Cambridge, 1906-10, and for Keighley, 1911-15. In 1913 he was knighted on becoming solicitor-general Director of the Press Bureau from Sept., 1914-May, 1915, he was in 1915 appointed lord chancellor, resigning on the fall of the Asquith ministry in Dec., 1916.



Baron Buckmaster, British lawyer

BUCKROSE, J. E. British author. She was born at Hull, and married Robert Falconer Jameson. In a rapid succession of novels, short stories, and sketches, she admirably delineated the simple rustic and urban folk of her native Yorkshire. Her works include *The Wood End*, 1906; *A Little Green World*, 1909; *Down Our Street*, 1911; *Spray on the Windows*, 1915; *Young Hearts*, 1920; *Payment in Kind*, 1928; and *Aesop Dancing*, 1930.

BUCKSKIN. Soft yellowish or greyish leather made from the skins of bucks, sheep, or other animals, used for gloves and other



Buckinghamshire. Map of this Home County of England. It is famous for its beech woods, and has many historical and literary associations

articles of clothing. The term is also applied to a strong twilled woollen cloth, of which buckskin breeches are generally made.

BUCKTHORN (*Rhamnus catharticus*). Shrub of the order Rhamnaceae, a native of Europe, N. Africa, and Siberia. It is much branched, the branches often ending in a sharp point; the toothed leaves are oval, and the flowers small, yellow-green, in clusters from the axils of the leaves. The fruits are drupes, black when ripe. Another species, the alder buckthorn (*R. frangula*), has branches devoid of spines and broader leaves, without teeth and with the veins parallel. In their unripe state the fruits yield a green dye.



Buckthorn, *Rhamnus catharticus*

BUCKWHEAT (*Polygonum fagopyrum*). Crop-plant belonging to the order Polygonaceae. The heart-shaped leaves, red stems, and small crowded pinkish-white flowers give the plant an attractive appearance. The fruits resemble miniature beech-nuts. In Great Britain this crop is grown for green manuring, sheep-feed, and food for pheasants. The fruits are good food for horses, and, when cracked, for milch cows, pigs, and poultry. In other countries buckwheat is used for making porridge and cakes.



Buckwheat, crop-plant of the dock family

BUD (Fr. bouton, button, bud). Strictly a condensed shoot with its leaves, in embryo, packed closely together. It is covered as a rule by scales to prevent excessive transpiration and the effects of rapid temperature changes. In many cases the scales are coated with a gummy varnish. Buds are produced in the axils between leaf-stalk and stem or branch. In some cases there are no enveloping scales, but the outer leaves or leaf-stalks are modified to serve the same end. When buds expand into shoots in spring, the scales are thrown off, leaving scars.

Budding is the term used for the propagation of a scion or offspring of a choice flower or fruit upon a sturdy stock. Apples, pears, and roses are the most frequent subjects of the operation. See Grafting.

BUDAPEST. Capital of Hungary. It stands on the Danube, and consists of two towns, Buda, called Ofen by the Germans, and Pest, which were united in 1873. Buda,

plain. Around both are extensive suburbs, and they are united by several bridges across the Danube. The city is 163 m. from Vienna. It covers 78 sq. m., and its pop. is 929,000.

The most notable building is the palace, built about 1770 and restored in 1894. S. Matthias is the oldest church; the finest are the Leopoldstadt and the Franzstadt, both in Pest. The Jews have a fine synagogue. Other buildings are the legislature, a magnificent Renaissance pile facing the river, and many others that house the public officials. The palace of justice, the national and other museums, the picture gallery, and the town hall may be mentioned, as may the large central market, the opera house, and several fine theatres. The university, removed here in 1784, has some fine buildings and a large and valuable library. There are other valuable libraries in the city, one belonging to the Hungarian academy of sciences. The city has spacious boulevards, wide streets, fine squares, beautiful parks and monuments, and many of its banks and other commercial buildings are good examples of modern architecture. It does a large trade both by land and water.

Buda was the residence of the Hungarian kings from about 1320 to 1526. In 1541 it was taken by the Turks, who had previously besieged it, and it was not recovered until 1686. In the 19th century, as the centre of Hungary's social, intellectual, and commercial life, it grew enormously. From Aug. to Nov., 1919, the Rumanians occupied it.

BUDDH GAYA. Village of Bengal, India, 40 m. S.W. of Bihar. The traditional resting place of Gautama, founder of Buddhism, and a place of pilgrimage, it contains the famous peepul tree and the palace of King Asoka. See Bo Tree.

BUDDHISM. Strictly the religious system taught by Gautama Buddha and his immediate followers. He was born about 560 B.C., and died some eighty years later. His father was chief of a Rajput clan which occupied territory corresponding to Oudh and the adjoining district of S. Nepal. When about 28 Gautama-married, and a year later his son, Rahula, was born. Almost immediately afterwards Gautama left his family, and thenceforward lived a wandering life.

Seven years after he had set about the quest, while sitting in meditation under a sacred tree, afterwards known as the Bo (knowledge) tree, the vision of the true way came to him, and from that time forth he became the Buddha, the wise or the enlightened one. He saw now for the first time the evil, the cause of all suffering, and also the means by which it was to be overcome.

Buddhism has assumed four principal forms: Buddhism proper, that of Burma and especially of Ceylon; Lamaism, the Buddhism of Tibet; Foism, from Fo, the Chinese form of Buddha, the Buddhism of China; and the Buddhism of Japan, a mixture of true Buddhism and of the native Shintoism. Each of these has its own bible.

The main features of Buddhism are as follows: That suffering is universal, no man being free from it from birth to death. That the cause of this suffering is desire or longing, this leading to rebirth, and the continuance of desire and misery. That deliverance from suffering is to be obtained through the suppression of desire, the absence of passion of every kind. That this result is to be obtained by pursuing the holy eight-fold path, namely, right belief, right aspiration, right

speech, right conduct, right means of subsistence, right aim and effort, right memory, right meditation. The goal which Buddhism

sets before a man as the summum bonum is called Nirvana, of which there are two stages: first, that impassive satisfied state which may be attained in this world; secondly the perfect Nirvana which comes only after physical death.

The following five rules of conduct are binding upon all Buddhists: No living being is to be killed. No one is to take what has not been given him. Adultery is strictly forbidden. No man is to utter an untruth. All intoxicating drinks are to be avoided. Buddhists throughout the world number about 100,000,000.

The conversion of Asoka, about 250 B.C., inaugurated eight centuries of Buddhist predominance in India and propaganda in other lands. Fourteen ethical rock-edicts were incised by him on rocks at Girnar in Kathiawar and other remote places; nearer home he engraved seven pillar-edicts on monolithic pillars, one of which is now at Allahabad (see illus. p. 56). Colossal images in stone, metal, or wood are found, as at Bamian in Afghanistan, 173 ft. high; at Pegu in Burma, recumbent, 181 ft. long; and elsewhere. Consult The Beginnings of Buddhist Art, A. Foncher, Eng. trans. L. A. and F. W. Thomas, rev. ed. 1917; Buddhist Philosophy in India and Ceylon, A. B. Keith, 1923.



Buddhism. The great bronze Buddha, 49 ft. 7 in. high, at Kamakura, Japan

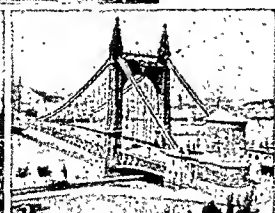
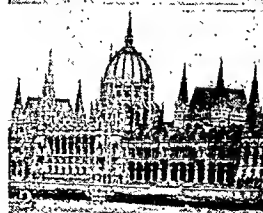
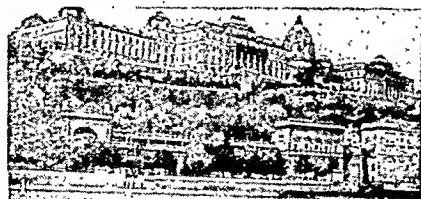
BUDE or **BUDEHAVEN.** Watering place on the N. coast of Cornwall. It lies 18 m. N.N.W. of Launceston, on the Southern Rly., amid beautiful scenery at the mouth of the river Bude. The Budo Canal extends 33 m. from Budo to Thornbury, and has a connexion with the Tamar. Pop. 3,140.

BUDGE, SIR ERNEST ALFRED WALLIS (b. 1857). British Orientalist. Born July 27, 1857, he was educated at Cambridge. After several publications, including a History of Esarhaddon, 1881, and Babylonian Life and History, 1884, he became in 1885 keeper of Egyptian and Assyrian antiquities in the British Museum. He excavated at Niueveh, Der, Assuan, and in S. Nubia. His numerous works include the Gods of Egypt, 1903; The Egyptian Sudan, 1907; The Nile (12th ed.), 1912; By Nile and Tigris, 1920; and The Rosetta Stone, 1929. He was knighted in 1920, and retired from the Museum in 1924.

BUDGET. Annual statement of a nation's finances made in Parliament by the chancellor of the exchequer or the minister of finance. The word comes from the French bougette, a leather bag (Lat. bulga), hence a dispatch box, usually of leather.

In Great Britain the financial year ends on March 31, and the budget is presented in April or May. It consists of (1) a statement of the actual revenue and expenditure of the year just past, and (2) an estimate of that for the year to come. The latter is partly conjecture, and in increasing or reducing taxation, in order to make revenue and expenditure balance, the chancellor is said to budget for the year.

BUDWEIS (Bohemian Budejovice). City of Czechoslovakia, in Bohemia. At the confluence of the Moldau and Maltsh, 80 m.



Budapest. 1. Former palace of the Hungarian kings, Buda. 2. Houses of Parliament. 3. Elizabeth Bridge over the Danube

on the west of the river and the official quarter, stands on hills; Pest, on the east, and the commercial and intellectual quarter, is in a

speech, right conduct, right means of subsistence, right aim and effort, right memory, right meditation. The goal which Buddhism

by rly. S. of Prague, it has a 16th century cathedral with a detached belfry, and a fine town hall. It manufactures chemicals, bricks, tiles, machinery, beer, and paper, and has a large trade in grain, timber, and salt. Pop. 44,022.

BUENOS AIRES. Federal capital of the Argentine Republic. On the S. bank of the Río de la Plata, 150 m. from the Atlantic, the city lies on a low plain sloping gradually towards the N., and its average height above sea level is not more than 20 ft. The boundaries of the city which covers an area of 72.8 sq. m., coincide with the federal district.

Buenos Aires is a well planned city, and its streets, crossing each other at right angles, are well paved and lighted. The most noteworthy of its many fine avenues is the Avenida de Mayo, the leading business thoroughfare. The most central of the numerous plazas or squares is the Plaza de Mayo. Notable buildings include the Casa Rosada (Pink House) or Government House, the archbishop's palace, the Exchange, and the Palermo Park, the Hyde Park of Buenos Aires, officially the Parque 3 de Febrero, covers about 840 acres, and here are the zoological gardens, aquarium, motor track and flying ground, and boating lakes. About 1 m. nearer the centre of the city is the remarkable cemetery known as the Recoleta.

Buenos Aires is the seat of a Roman Catholic archbishop, and, in addition to the cathedral, modelled after the Madeleine of Paris, has many Roman Catholic and Protestant churches. Other buildings are the university and the congress hall, and noteworthy among the business structures are the Prensa newspaper offices. The favourite suburb of Belgrano is beautifully laid out and contains many fine country houses.

Besides the natural harbour, called the Boca (mouth), on the river Riachuelo, there is a large artificial harbour, higher up the river. The city has extensive abattoirs, and the central produce market is one of the largest in the world. A new stock exchange was opened in 1929. There are aerial routes from Buenos Aires to Salta, Catamarca, Posadas and other cities, as well as an aerial post service between Buenos Aires and Montevideo. Pop. 2,030,765.

As distinct from the federal district, the province of Buenos Aires is the largest and most populous province of Argentina. Its capital is La Plata.

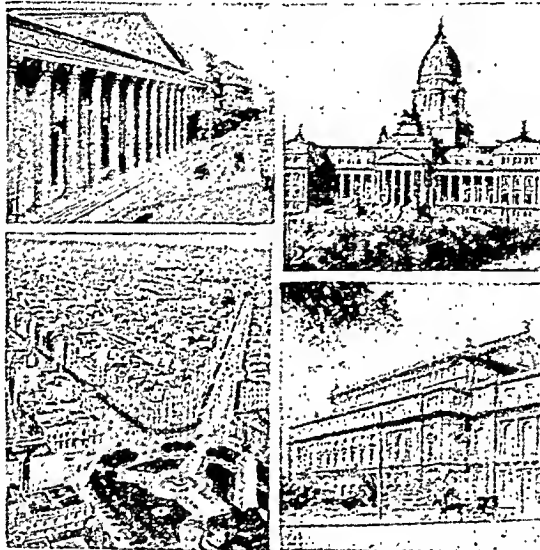
BUFFALO (Bubalus). Large animal of the ox family, found chiefly in Africa and India. No examples are found in the Western hemisphere. The horns are flattened at the base, triangular in section, set low on the skull, and have their bases close together. The African buffalo (B. caffer) is sturdy and heavy,

The Indian buffalo is a heavier animal, with straight head and usually long horns. Its ears are small, and the hair is black. It lives in herds in the jungles of the plains, and domesticated breeds are found. See illus. p. 131.

BUFFALO. City of New York State, U.S.A. At the E. extremity of Lake Erie, and at the head of the Niagara river, 423 m. by rly. N.W. from New York, Buffalo is served by several rly. lines, and is the port of transshipment for the Lake Erie and Erie Canal steamship services. One of the chief industrial and commercial centres of America, it has a great variety of manufactures, chiefly connected with iron and steel. It is the seat of a university. The water power of Niagara Falls generates electricity for lighting and other purposes. President McKinley was assassinated here in 1901. Pop. 538,016.

Buffalo Bill. Popular name given to the famous American scout and showman, William Frederick Cody (q.v.).

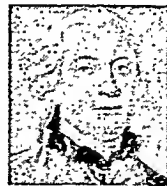
BUFFON, GEORGES LOUIS LECLERC, COMTE DE (1707-88) French naturalist. Born Sept. 7,



Buenos Aires. 1. Roman Catholic cathedral in the Plaza de Mayo. 2. Palace of Congress. 3. Panorama of the city from the Plaza de Mayo. 4. Colon theatre, the home of State-aided opera

1707, he first read law and then devoted himself to science. In 1739 he was appointed

director of the king's garden and museum in Paris. In association with Daubenton and others he spent the rest of his life in the production of his great work on Natural History, of which 36 volumes were published between 1749-89. One of these, *Époques de la Nature* (1773), contained his striking anticipation of the law of evolution. Buffon, who was the author of the well-known aphorism, *Le style c'est l'homme* (The style is the man), died in Paris, April 16, 1788.



Comte de Buffon, French naturalist

BUGS, THE. Familiar name of the East Kent Regiment, the old 3rd Foot. See East Kent Regiment.

BUG. Popular name applied to insects comprising the sub-order Hemiptera-heteroptera. They have four wings, the basal half of the upper pair being of a thicker, more horny texture. The mouth parts are so modified as

to constitute a beak or piercing organ. A pumping chamber in the head draws up blood or sap from the victim. Most of the plant-feeding species do damage to the vegetation they attack. The bed-bug (*Cimex lectularius*), a wingless alien of uncertain origin, is an abundant pest in dirty homes and old houses. It conveys disease germs. Cleanliness is the best preventive, but the vigorous use of insecticides will keep these pests in check. Many bugs are aquatic, and every fresh-water pond contains numerous species, of which the boatman, the water-scorpion, and the water-gnats or skaters are examples.

BUG OR WEST BUG. River of the Ukraine and Poland. It rises midway between Lemberg and Tarnopol, flows N., forms part of the Polish boundary, and, passing Brest-Litovsk, turns W. to join the Vistula 21 m. below Warsaw. About 440 m. long, it is navigable for half its course. It is connected by an affluent and canal with the Dnieper.

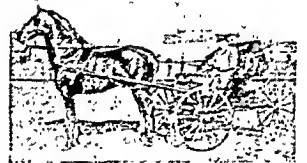
Severe fighting took place along the banks of the Bug between the Russians and Austro-Germans in 1915 in the battles for Warsaw, and fighting continued in this region in 1917.

Another Bug, known also as the South Bug and the Black Sea Bug, rises in Volhynia, flows S.E. for some 450 m., and forms near Nikolaiev an estuary 30 m. long, opening into Dnieper Bay. It is navigable for about 55 m.

BUGBANE (*Cimicifuga elata*). Perennial herb of the order Ranunculaceae. A native of E. Europe, Siberia, and N. America, the leaves are divided into three leaflets, and the small whitish flowers are conspicuous only by their association in terminal clusters.

BUGGY.

A light vehicle for one horse, much used at one time in America, India, Australia, and elsewhere. A buggy may have either four-wheeled vehicle for one horse, much used at one time in America, India, Australia, and elsewhere. A buggy may have either two or four wheels, and one kind is fitted with a hood.



BUGLE. Brass instrument of treble pitch used for military signals. Its open notes give the chord of B flat,



thus: written in key C, one tone higher. Side holes, covered by keys, were added in 1810 to give the intermediate notes, but this form, known as the key-bugle or Kent-bugle, has been superseded by the more useful cornet-a-piston in military and other bands.

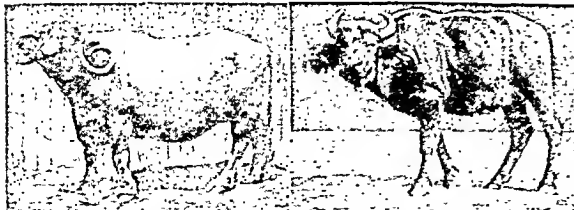
BUGLE (*Ajuga reptans*). Perennial herb of the order Lamiaceae. It is common in moist woods and pastures. Flowers are borne in a tapering spike, and are usually blue, but white, pink, and purplish varieties are met with. The lower leaves are stalked.

BUGLE LILY (*Watsonia*). Genus of bulbous perennials of the order Iridaceae. Natives of S. Africa, they have long, sword-shaped leaves and flag-like flowers in a tall spike, scarlet, pink, rose, or purple in colour.

BUGLOSS (Gr. *bous*, ox; *glossa*, tongue). Popular name of certain plants of the order Boraginaceae, with rough, bristly leaves. The plant particularly known as bugloss is *Lycopsis arvensis*, an annual herb, native of Britain and South Europe, and one of the weeds of cultivated ground. The leaves are lance-shaped or oblong. The name is applied also to *Echium vulgare*. See Viper's Bugloss.



Bugle lily, showing flag-like flowers



Buffalo. Left, Indian water-buffalo; this breed can be domesticated. Right, African buffalo, a smaller animal which is unmanageable

Gambier Bolton, F.Z.S., and F. W. Bond

with short neck, large ears, and a blackish or reddish coat. It is found in swampy districts.

BUHL OR **BOULE**. Style of furniture decoration. Introduced by André Charles Boule, a cabinet maker who flourished in Paris under Louis XIV, its chief characteristic is the application of thin coats of tortoiseshell veneering or prepared wood. The surface is inlaid with delicate tracery in metal (gilt-bronze or silver), or thin inlays of metal plates are adorned with tortoiseshell tracery. Real Buhl furniture was solid, curved lines usually predominating, while heavy mountings in carved ormolu were often added.

BUILDING SOCIETY. Legally, "a society established to raise a subscription fund by advances from which the members shall be enabled to build or purchase dwelling houses, or to purchase land, such advances being secured to the society by mortgage of the premises so built and purchased."

In the United Kingdom the constitution and conduct of these bodies are strictly regulated by the Building Societies Acts of 1874 and 1894. Incorporated societies are empowered by statute to hold land and houses, to foreclose, to raise funds by the issue of shares, and to grant loans. A society collects money from its members by means of periodical subscriptions on shares, the amount usually varying from 10s. to 20s. monthly on each share.

In 1928 the building societies in Great Britain had assets worth £268,000,000. Their total receipts were £117,000,000 and their total advances £58,665,000. These were made to 116,376 persons. In 1927 there were 954 societies. Their accounts are supervised by the Registrar of Friendly Societies. The movement has a National Society of Building Societies and The Building Societies Gazette is published in London.

BULTH WELLS. Urban district, spa, and market town of Brecknockshire. Near the confluence of the Irfon with the Wye, 16 m. N. of Brecon, it has three rly. stations, one on the G.W. Rly, 1½ m. N., in Radnorshire, and two at Bulth Road, on the L.M.S. and G.W.R., 1½ m. distant. There are baths with saline, chalybeate, and sulphur springs. Market day, Mon. Pop. 1,776.

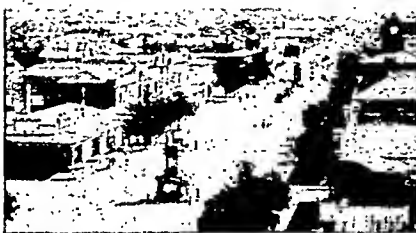
BUKAREST. Capital of Rumania. It stands on the Dimboritza, a tributary of the Danube, and is a centre of the country's road and railway system. The name, spelled in several different ways, means the city of

enjoyment. A modern city, it is laid out like Paris or Berlin with wide streets, beautiful squares, and large parks. It has over 100 churches, including the

state, theatres, banks, and hospitals. There is a university, many colleges and schools, several libraries and a botanic garden. Bukarest has some manufactures, but its growth and prosperity are chiefly due to its position as a distributing centre. In 1861 it was made the capital of the new principality of Rumania. During the Great War Bukarest was in the occupation of the Germans from Dec. 6, 1916, until just after the armistice, Nov., 1918. Pop. 800,000.

TREATIES OF BUKAREST. Bukarest gives its name to the important treaty signed August 10, 1913, between Bulgaria on the one hand and Rumania, Serbia, Greece, and Montenegro on the other. This treaty, which ended the second Balkan War, gave considerable additional territory to Bulgaria's late enemies.

On May 7, 1918, a treaty generally known as the peace of Bukarest was forced upon Rumania by Germany and her allies, under which she ceded to Bulgaria the territory in the Dobruja acquired in 1913. This and other supplementary treaties were annulled by the armistice of Nov., 1918. See Balkan Wars; Bulgaria; Rumania.



Bulawayo. Main Street; right, the clock tower of Post Office and Municipal Buildings. See below

BUKOKA. District and port in the N.W. of Tanganyika Territory. The district is bounded E. by Lake Victoria, N. by the Uganda Protectorate, W. by Ruanda and Urundi, and S. by Ujiji and Tabora districts. The principal river is the Kagera. The port on Lake Victoria is the administrative centre of the district.

BUKOWINA OR **BUKOVINA.** District of Rumania. Its area is 4,030 sq. m. and its population about 800,000. The Bukovina is a mountainous country, belonging principally to the region of the Carpathians, and upwards of 40 p.c. of its area is covered with forests, from which timber is obtained. Its rivers are the Dniester, Pruth, Sereth, Suceava (Sucebava), and Moldava. Czernowitz is the capital. It was part of Austria from 1777 to 1918.

The Bukovina district was strategically important in the Great War as it gave access to Transylvania (Hungary). The Russians invaded it in Sept., 1914, and from that time onward there was considerable fighting between them and the Austro-German forces.

BULAIR. Town in the N.E. part of the Gallipoli peninsula. Taken by Suleiman Pasha about 1356, it was the scene of fighting in the first Balkan War, and of the armistice arranged on April 19, 1913. During the Dardanelles (q.v.) operations in 1915 the Bulair lines were bombarded by French warships.

BULAWAYO OR **BULUWAYO** (formerly Gubuhwayo). Commercial capital of Southern Rhodesia. In Matabeleland, it is the chief rly. centre of Rhodesia, being connected by rail with all the principal towns and ports of S. Africa. The distance from Cape Town is 1,360 m., from Port Elizabeth 1,198 m., from Salisbury 301 m., and from Elizabethville 944 m. Pop. whites, 8,251. Bulawayo is built round a market square, and has rectangular thoroughfares. Between the town and its suburban district on the E. are the North and South Parks, through which passes the

Matzemhlopo river. Among the public buildings are the market house, court house, stock exchange, hospital, public library, and museum. In North Park there are botanical and zoological gardens.

Bulawayo dates from 1893. It was formerly the headquarters of the Matabele, and its name signifies the place of the killing or the pathway of blood. See Rhodesia.

BULB (Gr. *bolbos*, bulbous root). Enlarged fleshy, underground termination of the roots of various orders of plants. Bulbs are (1) imbricated, in which the component layers overlap one another, as in the lily; (2) tunicated, where the bulb is made up of a succession of superimposed coats or layers, as in the onion. The word is used by gardeners to include fleshy roots solid throughout, and not built up of scales or layers, e.g. the crocus.



Bulb of snowdrop

BULBUL. Arabic-Persian name given to a family of birds, including several genera found in Syria, Arabia, and N. Africa. They are birds of brilliant plumage, and are renowned for their song, being often mentioned by the Persian poets in very appreciative terms.

BULFORD.

Village of Wiltshire. It is on the river Avon, 2½ m. N.E. of Amesbury, on the Southern Ry. There is a large military camp. Pop. 3,797. See Salisbury Plain.



Bulbul. Eastern song-bird also known as the Persian nightingale

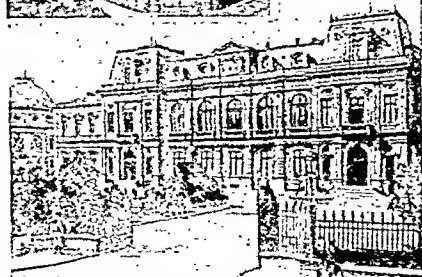
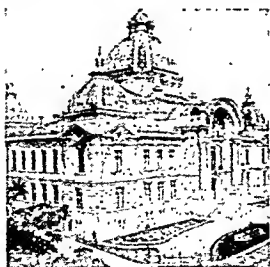
BULGARIA. Kingdom of Central Europe. It is bounded N. by the Danube, S. by Greece, E. by the Black Sea, S.E. by Turkey, and W. by Yugoslavia. The area is 39,814 sq. m. and the pop. 5,772,600.

The country is hilly and watered by numerous streams, of which the Isker, Struma, and Maritsa are the most important. The Balkan range separates the kingdom into two parts, and the S.W. boundary of what was Eastern Rumelia lies on the Rhodope range where it approaches Macedonia.

The climate N. of the Balkan range is more equable than to the S. of it. The capital and seat of government is Sofia, while Philippopolis (Plovdiv), the old capital of Eastern Rumelia, is the chief town. Other important towns are Vidin, Ruschuk (Ruso), Sliven (Slivno), and Plevna (Pleven), while the chief ports are Varna and Burgas. Agriculture is the principal occupation.

Bulgaria was erected into a principality by the Treaty of Berlin in 1878, and in 1885 Eastern Rumelia was united with Bulgaria.

In 1908 the independence of Bulgaria was recognized by the Great Powers, and Prince Ferdinand assumed the title of king of the Bulgarians. By the first Balkan War (1912-13)



Bukarest. Above, imposing Government buildings. Below, the Royal Palace, which was rebuilt in 1885

Metropolita (Greek) and the Roman Catholic cathedral. Other buildings are the king's palace, the offices of the various departments of

the territories of Bulgaria were increased, but at the end of the second Balkan War, Aug., 1913, the area acquired was reduced and about 2,000 sq. m. were ceded to Rumania. In Oct., 1915, Bulgaria entered the Great War by declaring war on Serbia, and in Sept., 1918, surrendered to the Allies. By the treaty of Neuilly, Nov., 1919, Bulgaria ceded small portions of territory on the W. frontier to Yngoslavia and lost a large part of Thrace, thus being deprived of its Aegean littoral.

By the constitution, originally drafted in 1879 and subsequently amended, legislative authority is vested in a single chamber, the Sobranje or National Assembly. It sits for four years, but may be dissolved at any time by the king. The principle of proportional representation was adopted in April, 1927. The prevailing religion is that of the Greek Church.

BULKHEAD. Term used in engineering. In marine engineering bulkheads are the longitudinal and transverse partitions dividing the internal space of a ship into watertight compartments, with a view to minimising the danger of sinking if the shell is breached. On men-of-war the bulkheads are fitted with watertight doors. See Battleship.

BULL. Male animal of the Bovidae family, kept for breeding and fattening. A bull for a pedigree herd must be descended from a long line of high merit, otherwise he may prove inferior in prepotency to the cows. For the breeding of beef cattle pedigree is less important than individual merit. A bull for a dairy herd should have been bred from a cow of good milking quality. The word is applied to the males of other large mammals such as the elephant and whale. (See Cattle.)

Bulgaria. Boy in Sunday dress

Bull baiting and running became illegal in 1835.

BULL (Lat. bulla, bubble, boss). Term used in the Middle Ages for the capsule of a seal, then for the seal itself, and so for the document to which the seal was attached. In this last sense it was applied to documents containing the public pronouncements of emperors, kings, and popes. Its use is now confined to papal documents.

BULL. Result of a particular kind of verbal blunder, generally of a misuse of words or images in which a ridiculous contradiction in terms occurs in a seemingly clear statement.

BULL, JOHN (1563-1628). English composer. Appointed organist in the Chapel Royal in 1591, he was the first lecturer on music at

Gresham College. In 1617 he became organist at Antwerp Cathedral. He was regarded as the composer of the National Anthem, and



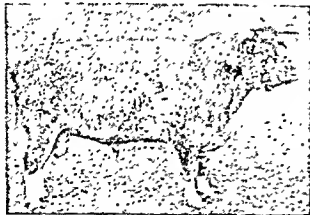
Bulgaria. Map of the state as its territories were defined after the Great War

although this has been disputed, it seems to be admitted that one of his compositions contains the earliest form of the air.

BULL, OLE BORNEMANN (1810-80). Norwegian violinist. Born in Bergen, Feb. 5, 1810. Bull was almost entirely self-taught. He made his first public appearance in 1833, and for several years toured through Europe and the U.S.A. He died Aug. 17, 1880, near Bergen, where he had built a national theatre.

BULLACE (*Prunus insititia*). Shrub or small tree related to the plum and the sloe. The fruit is larger than that of the sloe, and is less acid and more palatable: the bush is larger and less spinous. See Blackthorn.

BULLDOG. One of the oldest of distinctive British dogs. Down to the 18th century it was mainly used for bull baiting, whence its name. Close interbreeding has deprived the modern bulldog of all its fighting qualities, and it is now a gentle and good-natured animal, and quite useless as a watchdog. Its head is extremely wide and square, the face is short and the lower jaw projects so far forward and upward that the lower teeth usually project over the upper jaw, giving the dog a ferocious appearance. The chest is excessively wide and the bent forelegs, set far apart, indicate strength and sturdiness. Crosses between the bulldog and mastiff are much in demand among night watchmen, and are as a rule dangerous.



Bull, "Corner Stone," a specimen of the British short-horn bull

The toy bulldog is of French origin, is smaller and lighter, and has large and upstanding ears. See Dog.

BULLECOURT. Village of France, in the dept. of Pas-de-Calais, 14 m. W. of Cambrai. In the Great War it formed a section of the Hindenburg line, and desperate battles, which commenced in April, 1917, were waged for its possession.

BULLEN, ARTHUR HENRY (1857-1920). British editor. Born in London, he was the son of Dr. George Bullen (1816-94), keeper of printed books at the British Museum. His editorial work largely concerned the Elizabethan dramatists. In 1904, at Stratford-on-Avon, he established the Shakespeare-Head Press, whence was issued in 1904-7 the ten-volume Stratford edition of Shakespeare and the works of other dramatists. In 1930 the Press was moved to Oxford. Bullen was the first to collect and edit the works of John Day, dramatist. He died at Stratford, Feb. 29, 1920.

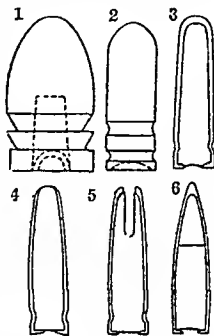
BULLER, SIR REDVERS HENRY (1839-1908). British soldier. Born at Downes, in Devonshire, Dec. 7, 1839, he saw service in China 1860, Canada 1870, the Ashanti 1873, S. Africa 1878-79, Egypt 1882, and the Sudan 1884-85. In the Zulu War he won the V.C. On the outbreak of the Boer War in 1899 Buller proceeded to South Africa in command of an army of 70,000 men. After severe reverses at Colenso and Spion Kop, he succeeded in relieving Ladysmith. Superseded by Lord Roberts, he returned to England in Nov., 1900, and resumed his Aldershot command. A year later, in consequence of an indiscreet speech, he was relieved of his command. He died June 2, 1908. Consult Life, L. Butler, 1909



Sir Redvers Buller, British soldier

BULLET (Fr. boulette, little ball). Term used to define the projectiles thrown by firearms used in warfare, and the missiles employed in shrapnel shell, case-shot, and some grenades. Spherical bullets were early introduced, and survived until the barrels of muskets were rifled, when a tightly-fitting bullet became necessary.

With the introduction of the needle gun and the adoption of breechloading, it became unnecessary to expand the bullet. The adoption of brass-cased cartridges made it desirable to reduce the weight of the ammunition, and there was a tendency to reduce the bore. This led to an increase in the length of the bullet. After a certain stage even hard lead would not withstand the strain, and this brought about the introduction of the nickel-cased bullet.



Bullet. 1. Minié bullet, 1849. 2. Solid lead bullet, 1870. 3. Copper-nickel cased bullet with lead core. Expanding bullets, 4, with core exposed at nose and, with drilled nose. 5. Modern pointed bullet with composite core

The higher velocities imparted by smokeless powder permitted a reduction of bullet weight, and the lead core has been partially replaced by aluminium or paper. For special purposes incendiary, armour-piercing, and explosive bullets are used. See Ammunition; Shrapnel; Shell.



Bulldog. Example of one of the oldest breeds of British dogs

BULL FIGHTING. National sport of Spain, Mexico, and Spanish S. America. In Spain a modern bull fight is divided into three parts. The first consists in a parade of all about to take part in the spectacle, after which the previously maddened bull is let loose to attack the picadores, who are armed with short spears with which they prod the animal. In the second stage the bull is further weakened by the banderilleros planting darts in its neck. In the last stage the matador or espada kills the bull by stabbing it.

Six or eight bulls may be done to death at one spectacle. It is estimated that some 1,200 to 1,300 bulls and between 5,000 and 6,000 horses are killed annually in Spain alone. In 1928 royal orders forbade the use of explosive darts in bull fights, and ordered the horses engaged to be protected by armour.



Bullfinch. European song-bird

BULLFINCH (*Pyrrhula europaea*). European song-bird, black and grey in colour, with a red breast in the male, it is common in many parts of Britain. The piping bullfinch is the ordinary species trained to imitate notes played on a whistle.

BULLHEAD (*Cottus gobio*). A small British fish. Known as the miller's thumb from its broad, flattened head, it is common in streams and ponds, especially near the coast. Certain marine species (*Cottus bubalis* and *C. scorpius*) are numerous in rock pools.

BULLI. Town of New South Wales, Australia. In Camden co., it is 59 m. by rly. S. of Sydney. It is the headquarters of the Bulli and other colliery companies. Near is Weber's Lookout, a tourist resort, on the picturesque Bulli Pass. Pop. 3,000.

BULLION (French *bullion*, to boil). Name usually given to gold and silver regarded as articles of merchandise, not as coin. Bullion is the metal when it has been refined and brought to a certain standard of purity, but has not been converted into money or jewelry. In order to ascertain its value it is customary to weigh and also to assay bullion, as the amount of alloy it contains varies. See Gold.

BULL ROARER. Thin slat of wood, producing a very formidable noise when swung rapidly with a string. In Australia, covered with mystic emblems, it is used by the aborigines to drive women and children away from initiation ceremonies. There, as also in New Guinea, America, and W. Africa, it is used as a charm to produce wind and rain. In Sumatra and among the Bushmen it aids in driving cattle.

BULL RUN. Small stream in West Virginia, noted because around it two battles were fought during the American Civil War. The first took place on July 21, 1861, and the second on Aug. 29-30, 1862. In both cases the Federals were defeated.

BULL TERRIER. Cross between a bulldog and a smooth terrier. A powerful dog, weighing between 20 lb. and 50 lb., and remarkable for its courage and determination, it is of great value as a watch-dog, and is the best fighting dog of all British breeds. Its coat is smooth and preferably white. It should have a long head, straight face from skull to nose, and a powerful jaw.

BULL TROUT. Term applied to various species of the trout family, more especially the grey trout found in many British streams. Rising indifferently to the fly, it affords little sport, and does not rank high as a table fish. See Angling; Trout; also illus. below.

BULLY BEEF. Name given to preserved beef. It is produced in enormous quantities in the U.S.A., and was extensively used during the Great War. The name bully may either come from bull, or be a corruption of Fr. *bouilli*, boiled.

BÜLOW, BERNHARD HEINRICH MARTIN KARL, PRINCE VON (1849-1929). German statesman. Born at Klein-Flottbeck, Holstein, May 3, 1849, he entered the army in 1870, and took part in the Franco-Prussian War, 1870-71. From 1897-1900 he was foreign secretary, and in Oct., 1900, was appointed chancellor and president of the Prussian ministry. He was made a prince of the German Empire in 1905, and retired from the chancellorship in 1909. In Dec., 1914, he was sent to Rome as ambassador, but failed to prevent the entry of Italy into the Great War. His Imperial Germany, Eng. trans. M. A. Lewenz, 1914, rev. ed. 1916, is a defence of Germany's policy. Prince von Bülow died Oct. 28, 1929.



Prince von Bülow, German statesman

BÜLOW, KARL VON (1846-1921). German soldier. He was prominent in the early stages of the Great War. In command of the German 2nd Army, he invaded Belgium, took Charleroi and Namur, after-wards advancing into France to and beyond the Marne. In the battle of the Marne, in which he was directly opposed to Foch, he was heavily defeated on Sept. 8-10, 1914, and compelled to retreat to the line of the Vesle, later taking up a line on the Aisne. His account of these operations was published in book form in 1919. Bülow died on Aug. 31, 1921.

BULRUSH (*Scirpus lacustris*). Perennial sedge of the order Cyperaceae. It is a tall marsh or water plant, with a long, leafless or almost leafless stem nearly 1 in. thick. The leaves cover the base of the stem. At the summit a pair of leafy bracts marks the point from which a number of branches arise, each ending in clusters of red-brown flowers. The spongy stems are made into chair-seats, floor-mats, bags, and baskets.

BULWARK. Name of a British battleship of 15,000 tons and 18 knots speed, armed with four 12-in. and 12 6-in. guns, which was laid down at Devonport in 1899, and completed in 1902. While lying at anchor in the Medway, she suddenly blew up and disappeared at 7.53 in the morning of Nov. 26, 1914. Only twelve men were saved. A court of inquiry reported that the explosion was due to the accidental ignition of ammunition on board. An earlier Bulwark, a 110-gun screw ship of the line, launched at Pembroke in 1860 as the Howe, is now part of the boys' naval training establishment at Devonport known as H.M.S. Impregnable.

BUMBLE. Character in Dickens's novel, Oliver Twist. A pompous parish beadle, he is deprived of his position, and forced to take refuge with his wife in the workhouse, which they had tyrannised over others. The word bumbledom has become a synonym for inept parochial government. See Beadle.

BUMBLE BEE or Humble Bee. Large bee of the genus *Bombus*. See Bee.

BUNBURY. Seaport of W. Australia. Picturesquely placed on Koombanah Bay, 115 m. by rly. S. of Perth, it is a summer resort, and exports coal, tin, timber, and agricultural produce. Fish and wild birds, notably black swan, abound. Pop. 5,570.

BUNCRANA. Urban district, market town and watering place of co. Donegal, Irish Free State. It is on Lough Swilly, 11 m. by rly. N.W. of Londonderry by the Gt. Southern Rlys. It has a fine bathing beach, golf links, and remains of an old castle. Pop. 2,309.

BUND. German word, meaning a federation or union of states. The first bund of importance was the federation of the German states established in 1815. It included both Austria and Prussia, and lasted until the war between these two Powers in 1866. The assembly of representatives of these states was known as the Bundestag. After this the states of N. Germany, under the leadership of Prussia, formed a new bund, the North German Confederation, which lasted only until 1871. The second chamber of the parliament or diet of the German Empire, as it existed between 1871 and 1918, was called the Bundesrat.

BUNDABERG. River port of Cook co., Queensland, Australia. Situated 10 m. from the mouth of the Burnett river, 217 m. by rly. N. of Brisbane, it is the centre of a sugar-growing district, and exports sugar, treacle, and timber. Pop. 11,000.

BUNGALOW (Hind. *bangalah*, belonging to Bengal). Originally the name for the one-storeyed, verandahed house in use by European residents in India. Buildings of similar construction are common in all hot countries, and have been adopted in the U.S.A. and Great Britain. A long stretch of structures of this kind situated at Shoreham, Sussex, England, is known as Bungalow Town.

BUNGAY. Urban district and market town of Suffolk. It is on the Waveney, 7 m. W. of Beccles, on the L.N.E. Rly. The Norman Holy Trinity Church has a round tower. The grammar school was founded in the 16th century, and the market place contains an ancient octagonal cross. Traces remain of the ancient castle of the Bigods, earls of Norfolk. Bungay has large printing works and flour mills, and holds a race meeting. Market day, Thurs. Pop. 3,106.

BUNHILL FIELDS. Public garden and cemetery in the Finsbury district of London. It seems to have been identical with Bone Hill, where malefactors were buried in the reign of Elizabeth. During the Great Plague part of the area was used for the burial of victims. In 1788 it was made the chief burial ground for the dissenters of the metropolis. In 1869 it was formally opened as a public garden. John Bunyan, Daniel Defoe, Isaac Watts, and William Blake were buried here.

BUNION (Ital. *bugnone*, projection). Bursa, or small collection of fluid contained in a capsule, which forms over the head of the first metatarsal bone of the great toe. It may be due to wearing boots of incorrect shape. A union may become inflamed, giving rise to pain and sometimes to suppuration. Treatment in the acute stage consists in removing all pressure from the foot and allaying the inflammation with hot fomentations. In other cases the bursa can be removed.

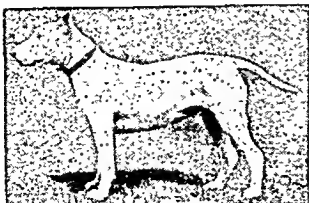
BUNKER HILL. Elevation just outside Boston. Here on June 17, 1775, took place the first encounter in the American Civil War. The English stormed the hill, which had been fortified by the Americans.



Bullhead. *Cottus bubalis*, found in shallow water, a small British fish



Karl von Bülow, German soldier



Bull Terrier. A champion specimen of this British breed of dogs



Bull Trout. The Grey Trout, or Bonndall, found in British streams

BUNN, ALFRED (1796-1860). British theatrical manager. Known as the "poet Bunn," although his name was a byword for insolence, ignorance, and vulgarity, he was manager of Drury Lane from 1833-48. He produced the principal operas of Balfe, the libretti of which he himself translated. He died at Boulogne, Dec. 20, 1860.

BUNSEN, ROBERT WILHELM (1811-99). German chemist. Born at Göttingen, March 31, 1811, he succeeded Wöbler in 1836 as professor of chemistry in the Polytechnic School, Cassel. In 1852 he took the professorship of chemistry at Heidelberg, remaining there until his death, Aug. 16, 1899. Many important scientific discoveries stand to his credit.

The Bunsen burner has become a necessity as giving a colourless and inodorous flame for burning gas in cooking and heating stoves, and for use with incandescent gas mantles. Air is admitted at the base of the gas tube which forms the burner, and improves the combustion of the coal gas. The volume of air employed is about $2\frac{1}{2}$ times that of the gas, and a very hot, non-luminous flame is obtained.

The Bunsen cell is a two-fluid primary cell consisting of a carbon rod in a porous pot, the latter being surrounded by a cylinder of zinc, and the whole contained in a jar. The porous pot contains strong nitric acid and the outer jar dilute sulphuric acid.

BUNT or **BRAND** (*Tilletia caries*). Fungoid pest of barley, wheat, and maize. It converts the grains into a black, stinking mass. Bunt consists of innumerable microscopic spores, which spread the disease. Pickling the seed corn is the best preventive.

BUNTER BEDS. Red sandstones and pebble beds of from 1,000 ft. to 2,000 ft. in thickness. They form the lower portion of the Triassic rocks of Britain, and occupy considerable areas in Devonshire and more particularly in the Midlands, being one of the chief water-bearing deposits from which many large Midland towns obtain their supply of water.

BUNTING (*Emberiza*). Name given to a number of small birds allied to the finches. Among them are the reed bunting, yellow-hammer, and ortolan. The Lapland bunting and snow bunting belong to other genera.

BUNTINGFORD. Town of Hertfordshire. It stands on the Rib, 17 m. N.E. of Hertford, on the L.N.E. Rly. Malt and leather are manufactured. Market day, Wed. Pop. 4,928.

BUNYAN, JOHN (1628-88). English author and preacher. Born at the hamlet of Harrowden, 1 m. from Elstow, Bedfordshire, he worked at his father's trade as a tinker, and took part in the Civil War, 1644-45, serving probably in the Parliamentary army. In 1648 he married. His wife's dowry consisted of two books, *The Plain Man's Pathway to Heaven* and *The Practice of Piety*, the reading of which contributed to his conversion a few years later.



John Bunyan,
English author
From an old print

Joining a nonconformist denomination in Bedford, 1653, he became a recognized preacher, 1657, and was convicted in 1660 under the law that forbade unauthorised preaching. As he steadily refused to renounce the right to preach he spent the next twelve years in Bedford county gaol, during which he wrote *Grace Abounding to the Chief of Sinners*, 1666, and other works. Bunyan underwent a second imprisonment in 1675, and

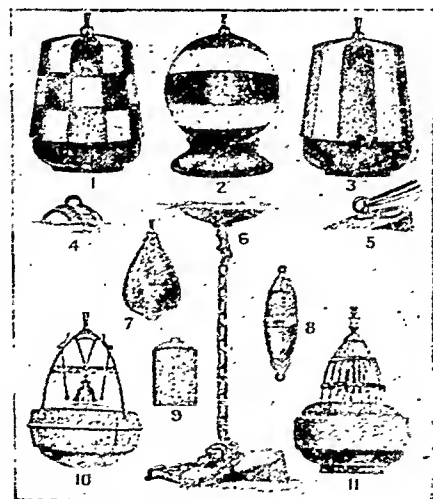
it was probably during this that he began *The Pilgrim's Progress*. The rest of his life was devoted to preaching, writing (his books number about sixty), and religious controversy. He died Aug. 31, 1688, and was buried in Bunhill Fields. Of his literary works *The Pilgrim's Progress* is immeasurably the greatest. There are memorials of him at Bedford. Consult Life, John Brown, 1887.

BUOY (late Lat. *boia*, chain). Floating structure of wood or iron, anchored in rivers, estuaries, and coastal waters as an aid to navigation. Buoys vary in shape, and are otherwise distinguished by coloured stripes and chequers, or by a plain ground of a distinctive hue. In bell buoys and light buoys the greater part showing above water is constructed like a cage the bell being rung by the motion of the water, and the light supplied by a charge of gas or oil contained in the body of the buoy and renewed periodically. Mooring buoys, attached to heavy sinkers, vary in size according to the vessels intended to use them, and are surmounted by an iron ring, to which the mooring ship's cable is made fast. See illus. below.

BURBAGE, RICHARD (1567-1619). English actor. The son of James Burbage, an actor and the builder of the first English theatre, he made his first appearance at his father's theatre, Shoreditch, as a boy. He joined the earl of Leicester's company of players, later known as the earl of Derby's company, then as the Lord Chamberlain's company. He created all the greater parts written by contemporary dramatists. The first mention of his association with Shakespeare refers to Christmas, 1594, when he and two other members of his company, William Kempe and William Shakespeare, were summoned to act in two interludes before Queen Elizabeth at Greenwich Palace on Dec. 27 and 28. He died March 13, 1619. Consult Burbage and Shakespeare's Stage, C. C. Stopes, 1913.



Richard Burbage,
English actor
Self-portrait in Dulwich
Gallery



Booy. 1 and 3. Can or port-hand buoys. 2. Spherical buoy marking shallows. 4. Anchor buoy. 5. Mooring buoy. 6. Method of mooring buoys. 7. Conical or star-board-hand buoy. 8. Wreck buoy. 9. Drum (mooring) buoy. 10. Bell buoy. 11. Bell and gas buoy. See above

BURBANK, LUTHER (1849-1926). American naturalist. Son of a farmer, he was born March 7, 1849. Turning his attention to the possibilities of improving the quality of seeds, he made numerous experiments in the direction of selection and cross-fertilisation. One of

his successes was the Burbank potato, and others included new varieties of fruits, flowers, and vegetables. From 1875-93 he had a nursery at Santa Rosa, California, afterwards devoting his time wholly to plant breeding. He died April 11, 1926.

Burbot (late Lat. *borba*, mud) Variant name of the eel-pout (q.v.).

BURDEKIN. River of N.E. Queensland, Australia. Rising in Seaview range, it flows past Charters Towers and Ravenswood, and empties into Upstart Bay. It is 350 m. long.

BURDEN. Term used in Scots law for a charge on property. It may be either heritable or movable, i.e. real or personal estate, and to make it legal the essential facts must be contained in a deed. In the case of landed property this must be registered in the register of sasines, Edinburgh.

BURDETT, SIR FRANCIS (1770-1844). British politician. Born Jan. 25, 1770, he married in 1793 Sophia, daughter of the banker, Thomas Coutts. In 1796 he was elected M.P. for Boroughbridge, and in 1797 succeeded his grandfather as 5th baronet. For the next 30 years, in and out of the House of Commons, he was a prominent advocate of parliamentary reform, prison reform, and freedom of speech. He died Jan. 23, 1844.

BURDETT-COUTTS, ANGELA GEORGINA BURDETT-COUTTS, BARONESS (1814-1906). British philanthropist. She was born April 21, 1814, and was the youngest daughter of Sir Francis Burdett, son-in-law of Thomas Coutts, the banker. In 1837 she inherited a large fortune from the duchess of St. Albans (the popular actress, Harriet Mellon), Thomas Coutts's second wife. Created a peeress in 1871, in 1881 she married William Lehman Ashmead-Bartlett (1851-1921), who took the name of Burdett-Coutts. She died Dec. 28, 1906. She spent vast sums on improving the housing of the poor, and supported hospitals, etc.



Baroness Burdett-Coutts,
British philanthropist

BURDOCK. Coarse biennial herb (*Arctium lappa*) of the order Compositae. It is a native of Europe and N. and W. Asia. The lower leaves are 1 ft. across, heart-shaped, and densely coated with white hairs on the underside. The stem is about 4 ft. with lance-shaped leaves, and terminates in branches which bear spherical thistle-like flower-heads closely invested with slender, stiff bracts ending in hooked points. In Japan this herb is cultivated as a vegetable.



Burdock or comfrey,
biennial herb

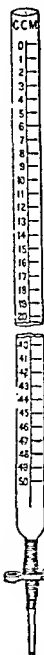
Bure. River of Norfolk. Rising near Hindolveston, it joins the Yare at Yarmouth. It is 50 m. long, and is navigable to Aylsham.

BUREAU (Old Fr. *burel*, baize). Form of writing desk, also called a secretary, introduced in the reign of Louis XIV (see illus. p. 324). Bureaux are compound pieces, the base being a chest of drawers, the middle portion provided with a slanting ledge, hinged at the base, and opening out to form a writing desk, revealing a nest of small drawers or niches.

By an association of ideas bureau came to mean an office or department, e.g. a bureau de change, and this use was transferred to the United Kingdom, where there have sprung up labour, information, and other bureaux.

BURETTE (French, cruet-bottle). Cylindrical glass tube upon which is engraved a scale in cubic centimetres and sub-divisions

indicating the fluid contents of the instrument. The lower end is narrowed and fitted with a glass tap or a short length of rubber tubing upon which presses a pinch-cock. The zero of the graduations is at the upper end, so that when liquid is allowed to escape the amount can be read off on the scale. The burette is used in the volumetric system of analysis.



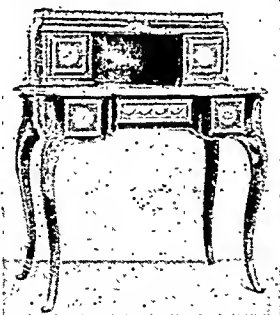
Burette

BURFORD. Market town of Oxfordshire. It is on the Windrush, 17 m. from Oxford. With beautiful old houses and inns, it is one of the most picturesque places in the country. The fine church of S. John has a number of chapels and some interesting monuments. There is a grammar school, founded in the 16th century. Market day, Sat. Pop. 1,050. Burford Bridge, in Surrey, is near Box Hill (q.v.).

BURGENLAND. Province of Austria. Since 1647 part of Hungary. It was transferred to Austria by the peace treaties of 1919-20. This led to a good deal of unrest, and in 1921 a plebiscite was held to decide the fate of Oedenburg (Sopron) and other parts. The voting was in favour of Hungary, and after further disorder the decision was carried out, and this area was separated from Burgenland. Burgenland proper, which is a province of Austria, covers 1,532 sq. m. and has 286,000 inhabitants. Eisenstadt is the capital.

BURGESS. Originally one who lived in a burg or borough. In England, since the 13th century, the term has been applied to those entitled to vote at elections for members of Parliament. It is also used sometimes for the members sent to Parliament by the boroughs. The latter meaning spread to the English colonies in America; in Virginia and Maryland, for instance, the elected representatives were known collectively as the House of Burgesses. In certain towns in New England the chief magistrate is called the burgess. See Borough.

BURGESS, THOMAS WILLIAM (b. 1866). British swimmer. Born in Yorkshire, he settled in France, where he made motor tires. After 15 unsuccessful attempts to swim the English Channel, he succeeded when, on Sept. 5, 1911, at 11.15 a.m., he entered the water between the South Foreland light-house and St. Margaret's Bay, and touched bottom to the E. of Cape Grisnez at 9.50 next morning.



Bureau of marquetry work, French style of Louis XV. See p. 323.

BURGESS HILL. Urban dist. of Sussex. It is 9 m. N. of Brighton, on the Southern Rly. The church of S. John, built in 1863, is in the Early English style. An annual sheep fair is held. Pop. 6,000.

BURGH. Scottish equivalent of the English word borough. Royal burghs (70 in 1707) received their charters from a king; burghs of regality and burghs of barony were dependent on some lord, bishop, or baron. To-day the three classes are usually grouped together, as the difference disappeared in 1747. Two newer classes arose after 1832; parliamentary

burghs, those that then obtained the right of sending a member to parliament, or of naming with others to do so; and police burghs, places which obtained the right to elect a council to look after the drainage, lighting, etc., of their town, including all that is meant in Scotland by the word police. Since the 12th century commissioners from the burghs have held a yearly convention in Edinburgh.



Borghley House, Stamford, the Northamptonshire mansion of the Marquess of Exeter. See below Valentine

BURGH, HUERT DE (d. 1243). Chief justiciar of England. He was chamberlain to King John in 1201, and in 1215 became justiciar. In 1217 he inflicted a severe naval defeat on the French off Dover. He was the foremost man in England from 1219-31, especially during the minority of Henry III. and his whole policy was to keep the government in English hands. He died May 12, 1243.

BURGHES. The name given to members of the Associate or Burgher Synod in Scotland in the 18th century. This associate synod of Scottish Presbyterians, though they had seceded from the main body on the question of patronage, still took the burghess oath to maintain the religion authorised by the laws of the realm. To this the anti-burghers objected, and formed themselves into the general associate synod. Both synods, after being further divided, drew together again, increased in membership, and became in 1847 the United Presbyterian Church. See Auld Lights.

BURGHLEY OR BURLEIGH, WILLIAM CECIL, 1ST BARON (1520-98). English statesman. Born at Bourne, Lincolnshire, Sept. 13, 1520, he entered public life in 1548 as secretary to Somerset, and on his master's fall was sentenced to two months' imprisonment in the Tower. A year later he returned to office as secretary of state, and in 1551 was knighted. During Mary's reign he conformed to Catholicism, but was in communication with the Princess Elizabeth, whose confidence he gained.

On her accession in 1558 Elizabeth made Cecil her secretary of state, and he remained throughout her life her most trusted adviser. Created Baron Burghley in 1571, and K.G. in 1572, he was lord high treasurer from 1572 until his death, Aug. 4, 1598. He devoted much time and money to beautifying Burghley House (see above), Theobalds, in Herts, which his son exchanged for Hatfield, and Cecil House, in the Strand. His eldest son, Thomas, was created earl of Exeter in 1605. The title of Viscount Burghley is now borne by the eldest son of the Marquess of Exeter. See Exeter; Hatfield.



William Cecil, 1st Baron Burghley. Painting by Gerard

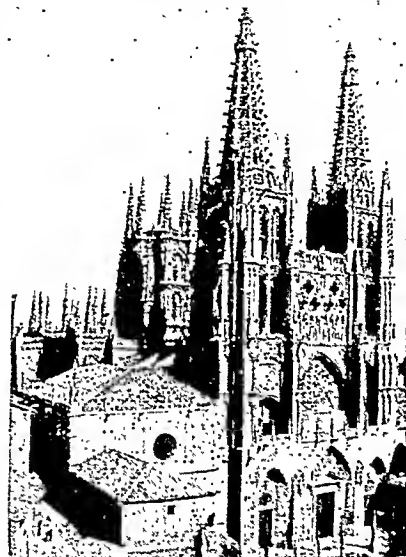
BURGHLEY HOUSE. Seat of the marquess of Exeter. It stands in Northamptonshire, near the Welland, about a mile from Stamford. It was built by the great Lord Burghley in the 16th century, and in it some remains of an old minster were incorporated. It contains many fine pictures, ceilings by Verrio, and some carvings by Grinling Gibbons. See illus. above.

BURCKMAIR OR BURCKMAIR, HANS (1473-1551). German painter and engraver. Born at Augsburg, he studied under Albrecht Dürer. His principal merit lies in his engraved works, in the style of Dürer, particularly in the series representing the triumphs of his patron, the emperor Maximilian I.

BURGLARY. In English law, breaking and entering into a dwelling-house by night, with intent to commit a felony. When committed by day, the offence is known as house-breaking. At common law night meant between sunset and sunrise, but by the Larceny Act, 1861, it is limited to the hours between 9 p.m. and 6 a.m. The same Act makes it burglary to break out of a dwelling house at night after having committed a felony therein.

BURGOMASTER (Dutch *burgemeester*). Title of the chief magistrate of a Dutch, German, or Belgian town. The office nearly corresponds to that of mayor in England and provost in Scotland, but the German burgomaster is a paid official. Burgomaster is also a sailor's name for a species of gull.

BURGOS. City of Spain, capital of the prov. of Burgos. On the river Arlanzón, 230 m. by rly. N. of Madrid, on the Irun-Paris



Burgos. Facade of the cathedral, which took 300 years to build. The towers were completed in 1459

line, formerly the capital of Castile, it is the see of an archbishop. The Gothic cathedral, founded in 1221 and completed in 1567, is one of the finest in the world. Pop. 33,286.

BURGOYNE, JOHN (1722-92). British soldier, dramatist, and politician. Born Feb. 24, 1722, he was sent to Canada with instructions to join forces with Howe in New York in 1777. His army was badly equipped and much under strength, and though he took Ticonderoga he was compelled to surrender at Saratoga. On his return to England he defended himself in Parliament and in pamphlets. His comedy, *The Heiress*, 1786, achieved success. He died June 3, 1792.

Sir John Fox Burgoyne (1782-1871), a natural son of General Burgoyne, served in the Peninsular War, 1808-13, and played a conspicuous part in the Crimean War, especially at the siege of Sevastopol. He was made a baronet in 1856, and a field-marshal in 1868. He died Oct. 7, 1871.

BURGUNDY. Name applied at different times to different districts, kingdoms, duchies, and counties in the E. and S.E. of France and the adjacent parts of Switzerland. They were all in the neighbourhood of the valleys

of the Rhône and Saône, and around the cities of Dijon, Besançon, Geneva, Lyons, Arles, and Vienne. The name Burgundy is still borne in a general way by the district.

The name comes from the Burgundians, a Teutonic tribe who about 400 founded a kingdom which extended along the valleys of the Rhône and the Saône from Dijon to the sea. About 880 a certain Boso founded the kingdom of Burgundy or Provence. About ten years later another Burgundy was founded to the N., and as the two were separated by the Jura they are sometimes called Cisjurane and Transjurane Burgundy. In 937 these two Burgundies were united into one state. In 1032 its king died childless, leaving it to Conrad II. Thus this Burgundy became part of Germany, and its crown was one of the four worn by the medieval emperors. The kingdom is often called Arles, from its capital.

Franche Comté, or the free county of Burgundy, was part of Arles, and then of the duchy of Burgundy. In 1679 it was ceded to France. Its capital was Besançon.

More important was the great medieval duchy of Burgundy. This lay around Dijon and was at first part of France. In 1363 King John II gave it, as a duchy, to his son Philip, who made it a powerful and almost an independent state. He and his son John were the heads of the Burgundian party who fought the Orleanists for the control of France. Philip's successors were also persons of importance in Europe, and the strongest of them, Charles the Bold, nearly succeeded in making Burgundy into a kingdom. His death in 1477 ended his ambitions, and in 1482 the French king seized the duchy, which was a province of France until the Revolution.

BURGUNDY. Burgundy is the generic name of wines grown in E. France, in the old prov. of Burgundy, where the soil is impregnated with iron. The region of Côte d'Or produces the finest. Burgundies are either white or red, but the red predominate. The chief export centre is Beaune. Wines of this type are produced in Australia and California.

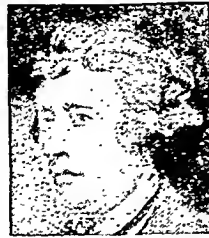
BURGUNDY MIXTURE. Liquid for the destruction of fungus, sometimes called soda Bordeaux mixture. It is a solution of copper sulphate and sodium carbonate, and is applied to the under surface of leaves.

BURIAL. Interment in the ground of the bodies of dead persons, an alternative method being cremation. In Great Britain it is usually, but not invariably, accompanied by religious rites. By law bodies can only be buried in churchyards, cemeteries, or other ground set aside for the purpose. Nonconformists can be buried in the churchyard of the parish in which they have lived. Cemeteries are usually provided by town and other councils, and are often divided into Anglican and Nonconformist portions. Jews and others have their own burial grounds. Before a body can be buried a certificate of death must be obtained from a registrar or an order from a coroner. There are special conditions in the case of stillborn children and special procedure for children whose lives have been insured for burial payments. See Cremation.

BURIN. Town and port of Newfoundland. On the E. coast of Burin peninsula, it is a fishing centre. The peninsula extends for about 75 m. between Placentia Bay and Fortune Bay. Pop. 3,500.

BURKE, EDMUND (1729-97). British statesman and writer. Born in Dublin, Jan. 12, 1729, he was educated at Trinity College, Dublin. Having moved to London, he began to write, and first attracted attention by his Vindication of Natural Society. He wrote for The Annual Register, joined the circle around Johnson, and in 1756 became secretary to the Whig premier, Lord Rockingham, and M.P. for Wendover. From 1774-80 he represented

Bristol, and from 1780-84 Malton. In 1782 and 1783 he was paymaster-general, but he never received higher office, although almost to the end he remained the most powerful influence among the Whig leaders and a constant, if dreary, participator in debate. The other chief events of his parliamentary career were his friendship with Fox, broken in 1793, and his share in the impeachment of Hastings. In 1792 he received a pension, and he died, just after his only son, July 8, 1797.



Edmund Burke,
British statesman
Portrait by Sir J. Reynolds

He was buried in the church at Beaconsfield, where was his residence, Gregories.

Burke's fame depends rather upon his writings, the most illuminating of their kind since Aristotle. They deal with the American colonies, India, financial and parliamentary reform, and finally the French Revolution. Consult Life, John Morley, 1880.

His kinsman, William Burke (d. 1798), was under-secretary of state in Rockingham's ministry, 1766-68, and was Whig M.P. for Great Bedwin, Wilts, 1766-74.

BURKE, SIR JOHN BERNARD (1814-92). British genealogist. Born in London Jan. 5, 1814, son of the compiler of the Peerage and Baronetage, he was appointed Ulster king-of-arms in 1853, and in 1854 was knighted. He annually re-edited his father's Peerage from 1847 until his death, at Dublin, Dec. 12, 1892. His own works include The Roll of Battle Abbey, 1848, and The Book of Precedence, 1881.

BURKE, ROBERT O'HARA (1820-61). Irish explorer. Born in co. Galway and educated in Belgium, he served in the Austrian army. In 1853 he emigrated to Australia, and was appointed police inspector in Victoria. In 1860 he led an exploring expedition across Australia from S. to N., but died of starvation on the return journey, June 28, 1861, his companion Wills surviving him only a few days. The bodies of Burke and Wills were recovered and taken back to Melbourne. Statues to them were afterwards erected in Melbourne.

BURKE, THOMAS (b. 1890). British vocalist. Born in Lancashire, he was the son of a miner, and went into the pits, but his remarkable voice led him to study music at Milan. In May, 1919, he sang for the first time at Covent Garden, London.

BURKE, WILLIAM (1792-1829). Murderer and bodysnatcher associated with William Hare. Having sold a dead body to Dr. Robert Knox of Edinburgh, the two kept him supplied with bodies by inveigling people into Hare's lodging house and killing them. On suspicion being aroused, Hare turned king's evidence, and Burke was hanged Jan. 28, 1829. Their victims were made drunk and then suffocated without violence; hence arose the use of the verb to burke, meaning quietly to suppress anything. See Bodysnatching.

BURLEIGH, BENNET (c. 1840-1914). British war correspondent. Born at Glasgow, he fought on the Confederate side in the American Civil War. He represented The Daily Telegraph in some 25 campaigns from 1882-1913. He was the author of The Empire of the East, 1905, and died June 17, 1914.

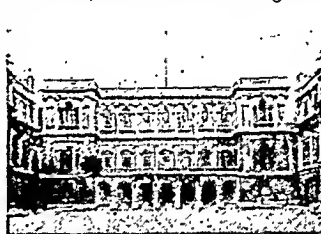
Burlescombe. Village of Devonshire. It is 8 m. E.N.E. of Tiverton, on the G.W.R. It has remains of a priory. Pop. 620.

BURLESQUE (Ital. burlesco, absurd). In dramatic and other literature, a ludicrously exaggerated perversion of a serious or pretentious original; more for the purpose of getting fun out of it than of satirising it. It is allied to parody, but is concerned more with the matter than the manner of its original.

BURLEY. Urban district of Yorkshire (W.R.), called Burley-in-Wharfedale. It stands on the Wharfe, 3 m. from Ilkley, and has stations on the L.N.E. and L.M.S. Rlys. There are textile mills. Pop. 3,800.

BURLINGTON, EARL OF. British title borne by the duke of Devonshire. The 4th duke, who succeeded in 1755, married the daughter of Richard Boyle, 3rd earl of Burlington and Cork, who brought the Irish estates into the family. The title was given in 1831 to George Augustus Cavendish, a younger son of the 4th duke, and the builder of the Burlington Arcade, London. He inherited the great wealth of his uncle, Lord Frederick Cavendish (1729-1803), and was succeeded by his grandson William, who in 1858 became duke of Devonshire. See Devonshire, duke of.

BURLINGTON HOUSE. Public building in Piccadilly, London. It consists of two parts, Old and New. Old Burlington House was built by Richard Boyle, 3rd earl of Burlington, early in the 18th century, and was purchased by the Government for £140,000 in 1854. Since 1866 it has been lent to the Royal Academy of Arts, and here the Academy holds its yearly exhibition of new pictures. There is also a permanent collection of pictures, the Diploma Gallery, and the Gibson collection of statuary. New Burlington House, to the S., was built by the Government in the grounds of the original house. It houses the Royal Society, with its valuable collection of books, MSS., portraits and other relics; the British Association (q.v.) and other learned bodies. (See Academy.)



Burlington House, London, where the Royal Academy exhibitions are held

The Burlington Fine Arts Club is a society of practitioners, connoisseurs, and others specially concerned in fine arts. It was founded in London in 1866. Meetings are held at 17, Savile Row, W.

BURMA. Country of Asia, the largest and easternmost prov. of British India. It is bounded N. by Tibet, S. by the Indian Ocean, E. by China, Indo-China, and Siam, and W. by Assam, Bengal, and the Bay of Bengal. Its area is 262,732 sq. m. Of this Burma proper covers 184,102 sq. m.; the Shan States cover 62,305 sq. m.; and 16,325 sq. m. are unadministered. The most important towns are Rangoon, the capital, and Mandalay. Pop. 13,212,192.

The chief rivers are the Irrawaddy and its tributaries, and the Salween. Buddhism is the prevailing religion. Rice is the most important crop, others being millet, maize, sesame, cotton, tobacco, and rubber. The forests yield immense quantities of timber, especially teak.

As early as 1612 the East India Company had factories at Syriam, Prome, and Ava. The first Burmese War began in March, 1824. In Feb., 1826, the Burmans renounced



Burma. Silk-clad lady of high rank

all claims on Assam, ceded the provs. of Arakan, Mergui, Tavoy, and Ye, and paid an indemnity. The second war, in 1852, resulted



Burma. Map of the most extensive province of British India

in Lower Burma being annexed by the British. The third war was occasioned by the aggressive attitude of the Burmans under their king, Theebaw or Thibaw. A British force was organized in Oct., 1885, and taken up the Irrawaddy. Before the end of Nov. Mandalay was captured and Theebaw made prisoner. On Jan. 1, 1886, Upper Burma was annexed by Great Britain. The governor and two members of the executive council, of whom one is a Burman, are in charge of the reserved subjects, and the governor and two Burman ministers are in charge of the transferred subjects. The legislative council consists of 103 members, 80 elected and ex officio. See India;

23 nominated or consult also The Burman, his Life and Notions, J. G. Scott (pseud. Shway Yoe), 1896; In Farthest Burma, F. K. Ward, 1921; Burma: from the Earliest Times to the Present Day, J. G. Scott, 1924.

BURNABY, FREDERICK GUSTAVUS (1842-85). British traveller and soldier. Born March 3, 1842, at Bedford, he entered the Royal Horse Guards in 1859. Of enormous physical strength and an expert linguist, his military

career was punctuated by frequent periods of travel. In 1875 he conceived the idea of penetrating Central Asia, access to which was denied by the Russians to Europeans, and his well-known book, *A Ride to Khiva*, 1876, contains an account of his 300-mile ride in 1875 across the frozen steppes. He was killed at Abu Klea, Jan. 17, 1885.

BURNAND, SIR FRANCIS COWLEY (1836-1917). British journalist and dramatist. Born in London, Nov. 29, 1836, he made in 1863 his first contribution to *Punch*, of which he was editor from Aug., 1880-Feb., 1906. Of his stage burlesques and light comedies, *Black-Eyed Susan* and *The Colonel* were the most successful. He wrote many parodies, and issued his *Records and Reminiscences*, 1904. His most popular contribution to *Punch* was his series of *Happy Thoughts*. He died April 21, 1917.

BURNE-JONES, SIR EDWARD COLEY, BART (1833-98). British artist. Born Aug. 28, 1833, at Birmingham, he was educated at King Edward's School, Birmingham, and at Exeter College, Oxford, intimate friend William Morris, with some

kindred spirits, formed a little group called The Brotherhood. Burne-Jones came under Rossetti's influence in 1855, and at his suggestion began his career as an artist, first in Rossetti's studio, and later under his constant guidance. His earliest important work was in water colour, and the opening of the Grosvenor Gallery in 1877 first brought him into public notice. Some of his best known works include *Merlin and Vivien*, *The Golden Stairs*, *The Wheel of Fortune*, *The Depths of the Sea*, *The Merciful Knight*, *The Mirror of Venus*, and *Love Among the Ruins*. Burne-Jones also prepared cartoons for stained glass windows, as a rule carried out by William Morris, and illustrations for books published by the Kelmscott Press, notably for the Morris edition of Chaucer.

A baronetcy was conferred upon him in 1894. He died June 17, 1898.

His son Philip (1861-1926), the second baronet, was also an artist. Consult *Memorials of Burne-Jones*, by his widow, 1904.

BURNET (*Poterium sanguisorba*). Perennial rosaceous herb. It has a rosette of long leaves divided into stalked, coarsely toothed, oblong leaflets, which give out the odour of cucumber when bruised. The flowering stems grow to a height of 2 ft., and bear rounded heads of small purplish flowers. The herb is a native of poor chalky soil.

BURNET, GILBERT (1643-1715). British historian and prelate. Born at Edinburgh, Sept. 18, 1643, he became parish minister at Saltoun, and in 1669 was appointed divinity professor at Glasgow. In 1674 he became chaplain to Charles II. A staunch Whig, his defence of Lord William Russell cost him his chaplaincy, the Rolls, and his lectureship, and on the accession of James II he retired to the Continent. Invited to the Hague, 1687, he won the favour of William of Orange, and was closely associated with the preliminaries to the invasion of 1688. Made bishop of Salisbury in 1689, he had charge of the succession bill of 1701, and in Anne's reign secured for the Church of England the funds afterwards called Queen Anne's Bounty (q.v.). He died March 7, 1715. Burnet's best work is the *History of My Own Time*, 1724-34.

BURNETT, FRANCES ELIZA HODGSON (1849-1924). Anglo-American novelist and dramatist. Born at Manchester, Nov. 1849, she went to the U.S.A. in 1865, and published her first story, *Miss Carruthers' Engagement*, in 1867. She depicted Lancashire life in *That Lass o' Lowrie's*, 1877, her first success, and *Haworth's*, 1879; and described the American girl abroad in *A Fair Barbarian*, 1881, and *The Shuttle*, 1907. She achieved great popularity with her sentimental story *Little Lord Fauntleroy*, 1886. She died Oct. 29, 1924.

BURNEY, SIR CECIL (1858-1929). British sailor. Born May 15, 1858, the son of a naval officer, he entered the navy in 1873. He served in Egypt, 1882, and the Sudan, 1884, and in July, 1914, having held other high commands and been knighted, he was in control of the Channel Fleet. In Dec. he was made second in command of the Grand Fleet, and in Marlborough he led the first battle squadron at Jutland. His later posts were second sea lord, 1916-17, and commander-in-chief east coast of Scotland, and then Portsmouth, 1917-20. He died June 5, 1929.

BURNEY, SIR CHARLES DENNISTON (b. 1888). British sailor and inventor. Born Dec. 28, 1888, the eldest son Sir Cecil Burney, he served in the Navy from 1905 to 1923. During the Great War he invented the explosive paravane for destroying enemy



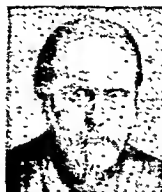
Gilbert Burnet, British prelate. Painting by Riley



Sir Francis Burnand, British journalist



Sir E. Burne-Jones, British painter



Sir E. Burne-Jones, British painter



Sir Cecil Burney, British sailor



Frederick Burnaby, British soldier



Burma. Elaborately tattooed native of the Shan States

submarines and the protector paravane for protecting vessels from mines. Unionist M.P. for Uxbridge, 1922-29, he devoted his energies in civil life to airship and housing improvements. As managing director of the Airship Guarantee Company he was responsible for the construction of the R 100 at Howden. He succeeded his father in the haronety, June 5, 1929, and published *The World, the Air and the Future*, 1929. See Airship.

BURNEY, FRANCES (1752-1840). British novelist, better known as Fanny Burney. Born June 13, 1752, at King's Lynn, her first novel, *Evelina: or the History of a Young Lady's Entrance into the World*, published anonymously in 1778, was hailed with enthusiasm by Dr. Johnson and his circle. Of its successors, *Cecilia*, 1792, and *Camilla*, 1796, were very popular, the house known as Camilla Lacey, Surrey, destroyed by fire in 1919, being built out of the profits of the latter book. She married a French émigré, General d'Arblay (d. 1818), in 1793, and died in London, Jan. 6, 1840, leaving journals and letters. Consult *Fanny Burney*, H. Austin Dobson, 1903; *Diary and Letters*, ed. C. Barrett, 6 vols., 1904-5.

Her father, Charles Burney (1726-1814), is famous for his *History of Music*, 1776-89.

BURNHAM; EDWARD LEVY LAWSON, BARON (1833-1916). British journalist. Born in London, Dec. 28, 1833, the eldest son of J. M. Levy, he joined his father in conducting *The Daily Telegraph* when a youth. In 1855 he became its editor and chief proprietor and under his direction the paper became very popular and prosperous. In 1875 he took the name of Lawson; in 1892 he was made a baronet, and in 1903 a baron. He retired in 1904 and died Jan. 9, 1916.

Burnham's son and successor, Harry Lawson Webster Lawson, born Dec. 18, 1862, became proprietor of *The Telegraph* on his father's retirement. He was a Unionist M.P. for many years. Created a viscount in 1919 and G.C.M.G. in 1927, he sold *The Daily Telegraph* to Lord Camrose in 1928.

BURNHAM BEECHES. Picturesque sylvan tract in Buckinghamshire. It is 5 m. by rly. from Slough, with station 2 m. N. on the G.W.R. A remnant of an ancient forest, it was bought by the corporation of the city of London in 1879, and is open to the public.

BURNHAM-ON-CROUCH. Urban dist. and watering place of Essex. It is on the N. shore of the Crouch estuary, 43 m. E.N.E. of London, on the L.N.E.R. Oysters are cultivated and it is a yachting centre. Pop. 3,433.

BURNIE. Coast town and harbor of Tasmania. It is on Emu Bay, 91 m. by rly. N.W. of Launceston and 210 m. by sea S. of Melbourne. It is now a centre of the pulp and paper making industry. Pop. 2,000.

BURNLEY. County borough of Lancashire. At the junction of the Burn and Calder, 27 m. N. from Manchester, and 212 m. N.N.W. from London, it is served by the L.M.S. Rly. and the Leeds and Liverpool Canal. It is engaged in cotton spinning and weaving, and has machinery works, brass foundries, and

breweries: near by are coal mines and slate quarries. The 14th century church of S. Peter contains a monument to Charles Towneley (d. 1805), whose collection of marbles is in the British Museum. The town hall, market hall, technical school, school of science, and Victoria Hospital are among the chief buildings. In Towneley Park is a museum and art gallery. The grammar school was founded during the reign of Edward VI. Market days, Mon. and Sat. Pop. 99,270.

Burnley possesses a famous Association football club. Founded in 1881, this won the Association Cup in 1914 and the League Championship in 1924. The ground is at Turf Moor.

BURNOUS or **BURNOOSE** (Arab. burnus, hooded cloak). Loose, full cloak, worn by the Arabs. Usually white, it has a hood resembling that of a Capuchin monk.

BURN. Injury caused by the action of dry heat or flame upon the skin. A severe burn produces generalised as well as local symptoms. Shock may be present, and may be followed by collapse and death. If the patient recovers from the initial shock, septic infection of the burn may develop and result in general blood poisoning. The severity of the effects of a burn depends not only upon its depth, but also upon the area of skin involved.

For severe burns, a dressing of sterilised gauze or lint soaked in a solution of picro acid, two grains to the ounce, is useful. In deep burns the area should be bathed with an antiseptic solution, and then covered with lint or gauze soaked in eucalyptus oil or weak carbolised oil. To combat shock, the patient should be put to bed with hot-water bottles round the body. In the process of healing, contraction of a limb, due to the formation of dense scar tissue, can be prevented by splints.

BURNS, JOHN (b. 1858). British politician. Born in London, Oct., 1858, he served an apprenticeship as an engineer, and for a time was in West Africa. A student of economics, he became a socialist, and stood for Parliament. In 1888 he was sentenced to imprisonment for resisting the police over the right of public meeting in Trafalgar Square. In 1889 he was a leader in the London dock strike.

In 1889 Burns was elected to the first London County Council. Three years later he became Labour M.P. for Battersea, and was again returned in 1895, 1900, 1906, and 1910. In 1905 he entered the Liberal cabinet as president of the Local Government Board, and was made a privy councillor. He held this post until 1914, when he was transferred to the Board of Trade. Resigning office on the outbreak of the Great War, he retired from Parliament in 1918.

BURNS, ROBERT (1759-1796). Scottish poet. Born Jan. 25, 1759, in a cottage at Alloway, Ayrshire, Burns was the eldest son of William Burnes, a small farmer. Studious habits were fostered by his father, and

the boy became early acquainted with the English classics.

His first song was written at the age of sixteen, but not until his twenty-fifth year did the exceptional potency of his genius begin to manifest itself. After his father's death, Feb. 13, 1784, he, his brother, and two sisters combined in leasing the farm of Mossgiel, near Mauchline. During this period he wrote, in addition to the *Jolly Beggars*, the bulk and best of the pieces of the *Kilmarnock* volume published on July 20, 1786. Within a month the whole 600 copies printed were sold, and kindled the enthusiasm of all Ayrshire.

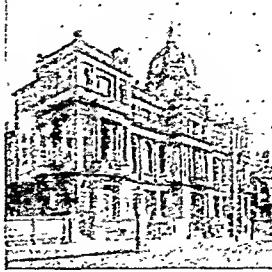
Lack of farming success and a double love entanglement with Jean Armour, by whom he had a child, and with Mary Campbell led him to resolve upon emigration to Jamaica, but his plans were changed by the death of Mary and by the prospect of publishing a second edition of his poems in Edinburgh. To secure

this, Burns resolved to journey thither, and the chief Edinburgh publisher, William Creech, was induced by the earl of Glencairn to bring out the volume. As many as 3,000 copies were sold, and Burns obtained £500.

Having renewed his relations with Jean Armour, he acknowledged her as his wife, and settled in 1788 on the farm of Ellisland, Dumfriesshire. This was not, however, a successful venture, and in the autumn of 1791 he quitted the farm for an excisemen'ship at Dumfries, at a salary of £70, which was raised to £90 when, in 1792, he was promoted port officer. Exposure to the weather brought on the illness which ended in his death at Dumfries, July 21, 1796.

BURNTISLAND. Burgh of Fifeshire. It is on the Firth of Forth, 20 m. by rly. N. of Edinburgh by the L.N.E. Rly. It is connected with Granton, 5 m. distant, by steamboat ferry. A summer resort, with golf links, it has an excellent harbour. The 16th century parish church is built in the form of a square, and is surmounted by a short, irregular tower. Pop. 6,567.

BURR, AARON (1756-1836). American politician. Born at Newark, New Jersey. Feb. 6, 1756, he served in the War of Independence and then took part in politics. Defeated in his candidature for the governorship of New York in 1804, he threw the blame on Hamilton, and shot him in a duel. Twice tried for treason and twice acquitted, in 1806 and 1808, Burr then retired to Europe. He died Sept. 14, 1836. Consult *Life*, H. G. Merwin, 1899; *The Aaron Burr Conspiracy*, W. F. McCaleb, 1903.



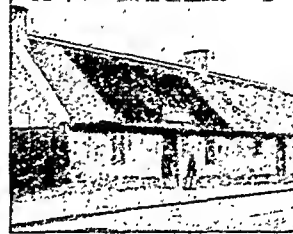
Burnley. Town Hall of this important cotton-spinning centre



Fanny Burney, Madame d'Arblay, British novelist. Drawing by T. Burney



Robert Burns, Scottish poet. From the painting by Alex. Nasmyth, Nat. Port. Gallery



Burns. Cottage at Alloway in which Robert Burns was born. D. McLeish



John Burns, British politician. Russell



Aaron Burr, American politician. Consult Life, H. G. Merwin, 1899; The Aaron Burr Conspiracy, W. F. McCaleb, 1903

BURR or **BUR**. In botany, any prickly or spiny calyx, involucre, or fruit. The principal example is the involucre of the burdock. In Scotland the term is applied to the thistle-head and to the fir-cone. In metal work, it is employed for the rough edge on metal caused by punching or hammering.

BURRARD INLET. Deep, narrow arm of the Strait of Georgia, in S.W. British Columbia. Nine m. long, it forms one of the best natural harbours on the Pacific coast. It abounds in fish, and game is plentiful along its shores. Vancouver stands on its S. shore.

BURRITT, ELIHU (1811-79). American philanthropist and linguist—called the learned blacksmith. He was born at New Britain, Connecticut, Dec. 8, 1811, and became a blacksmith. His study of the Bible inspired him with the desire of reading it in Greek, Hebrew, and other versions, and he is said to have acquired a knowledge of some 50 languages. He died at New Britain, March 7, 1879.

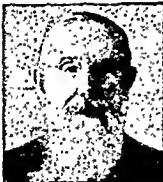


Elihu Burritt,
American philan-
thropist

pecially of a college, school, or other institution. In Scotland the term refers to a student who holds a bursary, or scholarship.

BURSLEM. Part of Stoke-upon-Trent, formerly a separate borough. It is 20 m. N.E. of Stafford, on the Grand Union Canal and the L.M.S. Rly. The manufacture of pottery was begun here in 1644, and it was the birthplace of Josiah Wedgwood. The Wedgwood Institute (1865) comprises a school of art, museum, and library. Market days, Mon. and Sat. Pop. 42,442. See Stoke-upon-Trent.

BURT, THOMAS (1837-1922). Labour politician. Born in Northumberland, Nov. 12, 1837, he started work in the coal mines at the age of ten. He was secretary of the Northumberland Miners' Association, 1865-1913, Labour M.P. for Morpeth, 1874-1918, and parliamentary secretary of the Board of Trade in the Liberal ministry, 1892-95. He died April 13, 1922.



Thomas Burt,
Labour politician
Russell

BURTON, JOHN HILL (1809-81). Scottish historian. Born at Aberdeen, Aug. 22, 1809, he completed, in 1870, his History of Scotland, begun in 1853. Among his other works is The Scot Abroad, 1864. He died near Edinburgh, Aug. 10, 1881.

BURTON, SIR RICHARD FRANCIS (1821-90). British traveller. Born at Torquay, March 19, 1821, the son of an army officer, he entered the East Indian army as a cadet in 1842, and passed seven years in India. A master of Oriental languages, Burton embodied his experiences in many books. His exploits included a journey, disguised as an Afghan pilgrim, to Mecca and Medina in 1853, the discovery of Lake Tanganyika in 1858, a mission to Dahomé in 1864, and the exploration of the Gold Coast in 1882. He also travelled adventurously in S. America. He was a skilled swordsman, horseman, and shot, and a prolific writer. Burton's chief works include his Pilgrimage to El Medina and Meccah, 1855-56; and a privately printed literal translation of The Book of a Thousand Nights and a Night, 16 vols., 1885-88, re-

issued for household reading by Lady Burton, 1887-88, who also wrote his Life, 1893. He died Oct. 20, 1890. In 1921 the Burton Memorial Lecture Fund was established.

BURTON, ROBERT (1577-1640). English author. Born at Lindley, Leicestershire, Feb. 8, 1577, he was made vicar of S. Thomas's, Oxford, in 1616, and in 1630 rector of Segrave, Leicestershire, both of which livings he held until his death. Most of his life was spent in Oxford, where he died Jan. 25, 1640. Burton's The Anatomy of Melancholy, by Democritus Junior, 1621, ran through six editions in 30 years. It combines originality, humour, satire, and erudition with numberless quotations from the wisdom of all the ages.



Robert Burton,
English author
From a portrait at
Brasenose College

BURTON AGNES. Village of Yorkshire (E.R.), 6 m. S.W. of Bridlington, on the L.N.E.R. The church of S. Martin contains 14th cent. monuments. Burton Agnes Hall is a fine mansion in the Elizabethan style.

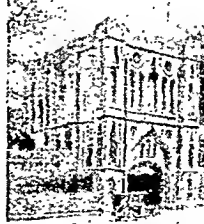
BURTON-UPON-TRENT. County borough of Staffordshire. It is on the river Trent and the Trent and Mersey Canal, 124 m. by rly. N.W. from London, with stations on the two main lines L.M.S. and L.N.E. Rlys. The seat of the Bass, Allsopp, and other breweries, Burton has been noted for ale for nearly 300 years, the industry benefiting from the sulphate of lime in the water. There are also engineering, rubber, and toy works. Market days, Thurs. and Sat. Pop. 48,930.

BURY. County borough of Lancashire. It stands high between the Irwell and Roche, 9 m. N. of Manchester, on the L.M.S. Rly. Its one-time important woollen industry has been superseded by the manufacture of cotton. There are calico printing, dyeing, paper making, iron and steel, and machinery works. Kay's free grammar school dates from 1726. The church of S. Mary was built in the 10th century. The art gallery and public library (1901) contains the Wrigley collection of paintings, engravings, and statuary. Market day, Sat. Pop. 56,770.

Bury has a noted football club. This won the Association Cup in 1900 and 1903.

BURY, JOHN BAGNALL (1861-1927). British historian and scholar. Born at Clogher, Ireland, he was made regius professor of modern history at Trinity College, Dublin, in 1893. In 1902 he was elected to the same professorship at Cambridge. His edition of Gibbon, 7 vols., 1896-1900, has superseded all others. His own writings include History of the Later Roman Empire, 1889; History of Greece, 1900; and History of Freedom of Thought, 1913. He died June 1, 1927. Pron. Bewry.

BURY ST. EDMUNDS. City and market town of Suffolk. It is on the Lark, 78 m. N.N.E. of London by the L.N.E.R. With the exception of the Norman tower or church gate (about 1120) and the beautiful decorated abbey gate (1337), little remains of the once magnificent Benedictine abbey. The old parish church of S. James, begun by Abbot Anselm, partly rebuilt in the 14th and 15th centuries, and completed in the reign of Edward VI. was in 1914 made the cathedral of the new



Bury St. Edmunds. Left, Abbey Gate. Right, tower or church gate, a fine example of Norman architecture

diocese of St. Edmundsbury and Ipswich. It was restored under the direction of Sir Gilbert Scott in the 19th century. S. Mary's church contains the tomb of Mary Tudor. Moyses Hall, now a museum, is a fine specimen of a Jew's house of the early 12th century. The grammar school, founded by Edward VI, was transferred to a new building in 1883. The town is a centre of the agricultural industry. It was at one time the capital of East Anglia, and was named after Edmund the Martyr, who was buried here. Market days, Wed. and Sat. Pop. 16,120.

BUSACO. Hamlet of Portugal, 20 m. N.N.E. of Coimbra. Here a battle was fought between the British and Portuguese on one side, and the French, Sept. 27, 1810.

BUSBY. Head-dress worn in the British army by hussars, horse artillery, artillery bandmen, and certain rifle corps. The busby was worn by officers of the Royal Engineers down to 1876. In 1929 an army order made the busby the head-dress for full dress for the R. Engineers and R. Artillery.

BUSH ANTELOPE or **BUSH BUCK** (Tragelaphus sylvaticus). One of the smaller African antelopes. Found from Abyssinia to the Cape, it is about the size of a goat, and the almost straight horns are about 12 ins. long. In colour it is reddish brown, plentifully marked with white spots and stripes.



Bush Antelope or bush buck, a small African antelope
W. F. Berridge, F.Z.S.

British dry measure of capacity, used for grain, potatoes, fruit, etc., containing four pecks or eight gallons. The imperial bushel, established in 1826, contains 2,181.91 cub. ins., or 80 lb. avoird. of distilled water. The smaller bushel of Canada and the U.S.A. is derived from the old Winchester bushel of 2,150.41 cub. ins.

BUSHEY. Urban district of Hertfordshire. It is 1½ m. S. of Watford and 16 m. by rly. N.W. of London, on the L.M.S. Rly. Here in 1882 Sir Hubert Herkomer founded an art school. Pop. 8,091.

BUSHEY PARK. Royal park in Middlesex. On the Thames, in Teddington parish, 14 m. by rly. S.W. of London, it adjoins the grounds of Hampton Court Palace, and contains the National Physical Laboratory. Its area is 1,110 acres. The triple avenue of horse chestnuts and limes was planted by William III.

BUSHIRE or **BENDER SHEHR**. Seaport of Persia. On a sandy penin-



Bushy of the
8th Hussars

sula on the N.E. shore of the Persian Gulf, about 125 m. S.W. of Shiraz, it has a large trade, especially with India, and is an important cable centre. Its harbour is accessible to vessels of 13 ft. draught. In Nov., 1914, Indian troops landed here to maintain order. On July 12, 1915, a force of Tangistani tribesmen attacked the British detachment, and a British force occupied the port and town, Aug.-Oct. Pop. 20,000.

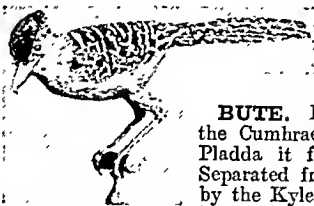
BUSHMEN (Dutch Boschjesmans). The most primitive aboriginal race in S. Africa. Their physical characters, while resembling those of true negroes in the long head and bulging forehead, differ in their yellowish skin, straight face, shorter stature (5 ft.), and lack of the negro odour. A crossing with Bantu-speaking peoples produced the Hottentot race. Their skillful rock-engravings and cave-paintings bear a genetic resemblance to those of Palaeolithic Europe. See Anthropology.



Bushmen. Typical man of the race

BUSHRANGER. Australian term, originally applied to escaped convicts, or to one who subsisted in the bush by robbery under arms. In 1815 martial law was proclaimed in one district, and in New South Wales in 1830 and again in 1834 stringent repressive measures were taken. In their last exploit the Kelly gang, led by Ned Kelly (hanged in 1880), are said to have worn suits of rude armour.

BUSH SHRIKE or **ANT SHRIKE** (*Thamnophtilus*). Bird of S. America. There are several species, all found in the forests of Brazil. They feed upon ants and other insects.

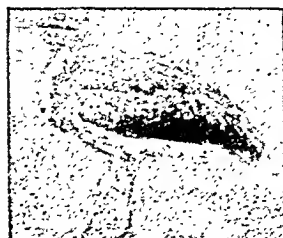


Bush Shrike, a native of Brazilian forests

BUSIRIS. Name of several mythical kings of Egypt, one of whom was the reputed founder of Thebes. According to the story in Apollodorus, during a famine Busiris was visited by a Greek soothsayer, who told him that the yearly sacrifice of a foreigner to the Greek god Zeus would put an end to it. Busiris promptly slew the soothsayer himself, and kept up the practice until he was killed by Hercules. Milton, *Paradise Lost*, i, 307, identifies Busiris with Pharaoh.

BUSKINS (old Fr. bousequin). High boots, worn at most periods from classical times onwards. They were made of various splendid materials in the Middle Ages, such as rich silk or velvet fastened from top to bottom with a running lace. In ancient Greek tragedy actors wore a thick-soled buskin or cothurnus of hide.

BUSTARD (old Fr. bistrarde; Lat. avis, bird; tarda, slow). Group of large, stoutly-built birds, of which there are nearly forty species, all found in the Eastern hemisphere. The common bustard (*Otis tarda*) occurs throughout central and southern Europe, and ranges across



Bustard. The largest land bird in Europe and once common in Britain

Asia to Japan. Formerly common in Great Britain, it is now only occasionally found in the S. counties. Standing over 3 ft. in height,

it is handsomely mottled with grey, brown, and black. It lives mainly on corn and young shoots, but will also devour frogs and other small animals. The nest is merely a hollow in the ground.

BUTCHER, SAMUEL HENRY (1850-1910). British scholar. Born in Dublin, April 16, 1850, he was a son of Rev. Samuel Butcher, afterwards bishop of Meath. In 1882 he became professor of Greek at Edinburgh, retiring in 1903. A strong Unionist in politics, he was elected M.P. for Cambridge University in 1906. In 1909 he was chosen president of the British Academy. He died Jan. 29, 1910.

Butcher's younger brother, John George Butcher (b. 1853), was very successful at the chancery bar. He was Unionist M.P. for York 1892-1906 and again from 1910-18. In 1918 he became a baronet and in 1924 was raised to the peerage, taking the title of Baron Danesfort.

BUTCHER BIRD. Popular name for various species of shrike (*Lanius*), a bird found in most parts of the world except S. America. The name is derived from the bird's habit of impaling the insects which it collects for food on thorns near its nest.

BUTCHER'S BROOM

(*Ruscus aculeatus*). Evergreen shrub of the order Liliaceae, native of Europe, N. Africa, and W. Asia. The plant was formerly used for cleaning hutchers' blocks. Its leaves are reduced to minute scales, and their functions are performed by flat, oval, woody twigs with a sharp point, known as cladodes, from which the greenish flowers are produced. The plants attain a height of about 2 ft., and are either male or female, the latter bearing scarlet berries. The plant is used by cigar-makers for moistening tobacco leaves.



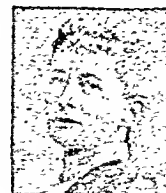
Butcher's Broom, *Ruscus aculeatus*

BUTE. Island of Scotland. With Arran, the Cumbraes, Holy Isle, Inchmarnock and Pladda it forms the county of Buteshire. Separated from the mainland of Argyllshire by the Kyles of Bute, a narrow strait, Bute has an area of 47 sq. m. It has a rugged coast, indented by the bays of Rothesay, Kames, Ettrick, Scalpsie, St. Ninians, and Kilchattan, several inland lochs—Ascog, Fad, and Quien—and fertile, well cultivated soil. The highest point is Kames Hill (911 ft.). Kilmichael is in the extreme N., while Garroch Head is at its southern extremity. The climate is moist, but so mild that flowers can be grown here which will not flourish anywhere else in Great Britain. The scenery is charming. Rothesay is the chief town. Other small towns are Kilchattan and Port Bannatyne.

BUTE, EARL OF. Title held since 1703 by the family of Crichton-Stuart. John, the 4th earl, was made a marquess of the United Kingdom 1796, and from him the present marquess is descended. Cardiff Castle and Mount Stuart, near Rothesay, are the chief residences of the family. The marquess's eldest son is known as earl of Dumfries. John Stuart, the 3rd earl (1713-92), was born at Edinburgh, May 25, 1713, and succeeded to the earldom in 1723. As the chief adviser of the young King George III he was made prime minister in 1762, but his unpopularity forced him to resign in 1763. He continued, however, to influence the king for about two years, after which he lived in retirement until his death, March 10, 1792.

BUTLER, ELIZABETH SOUTHERDEN, LADY (b. 1850). British painter. Born at Lanesanne, the daughter of J. T. Thompson, she studied art at Florence and Rome. Her first

Academy success was *The Roll Call* (1874). *Quatre Bras*, 1875; *Balaklava*, 1876; *Inker-*



Lady Butler, British painter

mann, 1877; *The Remnants of an Army*, 1881, now in the Tate Gallery; *The Dawn of Waterloo*, 1895, are among her other works. She also illustrated some of the poems of Alice M. Meynell, her younger sister. In 1877 she married Sir William F. Butler (1838-1910) a soldier and writer.

BUTLER, JOSEPH (1692-1752). British theologian. Born at Wantage, May 18, 1692, he was ordained in 1718, the following year

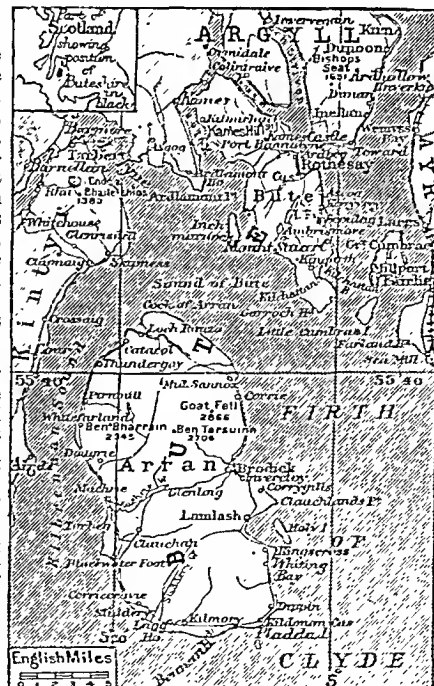


Joseph Butler, British theologian From an old engraving

was appointed preacher at the Rolls Chapel, London, and in 1725 rector of Stanhope, in Wearedale. In 1740 he was made dean of S. Paul's and in 1750 bishop of Durham. He died June 16, 1752. Bishop Butler's chief work is *The Analogy of Religion, Natural and Revealed, to the Constitution and Course of Nature*, 1736, which has become a classic of English theology.

BUTLER, JOSEPHINE ELIZABETH (1828-1906). British social reformer. Born at Glendale, Northumberland, April 13, 1828, in 1852 she became the wife of the Rev. George Butler, principal of Liverpool College and then canon of Winchester. Mrs. Butler began her work by visiting workhouses and establishing homes of refuge, and at the end of 1869 became an active leader of the opposition to the Contagious Diseases Acts. Largely as the result of her efforts, these Acts were repealed in 1886. Mrs. Butler died Dec. 30, 1906.

BUTLER, NICHOLAS MURRAY (b. 1862). American scholar. Born in New Jersey, April 2, 1862, he was educated at Columbia



Bute. Map showing the seven islands which form this small Scottish county

College, New York, and became a professor there. In 1890, when it was made a university, he was appointed dean of philosophy, and

in 1902 president. As a leading member of the Republican party his name has been put forward for both president and vice-president. Among the many causes in which he has been active are the promotion of world peace and the improvement of Anglo-American relations.

BUTLER, SAMUEL (1612-80). English poet. Born at Strensham, Worcestershire, he acted as a lawyer's clerk. In 1663 he published Part I of Hudibras,



Samuel Butler,
English poet
From an old engraving

a bitter but witty metrical satire on Puritanism; Part II was printed the following year, and the last part appeared in 1678. The original of Hudibras was Butler's old master, Sir Samuel Luko. The book achieved immediate popularity, but brought him no financial reward. He lived in poverty until his death, Sept. 25, 1680.

BUTLER, SAMUEL (1835-1902). British author. Born at Langar, Nottinghamshire, Dec. 4, 1835, he spent the years 1860-64 on a New Zealand sheep-run, but resided for the rest of his life in chambers in London. His principal writings are Erewhon, 1872, a Utopian romance criticising Darwinism and orthodox Christianity; its sequel, Erewhon Revisited, 1901, a satire on the origins of popular religions; and The Way of All Flesh, an autobiographical novel, published posthumously in 1903. Butler died June 18, 1902.

BUTO. Goddess of ancient Egypt, who was worshipped at a city of the same name on the Nile delta. The hawk and the shrew mouse were sacred to her. The Greeks represented her as the goddess of night.

BUTON OR **BOETON**. Island, town, and strait of the Dutch East Indies, S.E. of Celebes. The strait separates Buton from Celebes and Muta. The island is 1,650 sq. m. in area. The strait separating Buton from Wangi Wangi is called Buton Passage. Pop. 100,000, mostly Malays.

BUTRINTO. Town of Albania, on the coast, facing Corfu. It is referred to in the Aeneid as the place where Aeneas met Priam's son Helenus, who made his home here after the fall of Troy. Excavations begun in 1924 show that the town was influenced by Greek, Roman, Byzantine, and Venetian civilizations. Buildings erected by all these peoples, as well as prehistoric remains, were unearthed in 1929.

BUTT, DAME CLARA (b. 1873). British singer. Born at Southwick, Sussex, Feb. 1, 1873, she made her debut in Sullivan's Golden Legend at the Albert Hall,

Dec. 7, 1892, and a few days afterwards appeared with remarkable success in Gluck's Orpheus, given by the students of the R.C.M. A contralto, she rose to the front rank of public singers. In 1900 she married Kennerley Rumford, and in 1920 was created D.B.E. In 1928 appeared Clara Butt: Her Life Story, by Winifred Ponder.



Dame Clara Butt,
British singer
Russell

BUTTE. Largest city of Montana, U.S.A., co. seat of Silverbow co. In a range of the Rocky Mts., it is 65 m. by rly. S.W. of Helena, and is served by the Chicago, Milwaukee and St. Paul and other rlys. In one of the richest mining regions of the U.S.A., Butte has large copper, silver, and gold smelting works and a school of mines. Near is the famous Anaconda Mine. Pop. 41,611.

BUTTER. Result of the separation of butter-fat, 3.75 p.c. on the average, from milk, and the working it up into a palatable form. It is not possible to take out all the fat from milk, and, furthermore, butter contains other constituents, its composition on the average being, in percentages: fat, 84.91; water, 13.05; curd, 1.02; salt, 1.02. In the old method of buttermaking the milk is allowed to stand until the cream rises to the top, when it is removed by skimming, the residuo being skim milk. Laval revolutionised buttermaking in 1877 by inventing the separator, which acts by the application of centrifugal force. Fresh cream yields very insipid butter, and a ripening process is necessary. The agents are certain bacteria causing the formation of lactic acid. But it is easier to turn out a uniform product by pasteurising the cream before separation, and afterwards ripening it by adding a pure culture of the bacteria. The ripened cream is churned, and the resulting product is then worked up into butter.

BUTTER-BUR (*Petasites hybridus*). Perennial herb of the order Compositae. It is a native of Europe, N. Africa, and N. and W. Asia. The flower stem arises in March, crowned by clusters of flesh-coloured or pale purple flowers. The leaves expand to a diameter of 3 ft.



Butter-bur stem
and leaves

BUTTERCUP (*Ranunculus*). Perennial herb of the order Ranunculaceae, several species being united popularly under one name. Meadow buttercup (*R. acris*), a native of Europe and N. Asia, has roundish leaves divided into three to seven lobes, and golden-yellow flowers opening widely. Creeping buttercup (*R. repens*) a native of Europe, N. and W. Asia, and N. Africa, has long above-ground runners, and oval leaves deeply divided into three segments. The flowers are cup-shaped. All the species have acrid juices.



Buttercup, flowers
and stalks

BUTTERFLY. One of the great divisions of the order Lepidoptera, the other division comprising the moths. The antennae are simple and clubbed, whereas those of the moth are often elaborately branched and feather-like, and usually without knobs at the extremities. The butterfly when at rest usually closes its wings vertically; moths generally close the upper pair over the lower, so that only the fore-wings are seen. Butterflies are abroad in the daytime, while most moths are nocturnal in habit.

Butterflies chiefly feed on the nectar of flowers, and the mouth parts are modified to form a proboscis or sucking tube, which when not in use is tightly rolled up under the head. The wings are thickly covered with minute scales, often iridescent or metallic in hue, and they are usually brilliantly coloured. The butterfly passes through a complete series of metamorphoses, being in turn an egg, a larva or caterpillar, a pupa or chrysalis, and an imago or perfect insect. Butterflies occur all over the world, except at the Poles, and are divided into five families, all of which are represented in Great Britain.

The ten sub-families of British butterflies are: Papilioninae, Pierinae, Danainae, Apaturinae, Nymphalinae, Satyrinae, Nemeobinae, Lycaeninae, Hesperinae and Pamphilinae. See Camberwell Beauty; Red Admiral, etc

BUTTERFLY FLOWER (*Schizanthus*). Annual herb of the order Solanaceae. Natives of Chile, these herbs have showy flowers. They are covered with glands which exude a sticky excretion. The leaves are long and narrow, much cut up from the margins; the flower is half-tubular, the spreading portion much divided.

BUTTERFLY WEED (*Asclepias tuberosa*). Perennial herb of the order Asclepiadaceae. A native of N. America, with scattered, lance-shaped, hairy leaves and showy orange flowers, it is cultivated in European gardens as a border plant.

Buttermere. Village and lake of Cumberland. The lake is 1½ m. long, ½ m. broad, and has a greatest depth of 93 ft.

BUTTER TREE (*Bassia butyracea*). Tree of the order Sapotaceae, a native of Nepal, India. It has leathery, undivided leaves and fleshy, whitish flowers which are succeeded by pulpy fruits in which the seeds are embedded. The seeds yield a white fatty substance like lard. The allied mowha tree (*B. latifolia*), a native of Bengal, yields a similar substance. The African butter tree or shea tree is *B. parkii*, whose seeds are hoiled to obtain the butter. The name Butter Nut is given to a North American tree (*Juglans cinerea*) known also as white walnut and oil nut. It grows to a height of 30 ft., and its nuts are used by the N. American Indians as a purgative.

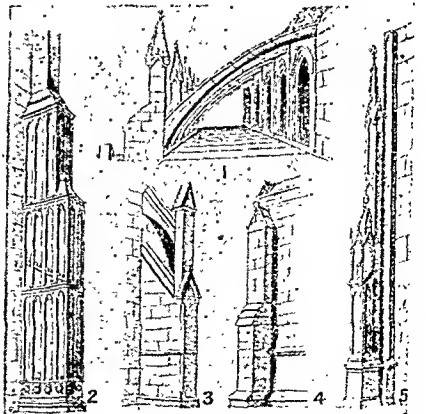
BUTTERWORT (*Pinguicula vulgaris*). Perennial herb of the order Lentibulariaceae.

native of Europe, N. Asia, and N. America. The smooth, ohlong leaves lie on the ground in a rosette from whose centre arise several leafless stalks, each with a solitary violet flower. The leaves secrete a greasy fluid in which insects are caught and digested. Butterwort inhabits bogs and wet mountain sides.



Butterwort, *Pinguicula vulgaris*

BUTTEVANT. Market town of co. Cork, Irish Free State. It is on the river Awbeg, 28 m. by rly. N.W. of Cork by the Gt. Southern Rlys. The Mulla of Spenser, it has remains of an abbey. Kileolman Castle, the residence of the poet, is 3 m. to the N.E. Market days Tues. and Fri. Pop. 834.



Buttress. Examples in British architecture. 1. Fotheringhay, Northamptonshire, circa 1440. 2. Divinity school, Oxford, circa 1490. 3. Earl's chapel church, Durham, 1250. 4. Orton-on-the-Hill church, Leicestershire, circa 1330. 5. Gloucester cathedral, 1430

BUTTRESS (Fr. *bouter*, to thrust). In architecture, a pier or other mass of masonry built up against the exterior surface of a wall to strengthen it where the lateral pressure

of the roof calls for resistance. The oldest and simplest form is the flat-faced pier attached to the walls of Norman churches.

Massiveness was at first the characteristic in the 13th century, which was the great period in the history of the buttress; but soon the flying buttress was evolved which, as in the perfect example of Westminster Abbey, quickly attained the summit of architectural beauty, while performing an important constructional function. In the 14th century the importance of the flying buttress began to wane.

BUTYL ALCOHOL. One of the products obtained by distilling crude potato spirit, and by the fermentation of beet-root. Butyl chloral is an oily, pungent liquid obtained by passing chlorine into paraldehyde and heating the butyl chloral hydrate which forms in a stream of hydrochloric acid.

BUTYRIC ACID (Lat. butyrum, butter). Liquid acid with an unpleasant odour, first separated from butter. It occurs in a variety of animal fats and vegetable products, and is a result of fermentation. Butyric ether is a liquid which smells like pineapple and is obtained by warming together a mixture of alcohol, butyric acid, and sulphuric acid. When diluted with spirit it is used for flavouring confectionery, and known as pineapple essence.



Buxton. The Crescent, built in 1770-74, seen from the slopes. Facing the Crescent is the Pump Room
Frith

BUXTON. Borough, market town, and health resort of Derbyshire. It is 163 m. by rly. N.W. of London on the L.M.S. Rly. and 22 m. from Manchester. Its mineral springs supply tasteless water, and are efficacious in the treatment of rheumatism, gout, sciatica, and allied diseases. The hot baths are at the W. end and the natural baths at the E. end of the Crescent. In the vicinity are Diamond Hill, celebrated for its crystals, and Poole's Cavern, a stalactite cavern of great historic interest. Buxton was granted a charter of incorporation in 1916. Market day, Sat. Pop. 17,000.

BUXTON, SYDNEY CHARLES BUXTON, 1st EARL (b. 1853). British politician. Son of Charles Buxton, M.P., he was born Oct. 25, 1853, and in 1883 was elected M.P. for Peterborough. He was M.P. for Poplar 1886-1914, under-secretary for the colonies 1892-95, and postmaster-general 1906-10, when he was transferred to the presidency of the Board of Trade. In 1914 he became a peer, and was governor-general of South Africa, 1914-20. He was created an earl, Oct., 1920. He wrote on finance and politics; also a *Life of General Botha*, 1924.



Earl Buxton,
British politician
Russell

BUXTON, NOEL (b. 1869). British politician. A son of Sir T. Fowell Buxton, Bart., he was educated at Harrow and Trinity College, Cambridge. In 1905-6 he was Liberal M.P. for Whitby, and from 1910-18 for N. Norfolk. At this time he was chiefly interested in Balkan affairs. In 1922 Buxton,

having just joined the Labour party, was again elected M.P. for N. Norfolk, and in 1924 he was minister for agriculture, a position to which he returned in 1929. His *Travels and Reflections* appeared in 1929.

BUXTON, SIR THOMAS FOWELL (1786-1845). British philanthropist. Born April 1, 1786, he early displayed a zeal in social questions, working for the relief of the Spitalfields weavers, 1816, and for the reform of prison conditions. From 1818-37 he was M.P. for Weymouth. In 1824 he succeeded Wilberforce as head of the anti-slavery party. In 1840 he became a baronet. He died Feb. 19, 1845.

BUZZARD (Lat. buteo, hawk). Group of birds of prey of the sub-family Buteoninae. There are about twenty species, ranging over a great part of the world, but unknown in Australasia and the Oceanic islands. The European buzzard is usually found in wooded districts, where it nests in trees; in mountainous country it selects ledges or crevices in the rocks. The buzzard feeds mainly upon rabbits, birds, and various reptiles.



Buzzard. The common buzzard, a diurnal bird of prey

BUZZARD, SIR EDWARD FARQUHAR (b. 1871). British physician. The son of a doctor, he was born in London, Dec. 20, 1871, and educated at Charterhouse School and Magdalen College, Oxford, where he played association football for the university. He qualified as a doctor, and a successful career led to his appointment in 1928 as regius professor of medicine at Oxford. In 1927 Buzzard was knighted, and in 1928-29 he was one of the physicians who saw King George through his serious illness.

BYBLOS. Ancient city of Phoenicia. On the coast between Beirut and Tripoli, it is the traditional birthplace of Adonis, and its temple of Astarte attracted many devotees. The Biblical Gebal and the modern Jebel, it is walled, and has towers, a castle, and many ruins. Recent excavations show that before the time of the Egyptian King Seneferu (about 3000 B.C.) Byblos had become to all intents and purposes an Egyptian colony.

Byfleet. Village of Surrey. It is 8 m. N.E. of Guildford, on the Southern rly., and is a residential district for Londoners. Pop. 4,173.

BYLAND ABBEY. Cistercian abbey in the vale of York. It was founded in 1177 by Roger de Mowbray, the 2nd baron. Its first members belonged originally to Furness Abbey. The ruins, chiefly of the church and refectory, were given to the nation in 1920 by Lady Julia Wombwell, and restoration work has been done thereon.

BY-LAW. Term used in law to denote rules and regulations made by a body acting under some Act of Parliament, royal charter, or ancient custom. Thus, a municipal corporation has the power to make by-laws dealing with the good government of towns, a railway company for the good order of its railway, and a university for the governance of its members. A by-law which is contrary to the general law of the land, or which is unreasonable, is ultra vires and void.

BYNG, JOHN (1704-57). British admiral. Son of Admiral George Byng, 1st Viscount Torrington (1663-1733), he entered the navy

in 1718. In 1745 he was made a rear-admiral. From 1751 until his death he was M.P. for Rochester. In 1756 he was sent in command of a small squadron to relieve Minorca, which the French had attacked. After a mishandled encounter with the French squadron Byng returned to Gibraltar. Put on trial he was found guilty of neglect of duty, and shot in Portsmouth Harbour, Mar. 14, 1757.



Admiral Byng,
British sailor
Painting by Hudson

BYNG, JULIAN HEDWORTH GEORGE BYNG, 1st VISCOUNT (b. 1862). British soldier. Born Sept. 11, 1862, a younger son of the 2nd earl of Strafford, he joined the 10th Hussars in 1883, and after serving in the Sudan campaign and in the South African war, went in 1912 as commander-in-chief to Egypt.

In the Great War Byng took the 3rd cavalry division to Belgium in Oct., 1914, and in May, 1915, succeeded Allenby as head of the cavalry corps. He left that to command the 9th corps in Gallipoli, and on the evacuation returned to France. In April, 1916, he took over the Canadian Corps. His next promotion, June, 1917, was to the head of the Third Army. Made a full general after the battle of Cambrai, Nov., 1917, which his army fought, he took a leading part in defeating the German offensive in the spring of 1918, and in the ensuing advance.

Knighted in 1915, he was raised to the peerage in Aug., 1919, and received a grant of £30,000. He retired from the army in Nov., 1919, and in 1921-26 was governor-general of Canada, being created a viscount in the latter year. In 1928 Lord Byng was appointed commissioner of police for the metropolis and effected many reforms. See *Cambrai*.



Viscount Byng,
British soldier
Russell

BY-PRODUCTS. Term for commodities produced incidentally in the course of some manufacturing process. For example the chief aim of the gas industry is the production of gas; but in the course of that production coke and tar are made, the latter yielding further by-products such as ammonia, benzene, aniline dyestuffs, and pitch.

BYRD, RICHARD EVELYN (b. 1888). American explorer. Born at Washington, Virginia, Oct. 24, 1888, he entered the U.S. Naval Academy, and until 1916 was a naval officer. On leaving the service he became an airman, and as such did good work during the Great War, retiring in 1922. In 1926 he flew from Spitzbergen to the North Pole in a Fokker aeroplane, and in Nov., 1929, he flew over the South Pole. In 1929 he was made an admiral. See *Antarctic*.

BYRD, WILLIAM (c. 1542-1623). English composer. Born in London and a pupil of Tallis, he was appointed organist of Lincoln cathedral in 1563, and was a singer in the chapel royal, and its organist, 1570. Byrd composed many masses, motets, and anthems, also some of the finest English madrigals. He died July 4, 1623.

BYRNE, BRIAN OSWALD DONN (1889-1928). Irish novelist. Born Nov. 30, 1889, he went to the U.S.A., where he became known as a writer of short stories. Later he began to write novels, the chief of which are *Messers Marco Polo*, 1922, *Hangman's House*, 1926, a vivid picture of Irish life just before the Great War, and *Brother Saul*, 1927. He was killed in a motor accident, June 18, 1928.

BYRON, BARON. English title borne since 1643 by the family of Byron. About 1540 Sir John Byron secured the abbey of Newstead, near Nottingham, and his great-grandson, another Sir John, was M.P. for Nottingham. He raised a regiment and fought for Charles I, who, in 1643, made him a baron. William, the 5th baron, who was convicted for manslaughter for killing William Chaworth in a duel, was succeeded in 1798 by his great-nephew, the poet. On the latter's death in 1824 the title passed to a cousin George, from whom the present peer is descended. Newstead Abbey and estates were sold about 1870, and the family residence is Thrumpton Hall, Derby.

BYRON, GEORGE GORDON BYRON, 6TH BARON (1788-1824). British poet. Grandson of John Byron, an adventurous sailor who was

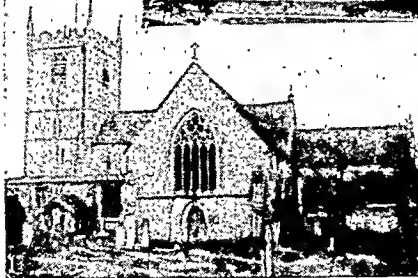


Lord Byron, British poet
After Phillips

second son of the 4th baron, George Gordon Byron was born in London, Jan. 22, 1788, heir to his great-uncle William and the estate of Newstead Abbey, in Nottinghamshire. Educated at Dulwich, Harrow, and Trinity College, Cambridge, Byron's youth was embittered

by congenital lameness and by the unwise upbringing of a capricious and violent-tempered mother. In 1807 he issued his *Hours of Idleness*, which, sarcastically reviewed in the *Edinburgh Review*, provoked in 1809 *English Bards and Scotch Reviewers*. In 1808 he entered upon his inheritance, and from 1809 to 1811 toured Portugal, Spain, and Asia Minor, the literary results of which were the early cantos of *Childe Harold's Pilgrimage*, 1812, *The Giaour* and *The Bride of Abydos*, 1813, and *The Corsair* and *Lara*, 1814.

After several love affairs, notably with Mary Chaworth (q.v.), Byron married in 1815



Byron. 1. Hucknall Torkard church, where the poet is buried. 2. West front of Newstead Abbey

Anna Isabella Milbanke. Within a year his daughter, Ada, was born, and he himself was driven from England by public abuse of his conduct as a husband and his relations with his half-sister, Augusta Leigh. He wandered over the Continent, was much with Shelley in Switzerland, finished *Childe Harold* and produced several tragedies. After four years in Italy, during which he wrote *Mazeppa*, *Sardanapalus* and much other work, including his greatest, the unfinished *Don Juan*, Byron, in 1823, flung himself into the Greek War of Independence. Catching a fever from the

Missolonghi marshes, he died April 19, 1824, and was buried at Hucknall Torkard.

Byron's letters and journals were edited by R. E. Prothero, 1898-1901. Consult also *The Life of Lady Byron*, E. C. Mayne, 1929; *Life*, A. Manrois, 1930.

BYZANTINE EMPIRE. Sometimes called the East Roman Empire, this was founded in 395, when the Roman Empire was divided. At Byzantium, later called Constantinople, its continuity was preserved, and with an interval from 1204-61 an emperor who claimed to be the successor of the Caesars reigned there until its capture by the Turks in 1453. Approximately the effective Byzantine Empire at its fullest extent covered the basin of the Danube, S. Italy, the Balkan Peninsula, the eastern Mediterranean, Egypt, and western Asia as far as the Euphrates and the Persian Gulf, excepting Arabia.

The Empire was almost continually at war and its boundaries were ever changing. Belisarius and Narses, generals of the great Justinian, extended them, but their conquests in Italy and elsewhere were soon lost. Danger from the Persians was averted by the campaign of Heraclius, but the Mahomedans, in the first flush of their strength, conquered great areas from his successors. Twice the Saracens besieged Constantinople itself.

Under the Macedonian emperors (867-1056) there was a period of prosperity, and then came the age of the Crusades, with its accompanying disorder. The Turks conquered most of Asia Minor, and the establishment of the Latin Empire at Constantinople forced the emperor to find a new capital at Nicea. Constantinople was recovered in 1261, but its rulers henceforward were lords of only a fraction of the old Empire.

The Empire finally fell before the attacks of the Ottoman Turks, who in 1354 captured Gallipoli, seven years later Adrianople, and overran the Balkan Peninsula, although stayed for a time by Tamerlane. In 1453 Mohammed II laid siege to the historic capital. Constantine XI, deserted by all Christendom, valiantly resolved to fight to the last. He could muster only some 7,000 fighting men to hold the walls against the swarming Turkish hosts, but he held them for six weeks, until the assault was delivered in overwhelming force. The emperor died fighting and the city passed into the possession of Islam. See *Constantinople*; *Crusades*; *Rome*; *Turkey*; etc.; consult also *Decline and Fall of the Roman Empire*, E. Gibbon, ed. J. B. Bury, 1901-6; *History of the Eastern Roman Empire*, J. B. Bury, 1912; *The Byzantine Empire*, N. H. Baynes, 1926.

ART AND ARCHITECTURE. Byzantium or Constantinople was the home of the efflorescence of artistic activity known as Byzantine art, the leading motive of which was the adaptation of existing Greco-Roman and Oriental forms to the conception of Christianity held by the emperor Constantine and his

fellow-converts. During the reign of Justinian (527-565) this art reached its zenith.

The greatest successes of the Byzantine school were architectural. The dome, the peculiar product of Eastern constructive methods, became the leading element in the new style, while the principles of domical construction underwent far-reaching developments. Under Charlemagne was evolved the style known as Romanesque, the cousin of Byzantine and the parent of Gothic. In A.D. 532 the emperor Justinian began to build the famous church of S. Sophia, regarded as the climax of Byzantine art.

Byzantine painting may best be studied in the illuminated MSS., such as the sacred books, psalters, etc., preserved at the Bibliothèque Nationale at Paris, the Vatican at Rome, and other collections. These are mainly executed on linen. The characteristics are bright, rather crude colours and incorrect though not inexpressive figure-drawing. Great skill was attained by ivory workers and by goldsmiths. Consult *Byzantine and Romanesque Architecture*, T. G. Jackson, 1913; *Byzantine Art*, H. Picree and R. Tyler, 1926; *Byzantine Portraits*, C. Diehl, trs. H. Bell, 1927.

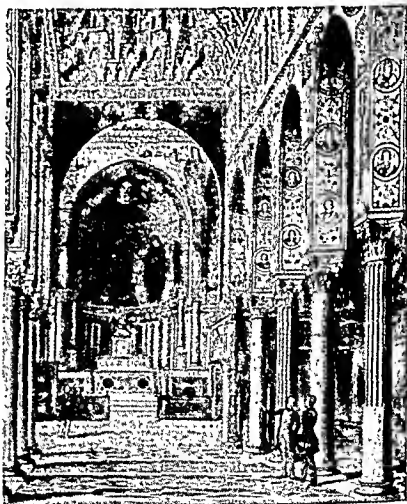
LITERATURE. Byzantine literature is the name given to the Greek literature of the period from the accession of Justinian to the taking of Constantinople by the Turks (527-1453). The writings of this period consist mainly of extracts and compilations from older works. The language represents the transition stage between ancient and modern Greek.

The Byzantine Research Fund is an association founded in 1908. The full title is Byzantine Research and Publication Fund. It deals with the art, architecture, and inscriptions of the East Roman empire.

BYZANTIUM (Greek Byzantion). Doric colony founded about 660 B.C. by Megarian colonists under Byzas on the so-called Golden



Byzantine Art. Ivory carving showing Christ crowning the emperor Romanus and his wife Eudocia
Bibliothèque Nationale, Paris; photo, Giraudon



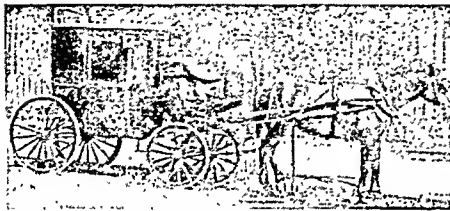
Byzantine Architecture. Chapel of the Norman kings at Palermo, built by King Roger II in 1143

Horn. Devastated by the Persians under Darius Hystaspes, it was raised by the Spartan leader Pausanias to the status of an important maritime and commercial city. For more than 100 years after the Persian War it was alternately hostile and friendly to Athens, until it obtained complete independence in 355. During the first century A.D. Byzantium was included with Thrace in the Roman Empire. Constantine the Great enlarged and made it the new capital of the empire under the name of Constantinople, later Constantinople. It was called by the Turks Istanbul or Stambul, and to-day is known as Istanbul (q.v.).

C. Third letter of the English and Latin alphabets. A modified form of Γ (Gamma), the third letter of the Greek alphabet, it has two distinct sounds, that of k as in cat, cot, cut, and before e, i, y that of sharps as in censor, civil, cymhal. The combination ch, the sound of which is heard in church, is a distinct letter, for which a separate sign is used in other alphabets. In Greek derivatives it is pronounced k, as in character. See Alphabet.

In music this letter indicates (1) the first note of the natural scale of C, the chief note of the Ionian mode; (2) the standard pitch for vocal music; (3) the philharmonic pitch of C, adopted in 1896, which has 522 double vibrations per second; (4) the standard pitch for transposing instruments.

CAB (Fr. cahriole). Name for a light, covered, two-wheeled one-horse vehicle for two passengers, with an outside seat for driver at back; or a four-wheeled carriage seating four passengers, with driver's seat in front.



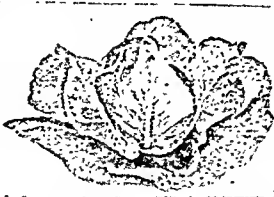
Cab. 1. Old-fashioned four-wheeled cab or "growler," introduced into London in 1820.
2. Hansom cab, invented by J. A. Hansom in 1834; specimen in London Museum

Their place has been taken to a large extent by taxicabs, which, like other motor vehicles, must pay a duty. All cabs used by the public must be licensed by a public authority, as must their drivers. These authorities can make by-laws regulating the numbers and standing places of these cabs. The fares charged are fixed by the Home Secretary.

CABAL. Name given to a group of men working in secret for their own interests rather than for those of the people they are supposed to represent. The word, derived from the Hebrew Cabhala, obtained general currency in England in the time of Charles II from the initial letters of the names of his five ministers, Clifford, Arlington, Buckingham, Ashley, and Lauderdale, who were the origin of the modern cabinet (q.v.).

CABARET. French word originally meaning a wooden shelter or booth. Its use is now generally restricted to that of a small inn or a wine shop. In another sense it denotes the entertainment given in after theatre hours at hotels and restaurants. See Inn.

CABBAGE (Latin capit, head). Hardy biennial vegetable of the natural order Cruciferae and genus Brassica. The common cabbage (B. oleracea) is the species, of which numerous kinds have been raised.

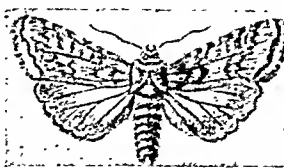


Cabbage. Dwarf cabbage, which matures in early April

The Cabbage Fly (Anthomyia brassicae) is an insect somewhat resembling the house fly. Its larvae feed chiefly on cabbage, and do great mischief by destroying the stems. Another insect pest of the cabbage is the larva of the cabbage moth (Mamestra brassicae). The caterpillar is usually greenish brown with a dark stripe down the

back. The moth has greyish brown wings about 1½ ins. in span, partly hordered and dotted with white. It will eat holes through

a dozen layers of a large cabbage until it has reached the tender white heart, fouling the entire head. The Cabbage Snowy Fly is another cabbage pest.



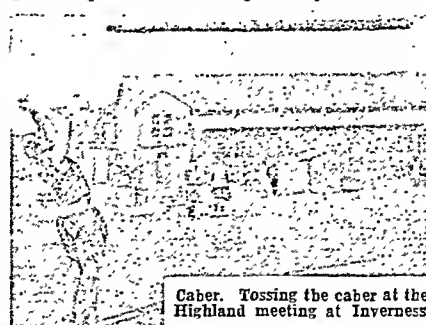
Cabbage moth, Mamestra brassicae

CABBAGE-BARK TREE (Andira inermis). Evergreen tree of the order Leguminosae. A native of the West Indies, it has leaves about a foot long, divided into oval leaflets, with purple pea-like flowers. Its bark is used as a remedy for intestinal worms.

CABBALA (Heb. kahal, to receive). Hebrew mystical theosophy traditionally received by certain Jewish sects and not revealed explicitly in the O.T. The central doctrine is divine immanence, in a form akin to pantheism, and marked by the influence of neo-Platonism and Gnosticism. Cabbalism flourished between the

12th and 16th centuries, and affected both Jews and Christians.

CABER, TOSSEING THE (Gaelic cabar, pole, beam). Popular event at Highland athletic gatherings. The caber generally consists of



Caber. Tossing the caber at the Highland meeting at Inverness

the lower trunk of a larch tree, about 20 ft. in length. The pole is raised, with the thin end resting upon the ground, into an upright position and supported against the shoulder of the competitor. Working his fingers underneath, he lifts the pole upright upon his hands until he has it balanced upon them about waist high; then with tremendous impetus he hurls it forward into the air.

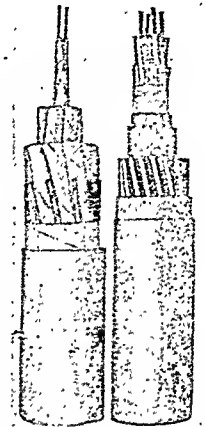
CABINET. Name given to the body of ministers who control the Government of Great Britain and to similar bodies elsewhere. The main features of the Cabinet are that all its members, each of whom is the head of a department of state, must belong to one political party and that party must enjoy the confidence of the House of Commons, and through it, of the electors. Occasionally, as in 1783 and during the Great War a coalition of parties forms a cabinet. Its president and head is the prime minister, who chooses the other members, although in practice his choice is limited to politicians of standing.

The appointments must be approved by the king and ministers must be privy councillors, as in theory the cabinet is a committee of the privy council. The number of members varies, but usually it is about 20.

CABLE. Nautical term for a rope, chain, or wire hawser attached to the anchor or used in any other way for mooring a ship. A cable's length is 100 fathoms, or 200 yds.

The word is used also for the cable along which electricity is transmitted. This is a copper conductor or conductors covered with an insulating envelope, which prevents the leakage of current into the water or ground in which the cable is laid. In submarine telegraphic cables the conductor is usually composed of small wires laid up to form a very flexible strand. This is covered with gutta percha, and protected by jute, and a layer of iron or steel wire. In an underground telegraph or telephone main cable the conductors, which may number up to 2,000, are single copper wires insulated by special paper wrapped round them to form loose air-filled tubes, the whole being protected by a suitable exterior covering.

For flexible power cables, such as are used in house-wiring, the insulation is pure rubber, vulcanised rubber, waterproof tape, and hemphraiding saturated with a proofing composition, applied in the order given. Cables are made with single, twin, three, or four conductors running side by side, or with double or triple concentric conductors separated by annular insulation, according to the system of distribution.



Cable. Left, dry core lead-covered cable containing 76 strands of wire; right, 4-core gutta-percha insulated submarine telephone cable
Hewlett's Telegraph Works Co., Ltd.

CABLE OWNERSHIP. Of the cables the Atlantic was owned by the British Government and the Pacific by the British and Dominion Governments jointly. The Eastern Telegraph and other companies owned other cables. In 1928 it was decided to unite all the cables and wireless stations, including those owned by the Marconi Co. and the Post Office, into one great organization.

CABLE, GEORGE WASHINGTON (1844-1925). American novelist. Born at New Orleans, Oct. 12, 1844, from 1863-65 he fought in the Civil War on the Confederate side. He first came into prominence through his sketches of Creole life, collected in 1879 under the title of Old Creole Days. His later novels include



G. W. Cable, American novelist

The Grandissimes, a study of French-American life in Louisiana, 1880; Madame Delphine, 1881; Bonaventure, 1888; Kincaid's Battery, 1908; Gideon's Band, 1914; and The Flower of the Chapdelaines, 1919. He also wrote The Creoles of Louisiana, 1884; The Silent South, 1885. He died Jan. 31, 1925.

CABOT, JOHN (c. 1450-98). Anglo-Italian navigator. Born at Genoa, he moved to Venice in 1461, and later he settled in England. In 1496 Henry VII authorised him to explore all hitherto unknown lands. He sailed from Bristol on May 2, 1497, and 52 days later reached Cape Breton Island. Later Cabot again sailed from Bristol, this time with a small fleet and 300 men. He landed on Greenland and named the land Labrador after João Fernandes, a lavrador or farmer, from whom in Portugal he had first beard of it. On his return voyage he rounded Cape



Cabbage fly. A destructive garden pest

(Mamestra brassicae). The caterpillar is usually greenish brown with a dark stripe down the

Farewell, crossed Davis Strait, and touched Baffin Land, convinced that this was Asia. Then, sailing S.E., he passed Newfoundland and Nova Scotia, and reached Bristol in the autumn. He died soon afterwards.

His son, Sebastian Cabot (1474-1557), came to England about 1493 with his father, with whom he sailed to Cape Breton Island in 1497. In 1512 he entered the service of Ferdinand of Spain as a cartographer, and in 1519 was pilot major to Charles V. From 1526-30 he was in command of a Spanish expedition to S. America and explored La Plata. He died before the end of 1557, and in all probability at Bristol, where there is a tower to the Cabots. (See p. 304.)



Sebastian Cabot, Anglo-Venetian navigator
From an old painting

Cabot Strait is a channel between Newfoundland and Cape Breton Island. Forming the entrance to the Gulf of St. Lawrence, it is about 60 m. wide.

CABRIOLE. Special style of chair legs. They may be traced to Roman furniture makers, and were much employed in the Queen Anne period for tables, tall-boys, chairs, etc. These legs swell outward at the upper part or knee, and inward at the ankle, and often end with the cloven hoof of a goat.

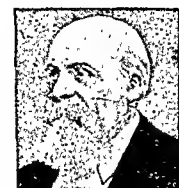
Cachalot. Alternative name for the sperm whale. See Whale

CACTUS (Cactaceae). Natural order of fleshy, thickened, and mostly leafless plants, more or less abundantly clothed with sharp spines or prickles.

They are globular or column-like, with many angles, or flattened and jointed. The flowers are solitary, stalkless, and brightly coloured. The succulent fruit often contains refreshing and sub-acid juice. Cacti are all natives of the hot, dry regions of the American continent. The walls of all the internal cells and tissues are thickened, so that transference of fluids is slow, thus preventing loss of moisture. Since leaves are absent there is no loss by transpiration.



Cactus. 1. *Echinocactus longibamatus*. 2. *Opuntia obovatifolia*. 3. *Leuchtenbergia principis*. 4. *Phyllocactus*. 5. *Cereus giganteus*



Richard Cadbury, British manufacturer of Mowll

from a tenant farmer of Uffculme, who died in 1557, Richard Tapper Cadbury settled in

Birmingham, 1794, and his son John began there the business which has become world-famous. His sons, Richard (1835-1899) and George (1839-1922), took control in 1861, when the firm employed a dozen workers. In 1879 they founded for their business the town of Bourneville (q.v.), and when the firm amalgamated with J. S. Fry & Son, of Bristol, 1919, they were employing about 4,000 workpeople. In 1901 George Cadbury became chief proprietor of The Daily News.



George Cadbury, British manufacturer of Whitlock

CADDIS FLY. Order (Trichoptera) of hairy winged insects, rather like light, graceful moths. The eggs are laid in a jelly-like



Caddis Fly. Above, *Phryganea minor*; centre and below, *P. grandis*

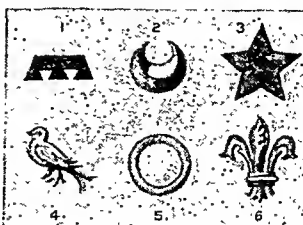
mass on the surface of ponds or on water weeds, and the insect in its larval and pupal stages is aquatic. The larva builds cases or tubes in which it lives, composed of bits of wood, tiny shells and pebbles, leaves, twigs, etc. The head and legs project at one end, while the long, segmented abdomen is covered and protected. When the time for pupation arrives, the caddis worm closes the ends of the tube with silk, or by attaching small stones. There are about 150

British species. The larvae are used as bait by anglers.

CADE, JACK (d. 1450). English rebel. His early life and personality are obscure. He was known as Mortimer, and his followers were the yeomen and smaller landed proprietors of Kent and Sussex. The rising, which was political, and not social, in its aims, took place in May, 1450. After defeating the king's troops at Sevenoaks, Cadw marched on London and entered the city. The citizens were alarmed at Cadw's demand for money; and on his retirement to Southwark the lord mayor closed London Bridge. Cadw himself retired to Rochester and fell fighting at Heathfield, Sussex, July 12, 1450.

CADENCE (Lat. cadere, to fall). In music, the termination of a phrase or section analogous to punctuation in literature. Cadence is the term applied to (1) ornamental passage for a solo instrument or voice, embellishing a pause; (2) towards the end of a concerto movement, an opportunity for free display of technique by the soloist.

CADENCY. In heraldry, the art of distinguishing the position of a bearer of arms in his branch of a family. In early feudal heraldry this was done by a wide system of differencing, but the label was adopted to distinguish the shield of the eldest son. The recognized marks of cadency are placed in the upper part of the shield as follow: eldest son a label, second a crescent, third a mullet, fourth a martlet, fifth an annulet, sixth a fleur-de-lis, seventh a rose, eighth a cross moline, ninth a double quatrefoil. See Heraldry.



Cadency. 1. Label. 2. Crescent. 3. Mullet. 4. Martlet. 5. Annulet. 6. Fleur-de-lis

CADER IDRIS (Seat of Idris). Fifth highest mountain of Wales. In Merionethshire, 4 m. S.W. of Dolgelly, it consists of a long, precipitous ridge. Its summit, Pen-y-gader, 2,914 ft. high, commands a magnificent view.

CADET (Lat. capitellum, little head). Term employed in Britain for one undergoing a course of training with a view to obtaining a commission in the navy, army, or air force. It originally meant the head of a younger branch of a family, or a younger son. In a military sense the word is used for those being trained at Sandhurst or Woolwich; members of an officers' training corps; and members of special corps raised during the War for training men for commissions.

CADET CORPS. Most public schools have a cadet corps, composed of the older boys, who are trained on military lines. They have a uniform, go on route marches and to camps and, if efficient, are recognized by the War Office. Organizations such as the Boys' Brigade and the Church Lads' Brigade are also recognized as cadet corps. In 1930 the Government grant was withdrawn.

CADI. Arabic title for a judge of summary jurisdiction in Mahomedan countries. He is required to be learned in the Koran and the religion of Islam.

CADIZ (Phoen. Agadir, Lat. Gades). City and seaport of Spain. The capital of the prov. of Cadiz, it stands at the end of a narrow

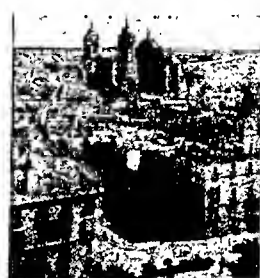
isthmus projecting 5 m. into the Bay of Cadiz, 95 m. by rly. S. of Seville. Approached by a single railway and one road, it owes its importance to its geographical position and fine natural harbour. One of the oldest ports and cities in the world, it is a naval station, a wireless telegraphy station, and a centre of art and industry. There are many public gardens and promenades, and a botanic garden. Cadiz has two cathedrals, a picture gallery, library and museum, hospitals, an observatory, theatres, and bull-ring. A watch tower, the Torre del Vigia, stands in the centre of the town. Pop. 77,717.

Founded by the Phoenicians, traditionally about 1100 B.C., Cadiz was by the 7th century B.C. a famous mart for tin, silver, and amber. The bay of Cadiz is an inlet of the Atlantic on the S.W. coast of Spain. It is divided into an inner and an outer bay.

CADMAN, SIR JOHN (b. 1877). British scientist. Born Sept 7, 1877, he was educated at Durham and became a mining engineer. For a time he was an inspector of mines, but, having been a member of a royal commission on the Persian oilfields, he left the public service to become a consulting engineer.

Soon recognized as a leading authority on oil, he was made petroleum adviser to the British Government and in 1926 chairman of the Anglo-Persian Co.

CADMIUM (Gr. cadmeia, ore of zinc). Metallic element. Its symbol is Cd, its atomic weight 112.4, and its atomic number 48. Its specific gravity is 8.6, and its melting point 600.6° F. (320.9° C.). In hardness cadmium comes between gold and tin. It is white with a bluish tinge, has a compact, fibrous texture and a strong lustre, and will take a high polish. In appearance it is similar to tin, of crystalline structure. The only known native



Cadiz. Showing the 13th century cathedral and Cadiz Bay beyond

compound or ore proper is a sulphide of the metal. It is found chiefly in Bohemia and Pennsylvania and is recovered industrially as a by-product of the production of zinc. Cadmium has a limited use in the preparation of fusible alloys and pigments.

CADMUS. In Greek legend, son of Agenor, king of Phoenicia. When his sister Europa was abducted by Zeus, Cadmus was sent by his father in search of her. After many adventures, and in obedience to the oracle at Delphi, he built the city of Thebes. He married Harmonia, daughter of Aphrodite. He and his wife were changed by Zeus into serpents and placed in Elysium. Cadmus was said to have introduced the Phoenician alphabet into Greece.

CADOGAN, EARL. English title borne since 1800 by a family of Irish descent. The 1st earl, William Cadogan (1675-1726), a soldier under William III and Anne, was made a baron and an earl in 1718. On his death the earldom became extinct, but the barony was inherited by his brother. The latter's son was made Viscount Chelsea and Earl Cadogan in 1800. The 2nd baron, Charles (1691-1776), married the daughter of Sir Hans Sloane, and thus brought into the family the valuable estates in Chelsea (q.v.).

George Henry, the 5th earl (1840-1915), was secretary for war 1875-78; for the colonies, 1878-80; lord privy seal, 1886-92; and lord-lieutenant of Ireland, 1895-1902. He died March 6, 1915.

CADORNA, COUNT LUIGI (1850-1928). Italian soldier. The son of Count Raffaele Cadorna, the leader of the Italian army that invaded the Papal States in 1870, he was born at Pallanza, Sept. 4, 1850. In 1914 he became chief of the general staff. When Italy, in May, 1915, entered the Great War, Cadorna was appointed commander-in-chief, but after Caporetto, 1917, he was superseded by Diaz. He then represented Italy on the military council at Versailles. He died Dec. 21, 1928. His memoirs, *The War on the Italian Front*, appeared in 1921.

CADOXTON. Town of Glamorganshire, Wales. It is 7 m. S.W. of Cardiff, on the G.W.R. Coal and iron are largely worked here. It has grown from a small village to its present dimensions owing to the opening of the Barry Docks. Pop. 7,065.

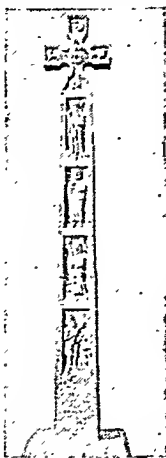


Caduceus. Bronze statue of Mercury, at Florence, holding the caduceus

CADUCEUS (Latinised form of Gr. *kērykeion*, herald's staff). In Greek mythology, the rod borne by Hermes, the messenger of the gods, as the symbol of his power. Two serpents were entwined round the lower end of it. With the caduceus Hermes conducted the souls of the dead to Hades. In modern times, as the symbol of Mercury, the Roman counterpart of Hermes and the god of commerce, the caduceus is sometimes adopted as the device of business houses.

CAECILIAN (Lat. *caecus*, blind). Worm-like amphibian belonging to the order

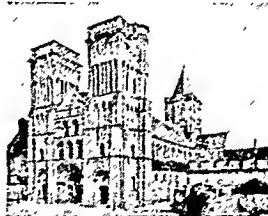
CAEDMON (d. c. 675). Anglo-Saxon poet. According to Bede, he was a labourer at S. Hilda's monastery at Whitby. He had a vision bidding him sing of the Creation, and thus inspired he composed verses, which Bede gives in Latin form. Caedmon on the advice of S. Hilda became a monk at Whitby, where he died. A 10th century MS., now in the Bodleian Library, contains a series of metrical paraphrases called *The Caedmon Poems*. They were discovered by Francis Junius, a friend of Milton, in 1655, and later criticism dates them in the main from the 9th century.



Caedmon. Memorial stone in Whitby churchyard

good accommodation for ships, is a fishing centre, and has a canal which, in addition to the navigable river, connects it with the sea. Caen stone: is quarried in the neighbourhood.

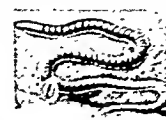
Caen is chiefly interesting historically for its connexion with William the Conqueror. Here is the church of S. Etienne, which once contained his body. The castle still stands, although there is not much of the original building. Caen possesses a small university, a town hall with a fine library, a palais de justice, a museum of antiquities, and gardens. Near the city is a racecourse. Caen proper is on the left bank of the Orne; the suburb of Vaucelles stands on the right. Pop. 53,743.



Caen. L'Abbaye-aux-Dames, built by Queen Matilda of England

CAERLAVEROCK. Coast parish of Dumfriesshire. It stands on the river Lochar, 6 m. S.E. of Dumfries. On the N. shore of Solway Firth, near the mouth of the Nith, stand the ruins of its old castle, for four centuries the seat of the Maxwells, earls of Nithsdale. Captured by Edward I in 1300, it was the original of Scott's Ellangowan.

CAERLEON. Urban dist. of Monmouthshire. It is on the river Usk, 2 m. N.E. of Newport, on the G.W.R. The ancient capital of Britannia Secunda (Wales) and one of the traditional capitals of King Arthur, it is famous both from its Roman and its British associations. It was the Roman *Isea Silurum*, and its legends are preserved in Tennyson's *Idylls of the King*. Much excavation work has been done, especially on the site of the Roman amphitheatre. Relics are in the museum, which in 1930 was made part of the National Museum of Wales. Pop. 2,285.



Caecilian, a worm-like amphibian

remains of an Edwardian castle. Pop. 36,893.

CAESAR. Cognomen of the great Julian family in Rome, which traced its descent

back to Iulus, son of Aeneas. Its most famous representative was the dictator Gaius Julius Caesar. The family name was borne by the emperor Augustus, as the adopted son of the dictator, and by later emperors who belonged to the family by descent or adoption, the last being Nero. Their successors, while reigning emperors, used the name as a title. The German Kaiser and the Russian Tsar are forms of the word.

CAESAR, GAIVS JULIVS (102-44 B.C.). Roman soldier and statesman. He was born at Rome July 12, 102 B.C., of aristocratic parents. He was the nephew of the great democratic leader, Gaius Marius, and this fact influenced Caesar in his support of the popular party. Entering military service, he was with the army in Asia in 81.



Caesar. Classic bust of Julius Caesar in the British Museum

After another spell of military service in the war with Mithradates Caesar returned to Rome and plunged into politics, as a consistent supporter of popular measures. In 68 he became quaestor in Spain, and in 65 curule aedile. His first wife having died in 68, Caesar in 67 married Pompeia, Pompey's cousin. The year 59, during which he held the consulship, was a memorable one for Caesar. Making common cause with Pompey, he formed with him and Marcus Crassus what is known as the First Triumvirate. He then desired a great military command with extensive powers, and the province of Gaul was allotted to him for five years, and at a later date for five years more. At the end of nine years he had conquered the whole of Transalpine Gaul. In 55 and 54 he invaded Britain.

By this time Caesar's successes had aroused a good deal of animosity, and in Rome Pompey, now thoroughly jealous, stood forward as his rival. His demands having been refused, Caesar crossed the Rubicon, the dividing line between Italy proper and the provinces, thus precipitating civil war. Elected consul for 48, he routed Pompey at Pharsalus on Aug. 9, and then became entangled in a war in Egypt. At that time he fell a victim to the charms of Cleopatra, who, it is said, bore him a son, Caesarion. Further victories over Pompey's forces in Asia Minor, Africa, and Spain preceded a period of power in Rome, where he was made dictator for ten years and then for life. His reforming zeal extended to many matters, including the calendar.

Under the leadership of Cassius a conspiracy was formed against Caesar on the ground that he was aiming at a tyranny, and the conspiracy was joined by several who honestly believed this accusation, notably Marcus Brutus, a personal friend of Caesar. The conspirators surrounded their victim in the senate house on the Ides (15th) of March, 44, and stabbed him to death. The blow of Brutus provoked from Caesar the words *Et tu, Brute* (Even thou, Brutus)! Caesar's commentaries on the Gallic war and on the Civil war are models of simple and clear writing. See Augustus.

CAESAREA. Ancient name of a town in Asia Minor, and of a ruined seaport of Palestine, both now called Kaisariyeh (q.v.), or Kayseri. The former was the earlier Mazaca, the capital of Cappadocia, and was named Caesarea when

Ophiomorpha Caecilians occur in S. Asia and Africa and in Central and S. America. They burrow in the ground, and only the larval stage is passed in the water.

it became Roman in A.D. 18. The latter was founded by Herod, 13 B.C., on the site of an earlier city.

Caesarea Philippi, an ancient city of Palestine, stands at the foot of Mt. Hermon. The ancient Panias or Banias, so called from its worship of Pan, Philip the Tetrarch re-founded it, building here a temple to Caesar Augustus and re-naming the city.

CAESARIAN SECTION. Removal of an infant from the body of the mother by opening the abdomen. The term is derived from the tradition that Julius Caesar made his entry into the world in this way. The operation is performed in cases where the mother has died but it is believed that the infant is still living. See Obstetrics.

CAESARION (47-30 B.C.). Supposed son of Julius Caesar by Cleopatra, originally called Ptolemaeus. He was executed by order of Augustus after her death.

CAESAR'S CAMP. Popular name given to several earthworks in S. England. Almost invariably pre-Roman, they may be round, as at Wimbledon, Surrey; or oval, as at Sandy, Bedfordshire. Another good example is at Eastbampstead, Berkshire. That on St. George's Hill, Weybridge, is incorrectly associated with Caesar's passage of the Thames.

CAESIUM (Lat. caesius, bluish grey). Alkaline metal. Its chemical symbol is Cs, its atomic weight 132.8, its atomic number 55, its specific gravity 1.88, and its melting point between 26° and 27° C. It was discovered by Bunson and Kirchhoff about 1860, by spectrum analysis. Caesium is silvery white in colour and soft at ordinary temperatures. Though extremely rare, the metal is widely distributed, and is generally found along with rubidium.

CAESURA (Lat. cutting). Metrical pause or rest in a verse, sometimes combined with a grammatical pause. In heroic verse especially its place can be varied to heighten effect and to avoid monotony of rhythm.

CAFFEINE. Alkaloid prepared from the dried leaves of *Camellia thea* (tea) and certain other plants. Caffeine stimulates the muscles of the heart, and increases the rate of the heart beat, thus forming a useful drug in certain forms of heart disease; it increases the flow of the urine, acts as a stimulant to the nervous system, and it is used in cases of dropsy. The dose of caffeine is 1 to 5 grs., of citrate of caffeine 2 to 10 grs., and of effervescent citrate of caffeine 60 to 120 grs.

CAGLIARI (anc. Carales). City and seaport of Italy, the capital of Sardinia. In the middle of the S. coast on the gulf of Cagliari, it is connected by rly. with the chief towns in the island. The old town lies on a hill 300 ft. high, and the modern one on level ground surrounding the harbour. The cathedral dates from the 13th, and the university from the 16th and 18th centuries. It has a Phoenico-Roman necropolis, Roman amphitheatre, Punic and Roman tombs and other remains of antiquity. Cagliari is the trade centre of the island. Pop. 94,902.

The Italian painter Paul or Paolo Veronese (q.v.) is sometimes called Paolo Cagliari.

CAGLIOSTRO, COUNT ALESSANDRO (1743-95). Italian charlatan, whose real name was Giuseppe Balsano. From Rome, where he married the beautiful Lorenza Feliciani, he set out with his wife on a tour through

Europe, fleeing fashionable society as an adept in medicine, alchemy, and the cabalistic and necromantic arts and as a vendor of love philtres and elixirs of youth. In 1785 he became involved in the affair of the Diamond Necklace and was imprisoned in the Bastille. After his release he came to London, and, proceeding later to Rome, was condemned to death in 1789 for establishing an Egyptian order of freemasonry. The sentence was commuted to imprisonment for life, and he died in the fortress of San Leone, Aug. 26, 1795.



Count Cagliostro,
Italian charlatan
After Bartolozzi

CAHER or **CAHR** (stone fort). Market town of co. Tipperary, Irish Free State. It stands on the Suir, 11 m. by rly. W. of Clonmel, on the Gt. Southern Rlys. Caher Castle, on a rock in the Suir, was founded in 1142. Market day, Friday. Pop. 1,709.

CAHORS. City of France, capital of the department of Lot. It stands on a peninsula formed by the river Lot, 70 m. N. of Toulouse, on the rly. to Limoges. The Romano-Byzantine cathedral was begun in the 11th century. Other buildings are the church of S. Ursus, remains of the palace of Pope John XXII, a native, and the Barbacane of the 15th century. There are an old town and a new town, divided by a boulevard, and the city is connected with the other side of the river by three bridges, of which the Pont Valentré is the finest fortified medieval bridge in the country. The château, or logis, du roi is now used as a prison. Its university was amalgamated with that of Toulouse in 1751. Pop. 11,866.

CAILLAUX, JOSEPH PIERRE MARIE AUGUSTE (b. 1863). French politician. Born at Le Mans, he was elected to the Chamber as deputy for Sarthe in 1898, retaining the seat until 1919. Minister of finance in four ministries, 1899-1902, 1906-08, 1911, and 1913-14, he was prime minister in 1911-12. He resigned in March, 1914, when attacks in *Le Figaro* by G. Calmette ended in the murder of the journalist by the wife of Caillaux. In 1918 he was arrested on the charge of having worked against the security of the state. After more than two years in prison, he was tried before the Senate in Feb., 1920, and found guilty on the minor charge of holding relations with the enemy. He was sentenced to three years' imprisonment, but was at once released. Caillaux was minister of finance for a short period in 1925 and again in 1926.



Joseph Caillaux,
French politician

CAIMAN or **CAYMAN.** Group of alligators found in Central and S. America. Of the five known species the commonest is the black caiman, about 14 ft. long; the others being much smaller.



Caiman. Rough-eyed caiman of South America

CAIN. First-born son of Adam and Eve (Gen. 4; Heb. 11; 1 John 3). According to the author of Genesis, he killed his brother Abel in a fit of jealousy, was banished as a fugitive and wanderer, and founded the first city, which he called Enoch after his son. A Jewish tradition states that he was accident-

ally killed by his descendant Lamech, the father of Jubal and Tubal-cain. Cain (R.V. Kain) is also a city of Hebron (Josh. 15).

CAINE, SIR THOMAS HENRY HALL (b. 1853). British novelist. Born at Runcorn, Cheshire, May 14, 1853, of Manx and Cumberland parentage, he was trained as an architect, but became a journalist. As a novelist, he attracted notice by *The Deemster*, 1887, followed by *The Bondman*, 1890; *The Scapegoat*, 1891; and *The Manxman*, 1894, books which threw light on many Manx customs and superstitions. Of his later works, *The Christian*, 1897, *The Eternal City*, 1901, and *The Prodigal Son*, 1904, became widely popular, and many of his novels have been dramatised and filmed. He also wrote *Recollections of D. G. Rossetti*, 1882 (new and enlarged version, 1928), and *The Drama of 365 Days, Scenes in the Great War*, 1915. He was knighted, 1918.



Sir Hall Caine,
British novelist
Russell

His elder son, Gordon Ralph, was Conservative M.P. for East Dorset, 1922-29, and, Derwent, his younger son, was elected Labour M.P. for a division of Liverpool in 1929.



Cairing or pilot whales which have followed their leader and have been stranded when the tide has run out

CA'ING or **PILOT WHALE.** (*Globicephalus melas*). Species of dolphin, known also as the blackfish, met with in great schools throughout the temperate seas. If the leader happens to run ashore and get stranded, the whole school usually follows suit. See Whale.

CAIRD, EDWARD (1835-1908). British philosopher. Born at Greenock, March 22, 1835, he was educated at Glasgow University, St. Andrews, and Balliol College, Oxford. He became fellow of Merton, 1864, and professor of moral philosophy at Glasgow, 1866. In 1893-1907 he was master of Balliol. He died at Oxford, Nov. 1, 1908. A pronounced Hegelian, in philosophy he was a critical idealist, who endeavoured to find in Kant the origin of the ideas which were later developed by Hegel.



Edward Caird,
British philosopher
Ellis & Fry

Caird's brother, Rev. John Caird (1820-98), was principal of Glasgow University, 1873-98.

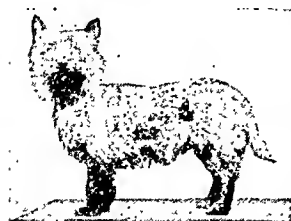
CAIRN (Celt. cairn, heap). Pile of mound of stones. The purpose may be memorial, as



Cairn. Section of the cairn at Camster, Caithness, showing passage 20 ft. long and chamber 10 ft. high the witness-cairn of Jacob's compact with Laban (Gen. 31), or the prince's cairn on Lochnagar, Scotland. In archaeology the word denotes a sepulchral mound of unmortared stones, as distinct from an earthen barrow.

CAIRNGORM. Mt. of Scotland. It is on the borders of Inverness-shire and Banffshire, 12 m. N.W. of Braemar, alt. 4,084 ft. A summit of the Cairngorm group of the Grampians, it is mostly snow-capped, and produces topazes and Cairngorm stones, a variety of quartz, yellow brown to dark brown, and nearly opaque, much used in Highland jewels. They are also found in Switzerland and Colorado, U.S.A.

In 1929 it was proposed to make the Cairngorms into a national park for Scotland.



Cairn Terrier. Small sporting dog originally bred for hunting foxes

our may be sandy, grey, brindle, or nearly black. The cairn is useful as a sporting dog and also for the house. A fair average weight is 14 lb. The name comes from the fact that the dogs were used to drive foxes out of cairns of rock into which larger dogs could not go.

CAIRNS. Seaport of Queensland, Australia. On Trinity Bay, 890 m. N.W. of Brisbane, it is the terminus of a rly. to the gold, copper, tin, and silver mines of Chillagoe and district. It has a good harbour (Trinity Inlet), and exports minerals, timber, coffee, etc. Pop. 9,500.

CAIRNS, HUGH MACCORMACK CAIRNS, 1ST EARL (1819-85). British lawyer and statesman. Born in co. Down, of Protestant stock, at the age of 25 he was called to the English bar, and from 1852-66 was Conservative M.P. for Belfast. He was solicitor-general in 1858, attorney-general in 1866, and lord justice of appeal in 1867. Created Baron Cairns in 1867, he was lord chancellor in Disraeli's ministry in 1868, and again 1874-80. He was created Earl Cairns in 1878, and died April 2, 1885.



Hugh Cairns, 1st Earl Cairns

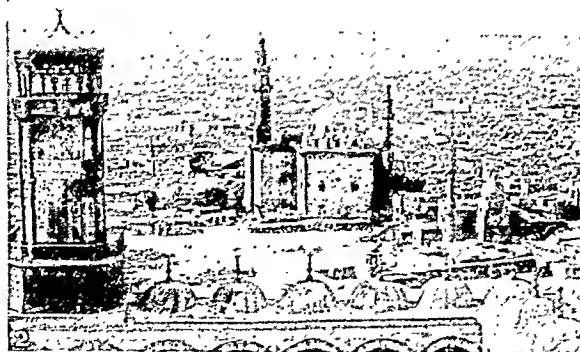
CAIRO. Capital of modern Egypt and the largest urban centre in Africa. It lies on the right bank of the Nile, between that river and the Ismailia Canal. Pop. 1,064,567.

In the Middle Ages Cairo was the residence of the caliphs and the chief centre

of Saracenic art. More than 250 mosques attest the splendour of the medieval city. The mosque of El-Azhar, originally built by

Gobar, now a university and largely rebuilt, contains many examples of Arabic art. The most ancient Mahomedan building is the mosque of Amru, in Old Cairo (Masr-el-Atika). Notably beautiful mosques are that of El-Hakim (begun about 990), the mosque and tomb of Kalaun (1288), the mosque of Ak-Sunkur (1347), covered with blue and green porcelain tiles, the mosque of Sultan Hasan (1358), and that of El-Muayyad (1412). Other interesting old buildings are the citadel, built by Saladin in 1166 from stones brought from the small pyramids at Gizeh; the Bâbel Nasr and Bâbel-Futuh gates; the Coptic churches, including the cathedral of S. Mark; the Arabian Museum; the Sultania Library, and the Tombs of the Caliphs outside the city.

The medieval city was divided into the Christian or Coptic, the Jews', and the "Frank" quarters, shut off from each other by gates. Modern Cairo is now virtually one city, with special European districts. The modern portion, Ismailia (Ismailiyeh), lies W. of the Oriental part, near the banks of the Nile, and is built on European lines, in striking contrast to the native quarter, with its tortuous and narrow streets and overhanging houses. Grouped around the Esbekia Gardens (20 acres), the centre of the foreign community, are fine hotels and villas. Notable



modern buildings include the Government buildings, the Museum of Egyptian Antiquities, the British Consulate, the Exchange, and the Abdin Palace. The Gezira (island) contains the palace built by Ismail (now an hotel) and the grounds of the Sporting Club. To the W. is a racecourse.

Besides being the railway centre of Egypt, Cairo is the distributing centre for Egypt and a trading centre of goods from the Near and Far East, the Sudan, and

Upper Egypt. It is further noted for its jewelry industry.

In Dec., 1919, the All-British air route from



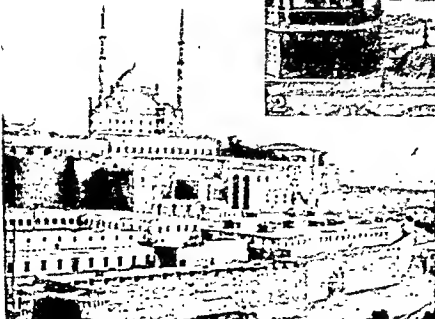
Caithness. The most northerly county of Great Britain, noted for its fisheries. In the extreme N.E. is the famous John o' Groat's House. See below

Cairo to Cape Town became available for traffic. There is a fortnightly air mail service between Cairo and Mesopotamia, as well as a wireless service between Cairo (Abu Zabal) and Oxford (Leafield). See Egypt.

CAISSON (Fr. caisse, a chest). Chamber of wood, concrete, or metal with water-tight walls, used for making foundations under water, or for sinking large shafts. It has a cutting edge at the bottom if intended to be sunk into the ground. Caissons for subaqueous use are made somewhat deeper than the water at the site, floated into position, and sunk. If the cutting edge enters firm clay at all points, the water can be pumped out and the ground excavated. Usually, however, an airtight horizontal floor 7 ft. or 8 ft. above the bottom edge is constructed, and air-pressure used to exclude water. When sinking is complete, the caisson is filled with masonry or concrete. Shaft caissons are erected on the site, and sunk by excavation at the bottom and by adding to the top. Caissons of another type are used in place of doors to close the entrances to docks. See Air; illus. p. 338.

CAITHNESS. Maritime county of the Scottish mainland. Bounded N. by Pentland Firth and E. by the North Sea, it has about 75 m. of generally rugged coast, and an area of 685.7 sq. m. Duncansby Head, to the W. of which is the site of John o' Groat's House, and Dunnet Head are the most prominent land projections. The Thurso is the chief river. Its fisheries are among the most important in Scotland. Wick is the county town, other towns being Thurso, Castletown, and Lybster. Caithness unites with Sutherland to return one member to Parliament. Pop. 24,700.

CAITHNESS FLAGS. This is the name given to the middle division of the Old Red Sandstone of N. Scotland, well developed in Caithness. It consists of dark grey bituminous and calcareous flagstones, largely quarried for paving purposes, and famous for the number and perfect preservation of fossil fish remains. The flags attain a thickness of over 11,000 ft.



Cairo. 1. The Citadel, built by Saladin in 1166. 2. General view, showing the mosque of Sultan Hasan

CAIUS OR KAYES, JOHN (1510-73). English physician. Born at Norwich, Oct. 6, 1510, he was educated at Gonville Hall, Cambridge. Having taken his M.D. at Padua, he was appointed anatomical lecturer to the London company of surgeons, and afterwards physician to Edward VI, Mary, and Elizabeth. Caius obtained permission, 1557, to refound Gonville Hall as the college of Gonville and Caius, to which he left his estate. He died July 29, 1573. The name is pronounced Keys



John Caius,
English physician

CAJEPUT (Molaleuca leucadendron). Evergreen tree of the order Myrtaceae. A native of the Malay region, it has lance-shaped leaves and white flowers produced in spikes. From its leaves is distilled a blue-green oil which has a strong agreeable odour and a warm aromatic taste. It is of value in medicine as a general stimulant, antispasmodic, and diaphoretic. The tree annually sheds its bark, which is used



Cajeput. Leaves and flowers of this evergreen tree

for making canoes, shields and the roofing of huts.

CALABAR. Town of Nigeria, on the left bank of the Calabar river. Called Duke Town until 1904, it was officially known as Old Calabar, to distinguish it from New Calabar, the name of a river and port about 100 m. to the E. Calabar has a good harbour and engineering and ship-building industries. The Calabar river joins the Cross and other rivers to form the Calabar estuary. Calabar was the name given by the Portuguese in the 15th century to the tribes of this part. Pop., including Creek-town, 15,000.

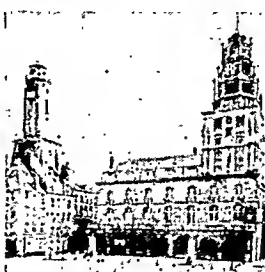
CALABAR BEAN. Seed of *Physostigma venenosum*. A kidney-shaped bean, about 1½ inches in length, it contains an alkaloid, physostigmine or eserine, the sulphate of which is used in glaucoma and other diseases of the eye. It is also used in cases of tetanus or lockjaw. The bean is poisonous.

CALABASH OR BOTTLE-GOURD (*Crescentia cujete*). Evergreen tree of the order Bignoniaceae. A native of tropical America, it has bell-shaped, tubular flowers variegated with green, purple, red, and yellow. The fruits are globular or slightly oval, with a hard shell-like rind, containing many large, almond-shaped seeds embedded in a sub-acid pulp. The latter is used as a purgative and, after roasting, as a poultice. The shells serve for water bottles, cups, pails, basins, often carved and polished. The Calabash Nutmeg (*Monodora myristica*) is a small tree of the order Anonaceae, a native of tropical Africa. The fruit is globular, with a hard rind, and contains a number of seeds not unlike nutmegs.

CALAIS. Seaport of France, in the dept. of Pas-de-Calais. On the Strait of Dover, 18 m. E. by S. of Dover and 185 m. by rly. N. of Paris, it consists of an old town on an

island, formed by the harbour and canals, and of the surrounding suburbs. Calais is one of the chief ports for the traffic between England and France.

Calais was in the hands of the English from its siege by Edward III in 1347 until its loss under Mary. Its modern prosperity began with the introduction of the lace manufacture early in the 19th century and the increasing intercourse with England. In the Great War it was an Allied base, and underwent many bombardments by enemy aircraft. Pop. 71,629.



Calais. The Hôtel de Ville and, left, the 15th cent. lighthouse

CALAMANDER WOOD. Timber of a large tree (*Diospyros quacita*) belonging to the order Ebenaceae. A native of Ceylon, the Cingalese use it in the manufacture of very beautiful furniture, but its hardness (it is allied to ebony) makes it difficult to work.

Calamary (*Loligo vulgaris*). Variant name of the squid (q.v.).

CALAMINE (late Lat. *calamina*, Gr. *cadmeia*). An ore of zinc. Calamine proper, the carbonate, is granular in texture, dirty white in colour, often deepening into yellow, grey, green, or brown, and of a vitreous, pearly lustre. It is usually found in stalactitic masses and in calcareous rocks, chiefly in Belgium and Germany. The zinc silicate ore is similar in many respects to calamine. In the form of ointment or lotion, calamine is a mild astringent in certain skin diseases. See Zinc.

CALAMINT (*Satureia calamintha*). A labiate herb with an aromatic smell resembling that of mint. Basil thyme (*S. acinos*) is a related species.

CALASH (French *calèche*, Polish *kolaska*, carriage). Term formerly applied to a light four-wheeled carriage often fitted with a folding hood. In Canada it denotes a two-wheeled carriage. The word came to be applied to the hood only, and hence to a woman's head covering made of silk and whalebone.

CALATRAVA. Ruined stronghold of Castile, Spain, on the Guadiana, 12 m. N.E. of Ciudad Real. It gives its name to the order of Calatrava, which originated amongst the knights who, in 1147, recovered the city from the Moors and defended it against them in 1158. It received its first statutes in 1164. The badge is a red cross with fleur-de-lis, and the ribbon is red.

CALAURIA (mod. Poro). Island in the Gulf of Aegina, off the E. coast of the Morea, Greece. Here, in 1828, the ambassadors of England, France, and Russia settled the government of the new kingdom of Greece.

In Calauria was the temple of Poseidon, famous as a sanctuary, where Demosthenes killed himself, and within the precincts of which he was buried (322 B.C.). Excavations in 1894 revealed remains of this temple and of other sacred buildings.

CALAVERAS. River of California, U.S.A. It rises among the foot-hills of the Sierra Nevada, a mountain chain running along the E. border of Calaveras co., and flows in a S.W. direction for 120 m., when it joins the San Joaquin river.

A human cranium found in 1866 in Calaveras county was alleged to have come from undisturbed gravels, 130 ft. deep. The Calaveras Skull was accepted by Josiah Dwight Whitney and others as evidence of American man in Pliocene times, but this and similar skulls and their associated implements were shown to be typical of modern aboriginal tribes. See Anthropology: Man.

CALCEOLARIA

(Latin *calceolus*, small shoe). Plants of the natural order Scrophulariaceae. The best-known kinds are hardy shrubs, natives of S. America, with flowers yellow, red, and brown. They are cultivated as half-hardy or greenhouse plants, propagated from cuttings, and form a prominent feature in summer bedding.

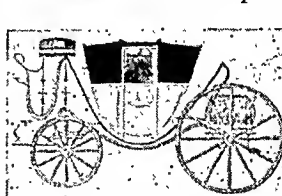


Calceolaria. A favourite flowering shrub for exhibition purposes

CALCHAS. Famous soothsayer who accompanied the Greeks during the Trojan war. He foretold the wrath of Apollo, and from the number of a flight of sparrows the length of the war. Later legend associates him with the wooden horse. He died of grief or committed suicide after being proved inferior as a soothsayer by Mopsus, son of Apollo.

CALCINATION (Lat. *calx*, lime). Process by which carbonic acid, water, sulphur, or other volatile constituent of an ore is expelled by the agency of heat. The term is often used as synonymous with roasting, but there is an important distinction. Calcination is effected by heat alone; roasting calls for air, to maintain the combustion of any fuel that may be used, whether contained in the ore or added, and also for oxidising one or more constituents of the ore. See Metallurgy.

CALCITE OR CALC-SPAR. Natural carbonate of calcium. When perfectly transparent it is known as Iceland spar, and is used, on account of its property of strong double refraction, in the manufacture of optical instruments, especially Nicol's prisms. It is found commonly in veins associated with sulphidic ores of lead and zinc, or with barium-sulfate. See Aragonite.



Calash. An early example of this light four-wheeled carriage

CALCIUM (Lat. *calx*, lime). Elementary metal, the base of one of the alkaline earths. Its chemical symbol is Ca; its atomic weight 40.07; its atomic number 20; its specific gravity 1.548; its melting point 810° C. In hardness it compares with gold, and is very ductile. Calcium never occurs native, but in its compounds it is widely distributed, and forms a very large portion of the known earth's crust. In the form of calcium carbonate it occurs nearly everywhere as marble, calcite, chalk, coral reefs, or limestone rocks; it is found in the sea and in nearly all river waters and all mineral springs; while shells are almost entirely composed of it. It is used in research and analytical work and in the preparation of pure chemicals.

CALCIUM CARBIDE (CaC_2). This is used for the generation of acetylene. It is made by heating in an electric furnace a mixture of

quicklime and coke, when the carbon of the coke combines with the quicklime. The unpleasant smell of calcium carbide is due to the slow evolution of acetylene from the action of moisture in the air. See Acetylene.

CALCIUM CYANAMIDE. This is an artificial nitrogen manure (CaCN_2), made by causing calcium carbide to unite with nitrogen in the electric furnace. Calcium nitrate or Norwegian saltpetre, another artificial manure, contains about 13 p.e. of nitrogen. It is made by allowing electrically prepared nitric acid to act on limestone. Both these manures are used as substitutes for nitrate of soda.

CALCREOSE. Combination of creosote and lime. It is claimed for this drug that, while fulfilling the functions of creosote when taken internally, its action is less violent. It is a dark brown powder.

CALCULUS. In medicine, a solid concretion occurring in an organ or tissue of the body. Calculi are most frequently found in the kidney and gall bladder, though they may occur in the liver, intestines, and elsewhere. In the kidneys, calculi are most frequently associated with gout. They may be formed of uric acid, urate of ammonium, calcium oxalate, and phosphates, or mixtures of these.

CALCUTTA. City of India, capital of the province of Bengal. Formerly the capital of the Indian Empire and the official residence of the viceroy, it extends for 6 m. along the left bank of the Hooghli. On a navigable river, 86 m. from the sea, it is the gateway and emporium of the rich valleys of the Ganges and Brahmaputra, with which it is linked up by rlys. and waterways.

The aggregate area of Calcutta and its three suburbs, Cossipur, Chitpur, Maniktala, and Garden Reach, is 42 sq. m. Greater Calcutta, inclusive of Howrah, an important industrial centre on the opposite bank of the Hooghli, has a population of 1,327,547.

Of the total area, 1,283 acres make up the enclosure occupied by Fort William and the Maidan, the latter a wide open space S. of the business quarter, between the river and Chauringhi road. East of the business quarter is the European residential quarter, with the native town all round. In the Maidan are several monuments, and round it are some of the most notable buildings. On the N. side is Government

House, now the residence of the governor of Bengal, with the town hall and the High Court between it and the river; on or near the E. side are the principal hotels, the United Service and Bengal clubs, and the Imperial Museum; to the S.E. lies S. Paul's Cathedral, and due S. the race-course. Across the Lower Circular road are a group of hospitals, and farther on, S. of Tolly's Nala, are the Zoo and the logical Gardens. A large part of the western side of the Maidan is taken up by Fort William, around which Calcutta has grown. Between the Fort and the High Court are the Eden Gardens.

The original Fort, named after William III, was built in 1702, and occupied a site 2 m. to the N. It was in a lock-up cell in this fort that

the tragedy of the Black Hole (q.v.) of Calcutta was enacted. In 1757 the foundations of a new fort were laid on the present site. The building, completed in 1773, is an irregular octagon with a moat. There are six gates.

Calcutta is connected with Howrah by a number of ferries and by a pontoon bridge. On the right bank of the Hooghli, in addition to many industrial undertakings, are the Botanical Gardens (opposite Garden Reach, the southernmost suburb).

Among other buildings of note may be mentioned the Victoria Memorial Hall, the Economic Museum, the Mint, the Roman Catholic cathedral, and the General Post Office. The university, founded in 1857, serves the state of Bengal. It consists of several colleges in the city and elsewhere.

The Turf Club of Calcutta organizes the famous sweepstake on the Derby, the prizes in which amount to over £500,000.

Calcutta Cup. Trophy awarded each year to the winner of the Rugby football match between England and Scotland.

CALDECOTT, RANDOLPH (1846-86). British artist. Born March 22, 1846, in 1872 he began to draw for *The Graphic*, *Punch*, and other periodicals. He made a great hit as an illustrator of books with Washington Irving's *Old Christmas*, 1875; and *Bracebridge Hall*, 1876. Caldecott produced a series of coloured books for children, beginning in 1878 with *John Gilpin* and *The House That Jack Built*. The last two books were *The Great Panjandrum Himself* and *Elegy on Madame Blaize*. He died in Florida, Feb. 12, 1886.

CALDER. River of Lancashire and Yorkshire. Rising to the S. of Burnley, it flows 45 m. E. of the Aire, which it joins close to Castleford. It is utilised for the canal system known as the Aire and Calder Navigation. See Aire.

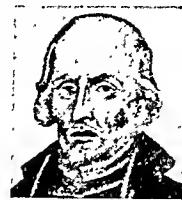
CALDER. Villages of Midlothian. On the Almond, 11 m. S.W. of Edinburgh by the L.M.S. Rly., Mid Calder has mineral-oil and chemical industries. East Calder and West Calder, having coal and ironstone mines, are contiguous villages. Pop. 3,207.

CALDERA. Seaport of Chile, in the prov. of Atacama. On Caldera Bay, it is the terminus of the rly. to Copiapó, the first built

lying at anchor in the bay when two torpedo boats of the other faction steamed in. One fired a torpedo, sinking the larger vessel, with 300 of her crew, in a few minutes.

CALDERON, PHILIP HERMOGENES (1833-98). British painter. Born at Poitiers, France, May 3, 1833, he came to London in 1841, and first exhibited at the R.A. in 1853. His chief works were *Broken Vows*, 1857; *Catherine of Aragon* and *her Women at Work*, 1862; *Her Most High, Noble, and Puissant Grace*, 1866; and *S. Elizabeth of Hungary*, 1891, now called *The Renunciation*, one of the Chantry pictures in the Tate Gallery. Elected A.R.A. in 1864, R.A. in 1867, he was made keeper of the Academy in 1887. He died April 30, 1898.

CALDERON DE LA BARCA, PEDRO (1600-81). Spanish dramatist. Born in Madrid, Jan. 17, 1600, he studied for six years



Calderon de la Barca, Spanish dramatist

at the university of Salamanca, and served for some time with the Spanish army in Italy and Flanders. He was already high in favour as a dramatist with the king and the public in 1636 when a volume of his plays was published. In 1640 Calderon took part in the Catalan campaign, but left the army in 1642. In 1650 he joined the third Order of S. Francis, and in 1651 was ordained priest and given charge of a Madrid parish, and in 1653 became prebendary of Toledo. In 1663 he was appointed chaplain to Philip IV. He died May 25, 1681.

Of Calderon's voluminous writings 118 dramas and 72 autos have been preserved. As a writer of the essentially Spanish auto, sacred allegorical drama, he is supreme, while as a dramatist he stands on a lower plane than his predecessor, Lope de Vega. There are English versions of his more notable plays.

CALDEY. Island off the S. coast of Pembrokeshire. It is 3 m. from Tenby, and with the adjacent St. Margaret Island covers 472 acres. There is a lighthouse on Caldey. The island has a modern abbey that belonged to a Benedictine community founded in 1896 by members of the Church of England who were received into the Roman Catholic Church in 1913. In 1928 the Benedictine monks left Caldey and Cistercian monks from Belgium made their home thereon.

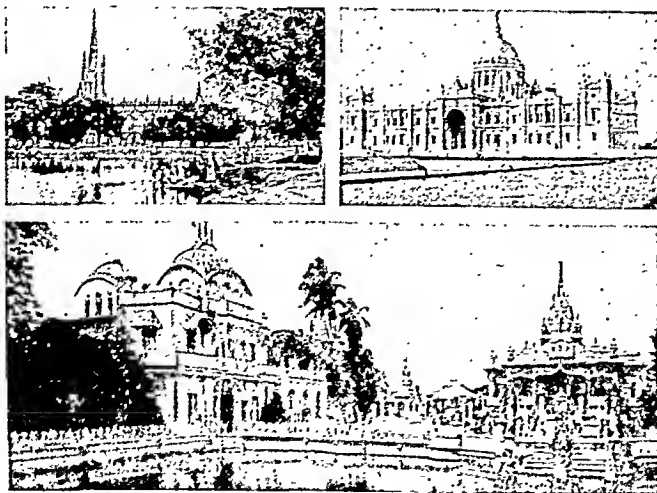
CALEB. Son of Jephunneh, of the tribe of Judah. He was sent by Moses with Joshua to spy out the promised land and received Hebron as his inheritance (Num. 13 and 14; Deut. 1; Josh. 14).

CALEDON. Town of Cape Province, South Africa, in Caledon district. It is 87 m. by rly. S.E. of Cape Town on the Zwartberg, 750 ft. high, and is noted for its thermal and mineral springs. Pop. 3,499.

The river Caledon, in South Africa, rises in Mont-aux-Sources in the Drakensberg, and flows about 220 m. S.W., passing between Basutoland and the Orange Free State to the Orange river near Bethulie. It has two main feeders, the Great and Little Caledon.

The Irish title earl of Caledon has been borne by the family of Alexander since 1800. In the 17th century the Alexanders owned land in co. Londonderry. Du Pré Alexander, the 2nd earl, was in 1806 the first British governor of the Cape of Good Hope.

Caledonia. Roman name for Britain N. of the firths of Forth and Clyde, now used poetically for Scotland. See Britain.

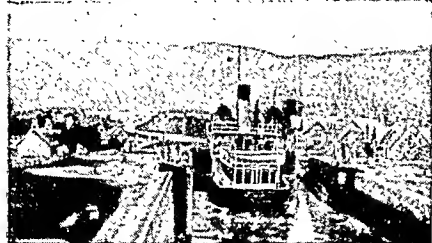


Calcutta. Above: left, S. Paul's Cathedral; right, the Victoria Memorial in the N.E. corner of the Maidan. Below, Badri Das temple of the Jains

in S. America. Here minerals of the district are shipped. Pop. 2,500.

Caldera Bay is famous for an incident in the Chilean civil war of 1891. On April 13, at night, the ironclad Blanco Encalada was

CALEDONIAN CANAL. Waterway of Scotland. Extending for 60½ m. along the Great Glen from Moray Firth to Loch Linnhe, it is formed by the union of Lochs Ness, Oieh, Loehy, and Dochfour, and 23 m. of



Caledonian Canal. The locks at Fort Augustus, where the canal enters Loch Ness from the South
Valentine

artificial cuttings, and is navigable by ships of 600 tons. There are 28 locks, each 160 ft. long, 38 ft. broad, and 15 ft. deep; they begin at Corpach in a series of eight, known as Neptune's Staircase. Opened 1822, the canal was not completed until 1847.

CALEDONIAN MARKET. One of the largest cattle markets in the world. Officially known as the Metropolitan Cattle Market, and situated between York Road and Caledonian Road, Islington, London, it occupies land formerly known as Copenhagen Fields, bought by the City Corporation in 1852. The market superseded the old market at Smithfield, and was opened by the Prince Consort in 1855.

Principal market days, Mon. and Thurs. On Tuesdays and Fridays a pedlars' market for household goods and ornaments is held.

Caledonian Railway. Former Scottish rly. company, now merged in the L.M.S.

CALENDAR (Lat. *calare*, to summon; *calendarium*, account book). Systematic division of the year into months, weeks, and days. A year is the time occupied by the earth in making one complete revolution round the sun. The sidereal year is the time between two successive conjunctions of the sun with a fixed star, the solar or tropical year is the period between two successive passages through the vernal equinox. The mean sidereal year is 365 days, 6 hours, 9 mins., 9 secs.; the mean solar year 365 days, 5 hrs., 48 m., 46 secs.

The chief calendar of Christendom is the Roman (Julian and Gregorian); there are also Chinese, Jewish or Hebrew, and Mahomedan calendars, all with a year of twelve months, and special calendars such as that of the French Revolutionary period and that of Comtism. In 1929 Russia announced a new calendar. In this the week consists of 5 days and the month of 6 weeks, giving a year of 360 working days and five holidays.

The word calendar is applied to the almanac or to lists or tables of exercises, observances, or dates of events, e.g. church, university, legal, and racing calendars. See Easter.

CALENDS OR KALENDS (Lat. *Kalendae*). At day of the ancient Roman month. To undertake to pay a debt at the Greek Calends undervalued the equivalent of an intention was pay at all, there being no Calends in not to system of measuring time.

CALGARY. City of Alberta, Canada, on the Bow River.

CALGARY. City of Alberta, Canada, on the Bow River. The largest and the Bow of the province, it is a junction on the oldest cities of the C.P. and C.N. Rlys. An the main trading centre for the surrounding important mining districts, a manufacturing and machinery. There factories flour, etc. It is a city on the are large rly. works, Police and the Royal Canadian Mounted Police. irrigation system. headquarters of the C. Bow Island, and Natural gas is piped from Bow River. electric power is developed from Bow River. Pop. (1926) 65,513.

CALICHE. Name given to impure sodium nitrate (NaNO_3) or Chile saltpetre. From caliche the world's supply of sodium nitrate is obtained, and the deposits of this substance only occur in N. Chile, the caliche beds of Tarapaca province being the most important.

CALICO. General term for plait white cotton cloth. The word is derived from the once famous cotton-weaving and printing city of Calicut, in India, which in the 16th century shared with Goa the carrying trade between India and Europe. Formerly any kind of cotton cloth imported from the East was called calico. Until 1773 calicoes had linen warps. In a charter of 1640 calico was listed among the linens as calico lawn, a grouping which led to the controversy, mentioned by Pepys in his Diary, between the East India Company, who insisted that calico was cotton, and the collectors of the additional duty, who maintained it was linen. In Great Britain the term calico is used specially for household cotton cloth. See Cotton.

CALICUT. Seaport of India, in the Malabar dist of Madras, 6 m. N. of Beypur. The Portuguese explorer Pedro de Corvillão landed here, 1487, and was followed by Vasco da Gama in 1498. Connected by rly. with Madras, it is now an important seaport. The calico which was largely made here, and took its name from the town, is no longer made. It became British in 1792. Pop. 82,334.

CALIFORNIA. Maritime state of the U.S.A., known as the Golden State. It has about 1,000 m. of coastline, an area of 158,297 sq. m., and a pop. of 5,398,457.

California is rich in minerals, including gold, silver, copper, quicksilver, lead, and coal. The state is one of the three most important petroleum producers in the Union. Among prominent industries are petroleum refining, canning and preserving, meat-packing, and lumbering. Los Angeles is in the state. Sacramento is the capital and San Francisco the chief seaport.

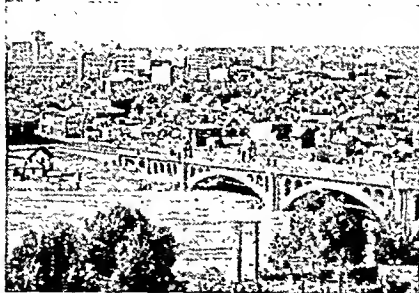
Lower California, or Baja California, is a peninsular territory of Mexico. It extends about 750 m. between the Pacific Ocean and the Gulf of California, and covers 58,338 sq. m. La Paz is the capital. Pop. 62,831.



Californian poppy, North American perennial

California Plateau is the name given to rising ground in the dept. of Aisne, France, just S. of Craonne at the terminus of the Chemin des Dames. Heavy fighting occurred here in the various battles of the Aisne (q.v.). The Germans made a terrific attack on it in the summer of 1917, and again in May, 1918.

CALIFORNIAN POPPY (*Eschscholtzia californica*). Perennial bushy herb of the order Papaveraceae. A native of N.W. America, it



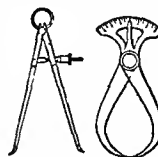
Calgary, Alberta. Panorama of this large Canadian city, which is virtually the growth of only thirty years has bright yellow four-petalled flowers, which are succeeded by long seed pods. In gardens it is treated as an annual.

CALIGULA (A.D. 12-41). Roman emperor, A.D. 37-41. The son of Germanicus and Agrippina, his real name was Gaius Caesar, Caligula being derived from the caligae or soldiers' boots, which he wore as a boy with the army in Germany, where he was brought up. The first few months of his reign promised well, but a serious illness left him a changed man. The rest of his reign is a record of extravagance, cruelty, and caprice, which can scarcely be explained except on the supposition that he was insane. At last a conspiracy was formed against the crazy tyrant, and he was murdered by Cassius Chaerea. See Nemi, Lake.



Caligula, Roman Emperor

CALIPERS (corruption of *calibre*). Instrument with two legs or jaws for measuring the inside or outside dimensions of shafts, cylinders and other circular objects. Ordinary calipers are used in conjunction with a foot rule.



Calipers. Left, for measuring inside, and right, for exterior, dimensions

CALIPHATE (Arab. Khalifah). Name given to the office held by the caliph or official head of Mahomedanism or Islam. The caliph was therefore the successor of the prophet, and his empire was known as the Caliphate. The name means successor.

When Mahomet died (June 8, A.D. 632) his followers chose as the first caliph Abu-Bekr (q.v.), the father of his favourite wife. The second was Omar, and the third Othman. When Othman, a son-in-law of Mahomet, was killed in 656, the succession was disputed, one party claiming it for Ali (q.v.), cousin of Mahomet and husband of his daughter Fatima. From that time there has been always a sect or section of the Mahomedan world (called Shiites) who have denied the orthodox or Sunnite succession.

The caliphate at Bagdad was overthrown in 1256, but the Mamelukes kept a puppet Abbasside caliph till the conquest of Egypt by the Ottomans in 1517, after which the succession was assumed by the Turkish sultans.

In Nov., 1922, it was announced that the office of caliph, hitherto vested in the person of the sultan, should be filled by election from among the princes of the House of Osman. Abdul-Medjid (b. 1868), cousin of the sultan, was elected. On Mar. 3, 1924, the National Assembly at Angora decreed the abolition of the caliphate. See Abbasides: Mahomedanism; Turkey.

CALIXTUS. Name of three popes, also called Callistus. Calixtus I was a slave who was freed and given charge of the cemetery in Rome still called after him. He was chosen pope in 218 and was martyred in 223. His festival is kept on Oct. 14. Calixtus II was pope 1119 to 1124. Calixtus III, pope from 1455 to 1458, was a Spaniard, Alfonso de Borgia, and one of his nephews was Rodrigo Borgia, who as Alexander VI was pope, 1492-1503.



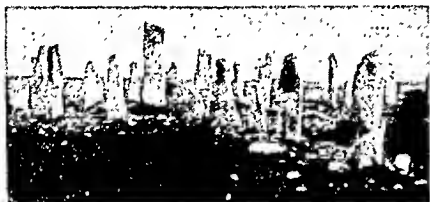
Calixtus III, Pope, 1455-58
From a medal

CALLA, MARSH (*Calla palustris*). Perennial aquatic herb of the order Araceae. A native of N. Europe and N. America, it has a fleshy creeping stem and heart-shaped leaves, with long stalks. The simple flowers are arranged, like those of the wake robin, around a spadix, and are succeeded by red berries.

CALLANDER. Burgh and market town of Perthshire. On the river Teith, it is 16 m. by rly. N.W. of Stirling by the L.M.S. Rly. It is near the Trossachs and the Falls of Bracklenn. Market day, Thurs. Pop. 1,874.

CALLAO. Chief seaport of Peru, capital of the prov. of Callao. On a bay sheltered by islands, 7 m. by rly. S.W. of Lima, it has a wireless station. The modern city lies N. of the old city, which was destroyed by an earthquake in 1746. Pop. 66,000.

CALLERNISH. District near Stornoway, Lewis, famous for four neolithic stone circles. In the principal one 12 unhewn gneiss monoliths enclose an area 42 ft. across. Near a central menhir, 17 ft. high, a two-chambered dolmen was disclosed, 1858. It is approached from the N. by a stone avenue 270 ft. long. Single rows running S., E., and W. complete the design of a cross.



Callernish, Stornoway. Remains of the Neolithic period

CALLIMACHUS (c. 300-240 B.C.). Greek poet, grammarian, and critic. Born at Cyrene, he spent most of his life in Alexandria, where Ptolemy Philadelphus appointed him superintendent of the library, a post which he held until his death. He is said to have written more than 800 works in prose and verse. Of his poems, the *Aitia* (Causes) related the mythical origin of cities, festivals, manners, and customs; and the *Hecale* the story of the kindly reception of Theseus by an old woman. Fragments of his works were discovered in Egypt at Oxyrhynchus.

CALLIOPE (Gr. beautiful-voiced). In Greek mythology, one of the nine Muses who presided over the arts and sciences. She was the muse of epic poetry, and is represented with wax tablets and a stylus, or writing instrument, in her hand.

The name is given to a class of British light cruisers built in 1915, the *Calliope*, *Cleopatra*, *Cordelia*, *Champion*, *Carysfort*, *Caroline*, *Comus*, and *Conquest*. Oil-driven, they displace 3,750 tons and have a speed of 30 knots. Their armament consists of two 6-in. and six 4-in. guns.

CALLISTO. In Greek mythology, an Arcadian nymph and companion of Artemis (q.v.), beloved by Zeus. To conceal his intrigue from his wife Hera, Zeus turned Callisto into a she-bear, in which form Artemis, at the instigation of Hera, unwittingly slew her. She was then placed by Zeus in the constellation Arctos, the Bear.

CALMETTE, GASTON (1858-1914). French journalist. Born at Montpellier, he was

attached to *Le Figaro* for many years before he became its editor-in-chief in 1903. In Jan., 1914, he began a series of attacks in *Le Figaro* on Joseph Caillaux, charging him with fraud and corruption. Having continued these attacks for nearly three months, on March 16 he was shot dead in his office in Paris by Mme. Caillaux, wife of the finance minister. See Caillaux, J.

CALNE. Borough and market town of Wiltshire. It is on the G.W.Rly., 6 m. from Chippenham and 85 m. from London. The chief buildings are the church of S. Mark, the town hall, and the 17th century grammar school. Bacon-curing is carried on. Market day, third Mon. Pop. 3,640.

CALOMEL (Gr. kalos, beautiful; melas, black). Mercurous chloride, or subchloride of mercury, HgCl_2 . It is used in medicine, in doses of $\frac{1}{2}$ to 5 grains, as a purgative for disorders of the liver.

CALORESCENCE (Lat. calor, heat). Change of rays of heat into rays of light. When a body absorbs radiation of one wavelength and, transforming it, emits it as radiation of a shorter wave-length, the phenomenon is called calorescence. Prof. Tyndall exhibited it by focussing the invisible infra-red, or heat, rays from an electric arc on to a strip of platinum foil. The platinum was thus heated to incandescence, and consequently emitted visible radiation light rays.

CALORIE. Metric unit of heat. It is the amount necessary to raise the temperature of one gramme of water through 1°C . Since this varies slightly with the initial temperature, the unit may be defined as the amount necessary to raise 1 gramme of water from 0°C . to 1°C .; or from 3.5°C . to 4.5°C .; or from 14°C . to 15°C . For some purposes it is more convenient to use the large calorie, which is equivalent to 1,000 small calories.

Calorific value is represented by the number of units of heat which the complete combustion of unit weight of the fuel will evolve. In Britain it is generally measured by the number of British thermal units (B.T.U.) generated by the combustion of 1 lb. of the fuel, the B.T.U. being the amount of heat which raises 1 lb. of water through 1°F . The calorific value of coal gas is expressed in gas-therms, a gas-therm being equal to 100,000 B.T.U. See Therm.

The term calorimeter is applied to any vessel in which heat, as distinguished from temperature, is measured. The readiest way to measure a quantity of heat is by imparting it to a known mass of water contained in a vessel (the calorimeter), the amount of heat necessary to raise the water 1 degree being already known. The heat generated by explosives is measured by the bomb calorimeter, a steel vessel in which a charge is exploded. The bomb is immersed in a vessel containing water, the increase in the temperature of the water being noted.

CALOTTE (old Fr. cale, cap). Skull-cap, especially that worn by a cardinal, monk, or priest. The word is also applied to the close-fitting crown of a helmet or other head-covering; a domed ceiling; the cap or hood on the head of certain birds; and the coif or inner skull-cap of lawn which was worn by sergeants-at-law.

Calpe. Ancient name for Gibraltar. With Abyla, on the African coast, it formed the Pillars of Heracles.

CALPURNIA. Last wife of Julius Caesar. She is said to have had an ominous dream on the night before the fatal Ides of March and

to have begged her husband to abstain from taking part in the celebrations. The story is made use of by Shakespeare in *Julius Caesar*.

CALSHOT. Promontory of Hampshire, on the W. shore of Southampton Water, at its junction with the Solent. It is the R.A.F. school of Aerial Navigation and a training school for the large flying boats. In 1912 a seaplane school was started, torpedo running from flying machines being made the subject of considerable experiment. The 1929 Schneider Trophy (q.v.) race took place here.

Calstock. Town of Cornwall. It is on the river Tamar, 9 m. N.N.W. of Plymouth by the Southern Rly. Pop. 4,400.

CALTHORPE, BARON. British title borne since 1796 by the family of Gough, now Gough-Calthorpe. Sir Henry Gough, M.P., was made a baronet in 1728, and his son, having inherited the estates of his uncle, Sir Henry Calthorpe, was made Baron Calthorpe in 1796. The family estates lie in and around Birmingham. The 6th baron presented the site at Edghaston on which the university was built. See illus. p. 255.

CALTHROP, DION CLAYTON (b. 1878). British author. Born May 2, 1878, a son of "John Clayton," the actor, and grandson of Dion Boucicault (q.v.), he was educated at S. Paul's school and studied art in Paris. He joined the Royal Naval Reserve in the Great War and rose to the rank of commander. His writings include *Guide to Fairyland*, 1905; *English Costume*, 1906; *King Peter*, 1906; *The Dance of Love*, 1907; *The Harlequin Set*, 1911; *A Trap to Catch a Dream*, 1913; *Bread and butterflies*, 1914; *A Bit at a Time*, 1920; and several plays.



Calumet. N. American Indian pipe decorated with eagle feathers

CALTON HILL. Eminence in Edinburgh. To the east of the city, which it overlooks, it is 355 ft. high. It has a number of monuments, including the National Monument, and an observatory. See Edinburgh.

CALTROP (Lat. calx, heel; trap). Name given to the four-spiked iron balls scattered on the ground in medieval warfare to impede the enemy's advance. Their use was revived by the New England colonists against the Indians. The term is also applied to various thistles and other plants and to the four-winged spicule of sponges.

CALUMBA ROOT (*Jateorhiza calumha*). Perennial plant of the order Menispermaceae. A native of tropical Africa, it has annual stems and thin three-lobed leaves; the small flowers have pale-green concave petals, and are either male or female. The perennial part of the plant consists of a bundle of spindle-shaped tubers. These are the Calumba roots, used in medicine as a bitter tonic.

CALUMET (Lat. calamus, reed). Ceremonial pipe of the N. American Indians. The name originated in the 17th century with the French Canadians. Red and white eagle feathers distinguished the war and the peace pipes. Calumets were used at tribal councils and when treaties were made. See illus. above.

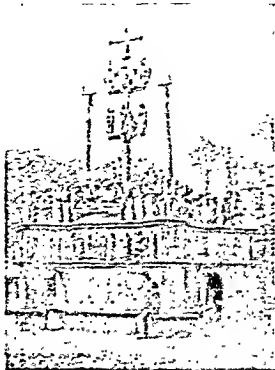
CALVADOS. Department of France. In Normandy, it borders on the English Channel, where are the rocks from which it obtains its name, and has an area of 2,197 sq. m. The surface is hilly and wooded, especially in the northern district known as the Bocage. Caen is the chief town; others are Honfleur, Vire, Bayeux, Lisieux, and Trouville. Pop. 390,492.

CALVARY, MOUNT (Lat. lat. calvaria, skull; Heb. golgotha). Place of the Crucifixion of Jesus Christ. Four explanations are offered for the name: (1) a place of execution; (2) it adjoined a burial ground, Joseph of Arimathea's tomb being one of



Calliope, the muse of epic poetry. Statue in the Vatican Museum, Rome

many; (3) the small hill resembled a skull in its contour; (4) Adam's skull was buried here. The first has the widest support: but



Calvary. Back view of the calvary at Plongastel-Daoulas, Finistère

the fourth was a popular Jewish tradition, and it survives in the skull and crossbones often placed at the foot of a crucifix. The present Calvary Chapel at Jerusalem is part of the Church of the Holy Sepulchre. The term Calvary is applied to a representation of the crucifixion erected in the open air.

CALVÉ, EMMA (h. 1864). Stage name of Emma de Roquer, French operatic singer. Born in France, she made her début at the Théâtre de la Monnaie, Brussels, in 1882, as Marguerite in Gounod's *Faust*. After achieving success in Paris and visiting the principal cities of Italy, she sang for the first time at Covent Garden in 1892 as Santuzza in *Cavalleria Rusticana*. She reappeared in London in 1920. Her *Carmen* was noted.



Emma Calvé as Carmen

CALVERLEY, CHARLES STUART (1831-84). British poet. Born at Martley, Worcestershire, Dec. 22, 1831, son of the Rev. Henry Blaydes, who resumed the old family name of Calverley in 1852, he entered Christ's College, Cambridge, in 1852.



C. S. Calverley, British poet

Calverley was elected a fellow of Christ's in 1858, and in 1865 was called to the bar at the Inner Temple. In the winter of 1866-67 an accident while skating compelled the gradual abandonment of all professional work. He died Feb. 17, 1884. Calverley was a master of parody, and in his day the greatest writer of light verse

CALVIN, JOHN (1509-64). French Protestant theologian. Born at Noyon, in Picardy, July 10, 1509, he was destined for the church, but when he was about 18, his father resolved to make him a lawyer instead, and sent him to the law school at Orleans. In 1529 what he called his conversion took place, and by 1533 he was an avowed Protestant. In 1535 he settled in Basel, and here wrote his great theological treatise, *Christianae Religionis Institutio*, 1536.

In 1536 Calvin went to Geneva. The situation there was difficult. Geneva supported the Reformation in the sense of being in revolt against Rome, but there was little real acceptance of the evangelical faith and no eagerness for any real moral reform. Calvin's personality brought about a crisis. He did not merely teach, but set up a new moral code in the name of church discipline, and attached civil penalties to its non-observance. Within two years he was expelled from the city and settled in Strasbourg, where he became a

tower of strength to all the evangelical churches. He also came in contact with the German Reformation, and was one of the signatories of the Augsburg Confession. In 1541 he was recalled to Geneva, where, except for a brief interval, he lived until his death, May 27, 1564. Calvin made of Geneva a new city morally. He developed its trade, improved its health, reduced its poverty, and founded its university. His influence beyond Geneva all over Reformed Christendom was incalculable.

Calvinism, the doctrine derived mainly from his teaching, is a system that relates everything to a dependence upon God, predestination being but one example of this general principle. See Arminianism; Predestination; Reformation.

CALVINIA. District in the N.W. of Cape Province, S. Africa. Its area is 23,800 sq. m. Calvinia, the chief town, is about 185 m. direct N.N.E. of Cape Town, and has a white pop. of about 1,000.

CALVINISTIC METHODISTS. Religious denomination which adopts much of the organization of Wesley, combined with the Calvinistic doctrines of George Whitefield. It originated in South Wales in the preaching of Griffith Jones (1684-1761) and Howell Harris (1714-73). The latter, with the co-operation of several Welsh clergymen, of whom the most notable was Daniel Rowland, arranged the first Methodist Association in 1744. In North Wales, Thomas Charles, also a clergyman, was the chief apostle.

After the movement had been definitely dissociated from the established Church, Charles, assisted by a number of laymen, ordained some 20 ministers in 1811, thereby formally declaring the Welsh Methodists a separate body. Each church of the Calvinistic Methodists is autonomous, and the denomination's form of government is Presbyterian. In 1929 it possessed 1,508 churches and had 187,892 communicants. See Methodism.

CALYDON. In Greek mythology, a town in Aetolia. It was the scene of the hunt of the monstrous boar, sent by Artemis to plague the country. The boar was killed by Meleager, the first blow, according to one account, being struck by Atalanta. There exist remains of the ancient walls and buildings.

CALYPSO. In Greek mythology, a nymph, daughter of Atlas, who lived in the island of Ogygia. Here Odysseus was cast ashore, after having suffered shipwreck as a punishment for sacrilege, and here he remained for seven years in dalliance with the nymph, who promised him immortality and eternal youth if he would never leave her. At last the goddess Athena intervened and Odysseus at last was able to return home. See Odysseus.



John Calvin, French theologian From an engraving by Dankertz

CALYX (Gr. calyx, husk, shell). Botanical name for the outer whorl of floral organs, consisting of the sepals. As a rule the calyx is green, and serves as a protection for the petals, stamens, and pistil of the unexpanded flower-bud. When the petals are absent the calyx is sometimes brightly coloured.

CAM (Ger. kamm, comb; or Celtic cam, crooked). Most commonly a body of metal projecting from, or attached to, a revolving

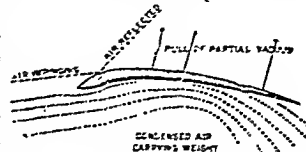
shaft or wheel or sliding part, to impart intermittent or irregular movement to some part against which it presses. Cams of intricate design are much used in machinery in which a number of complex movements or operations have to succeed one another in a specified order.

CAM. River in Cambridgeshire, formerly the Granta. Rising on the S.W. border of the county, it flows for 40 m. to the Ouse, $3\frac{1}{2}$ m. S. of Ely. It is navigable to Cambridge.

CAMALODUNUM. Roman town, the modern Colchester. It was the capital of a British chief named Cunobelin (Cymbeline), the ruler of the Trinobantes, and was occupied by the Romans about A.D. 48. It was stormed in 62 A.D. by Boadicea. See Colchester.

CAMARGUE. District of S. France, often called the Ile de la Camargue. It is a marshy plain between two chief mouths of the Rhône and forms its delta. Its area is about 300 sq. m. Dikes protect it from the sea and rivers. There are several lagoons.

CAMBER (Fr. cambrer, to arch). In engineering, an upward curve given to a bridge girder or platform, or to the floor of a railway vehicle.



Camber. Diagram showing section of aeroplane wing cambered to deflect the air

When the structure or vehicle is loaded, an elastic deflection occurs which causes the floor to assume an approximately level line. Camber is also given to the decks of ships and to roads.

In aeronautics camber denotes the degree of curvature of a wing or controlling surface. Starting from the rather blunt leading edge, the upper surface traces a well-defined curve to the rear or trailing edge. The lower surface traces a more gentle curve. See Flight.

CAMBERLEY. Residential district in Surrey. It is on the Southern Rly., 7 m. from Ascot. Here is the army staff college, which was built in 1858.

CAMBERWELL. Metropolitan borough of S. London. In Surrey, S. of the Thames, it has an area of 4,480 acres, and is largely a residential suburb. It includes the districts of Peckham, Nunhead, and Dulwich, and in Peckham Rye and Park and Dulwich Park possesses two large open spaces. Camberwell Green was noted for its fairs. Pop. 267,198.

There is a Camberwell in Victoria, Australia, a suburb of Melbourne.

CAMBERWELL BEAUTY (Vanessa antiopa). Large British butterfly. Now rare, it used to be taken in Camberwell, London, before that district lost its rural character. The wings are brownish purple, edged with a black band spotted with blue, and having outside this a margin of yellow, speckled with brown or black.



Camberwell Beauty

CAMBODIA. French protectorate in Indo-China. It is bounded by Siam on the N.W., Annam on the E., Cochinchina on the S.E., and has a coastline on the Gulf of Siam of some 200 m. Area, 67,550 sq. m.; pop. 2,535,000, of whom about 1,900 are Europeans. Splendid ruined cities recall the greatness of the former empire, and there are prehistoric

remains of an earlier Khmer civilization. The old empire spread Brahmanism in the E., and the Angkor Wat ruins contain many statues of Hindu deities, although images of Buddha have since displaced earlier monuments.

Cambodia is ruled by a king. The chief products are rice, pepper, tobacco, indigo, sugar, coffee, cotton, and rubber, and cattle are reared. The forests contain valuable timbers, and iron ore is found. Phnom-Penh, on the Mekong, is the capital, and Kampot the only harbour.

CAMBON, JULES MARTIN (b. 1845). French diplomatist. Born in Paris April 5, 1845, in 1891 he was made governor-general of Algeria. In 1897 he was nominated French ambassador at Washington, was transferred to Madrid in 1902, and in 1907 to Berlin, where he remained until the outbreak of the Great War. He was one of the French signatories of the treaty of Versailles, June 28, 1919.

CAMBON, PIERRE PAUL (1843-1924). French diplomatist. Brother of Jules Cambon, he was born Jan. 20, 1843, and trained as a lawyer. From November, 1870, he held important administrative posts, and in February, 1882, became French resident at Tunis. In 1886 he succeeded to the embassy at Madrid. Four years later (1890) Cambon was transferred to Constantinople, and in 1898 he came to London, where he remained until 1920, his long term covering the Fashoda incident, the S. African War, and the Great War. He died May 29, 1924.



Paul Cambon,
French diplomatist
Hoppe

CAMBORNE. Urban district and market town of Cornwall. It is 3 m. by rly. S.W. of Redruth, on the G.W.R. The centre of a mining district, where tin, lead, and copper are found, the town has a school of mines, and holds yearly fairs. Pop. 14,582.

CAMBRAI. City of France, in the dept. of Nord. It stands on the right bank of the river Schelde, 37 m. S. by E. of Lille, and is a terminus of the St. Quentin Canal. Most of its historie or otherwise notable buildings were destroyed during the Revolution. Others, including the modern town hall, the old belfry or tower of S. Martin, the Porte de Paris, the 19th century cathedral, and the 18th century church of S. Gery, were either destroyed or badly damaged by bombardment or fire in the Great War. It is famous for fine muslin, one variety of which is known as cambrie. Pop. 26,023.

In the 5th century the city was the capital of a Frankish king and the seat of a bishop. In 1559 the bishop was raised to the rank of archbishop; previously he had been made a duke, and the extent of his possessions, which were known as Cambresis, gave him great power. In 1678 Cambrai became definitely French. Early in the Great War Cambrai was entered by the Germans, who retained it until Oct. 9, 1918.

The league of Cambrai (1508) was a combination against Venice.

BATTLES OF CAMBRAI. The first battle of Cambrai began on Nov. 20, 1917. It was remarkable for two new features, namely, the employment of tanks in masses to break through the German line where it was strongest, and the abandonment of the long preliminary artillery bombardment. The British troops engaged were those of the 3rd Army (Byng). So complete was the initial success, attained by the advance of 400 tanks, that if fresh troops had been available to exploit the victory the German line might have been broken. The opportunity was not used, and the Germans counter-attacked on Nov. 30, recovering much of the lost ground.

The second battle, fought Sept. 27-Oct. 5, 1918, formed part of the great final Allied offensive against the Germans. On the first day, the British advanced clean through the Hindenburg Line and took over 10,000 prisoners. Further advance was made, and on Sept. 29 the 46th Division stormed Bellenegise and crossed the Schelde Canal, and on Sept. 30 the attack was renewed all along the line, the Germans falling back. By Oct. 5 the Hindenburg system was shattered for a distance of 40 m. from N. to S., and Cambrai itself was reached.

CAMBRIA. Medieval Latin name of Wales, the land of the Cymry, a Celtic people. Strictly, it is distinguished from Cumbria, the Cymric territory farther N., between the Solway Firth and the Ribble, including Cumberland.

The mountain system of Wales is known as the Cambrian range. The main portion extends N. to S., through the counties of Carnarvon, Denbigh, Merioneth, Montgomery, Radnor, Cardigan, Brecknock, and Carmarthen. The highest summit, Snowdon, 3,560 ft., is the culminating point of England and Wales.

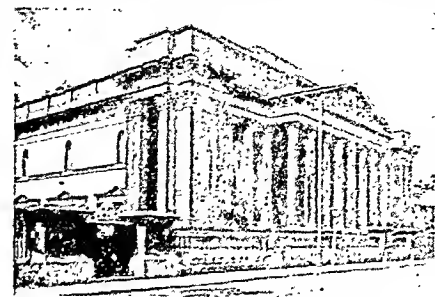
The Cambrian System, so called from its development in Wales, or Cambria, is the oldest system of sedimentary rocks that yield organic remains, being rich in forms belonging to the extinct sub-class Trilobita. It is well developed also in Shropshire, Warwickshire, the Malvern Hills and the N.W. Highlands of Scotland, and always rests with unconformity on igneous and metamorphic rocks, or on older sedimentary rocks devoid of organisms. The rocks consist mainly of quartzitic sandstones, shales, and slates.

Cambrian ware is very light, thin salt-glazed stoneware, tea services, jugs, etc., painted in vivid enamel colours with landscapes, figures, flowers, and animals, rough in design but effective. It was produced between 1760-1850 at works at Swansea.

CAMBRIDGE. Borough and county town of Cambridgeshire. On the Cam, 56 m. N.N.E. of London, it is served by the L.N.E. and L.M.S. Railways.

Its main interest centres in the university. S. Mary the Great is the university church, and S. Benet's, with fine pre-Norman tower,

and the church of the Holy Sepulchre, one of the four round churches in England, are noteworthy. Educational establishments, outside the university proper, include Girton and Newnham Colleges for women, theological colleges, notably Westminster for Presbyterians and Ridley Hall for Church of England



Cambridge. Classical façade of the Fitzwilliam Museum, the chief museum of the university
W.H.F. Taylor

men, and Leys School and the Perse Grammar School. Stourbridge Fair was held at Barnwell down to the 18th century. In 1928 a society was formed to protect the beauties of Cambridge and the neighbourhood. Pop. 58,680.

CAMBRIDGE UNIVERSITY. This originated in the monastic communities which settled in the town. The first college, S. Peter's, or Peterhouse, was founded by Hugh de Balsham, bishop of Ely.

The colleges are Christ's (1505), Clare (1326), Corpus Christi (1352), Downing (1800), Emmanuel (1584), Gonville and Caius (1348), Jesus (1496), King's (1441), Magdalene (1519), Pembroke (1347), Queens' (1448), S. Catharine's (1473), S. John's (1511), S. Peter's (1284), Sidney Sussex (1595), Trinity (1546), and Trinity Hall (1350). There are also two hostels, Selwyn College (1882), and the Non-Collegiate Students' (1869). In 1923 women, most of whom are members of Girton College (1869) and Newnham College (1871), founded for women only, were admitted to degrees.

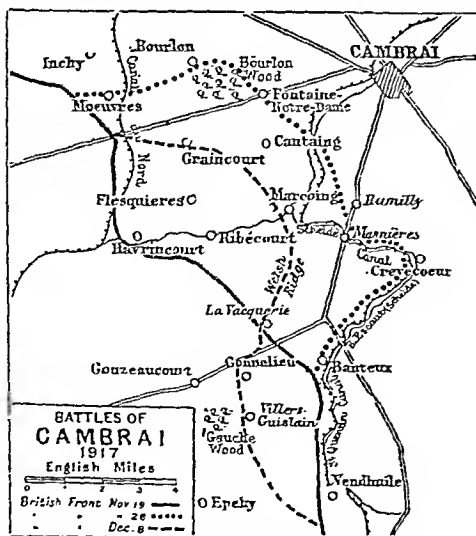
The University library ranks among the great libraries of the world, and the Fitzwilliam Museum, in Trumpington St., possesses valuable collections of antiquities and works of art. In 1928 the Rockefeller Foundation offered the university £700,000.

The Cambridge University Press shares with that of Oxford the copyright of the Revised Bible. Its more notable publications include the Cambridge Bible for Schools and Colleges, 1881-1912; Cambridge Modern History, 1902-12; and 11th edition of the Encyclopaedia Britannica, 1910-11. John Sibber (John Lair of Sieburg), a friend of Erasmus, was the first Cambridge printer (1521-23). The offices at Cambridge date from 1804, and the name of the Pitt Press from 1831, when a building was erected as part of a memorial to William Pitt.

CAMBRIDGE. City of Massachusetts, U.S.A. On the Charles river, and close to Boston, it is served by the Boston and Albany and other rlys. It is the seat of Harvard University, Massachusetts Institute of Technology, and Radcliffe College. Near are the Harvard observatory and the Botanic gardens. Cambridge was the home of the first printing press of British N. America, the site of the first American camp in the War of Independence, the birthplace of J. R. Lowell and Oliver Wendell Holmes, and the home of Longfellow. Pop. 119,669.



Cambridge
University arms



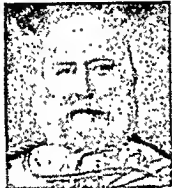
Cambrai. Map of the battlefield of 1917, showing British lines

CAMBRIDGE, DUKE OF. English title, dating from 1706. There was an earl of Cambridge in the reign of Edward III, and the title was generally bestowed upon members of the reigning house. In 1706, to give him a position in England, George, electoral prince of Hanover, afterwards King George II, was made duke of Cambridge, and in 1801 the title was revived for Adolphus Frederick (1774-1850), seventh son of George III. Of his two daughters, one married the duke of Mecklenburg-Strelitz, and the other Francis, duke of Teck, by whom she became the mother of Queen Mary.



Adolphus Frederick,
1st Duke of Cambridge

His son, George William Frederick (1819-1904), the 2nd duke, joined the British army in 1838, and succeeded Lord Hardinge as commander-in-chief in 1856, resigning in 1895. He died March 17, 1904, and with him the title became extinct. In defiance of the Royal Marriages Act, he had married Miss Fairbrother; his three sons adopted the name of FitzGeorge.



George William
Frederick, 2nd
Duke of Cambridge
Downey

The title marquess of Cambridge was given in 1917 to Adolphus, duke of Teck (1868-1927), the eldest brother of

Queen Mary. He married a daughter of the 1st duke of Westminster, and died Oct. 24, 1927.

CAMBRIDGE HEATH. Former open space of N.E. London. Its name is preserved in that of a station on the Enfield, Chingford, and Palace Gates branches of the L.N.E.R., between Bethnal Green and London Fields.

CAMBRIDGESHIRE. Inland county in the E. of England, N. of Herts and Essex. Including the Isle of Ely, which forms a separate administrative county, it is 48 m. long, has a breadth varying between 16 m. and 30 m., and an area of 864 sq. m. To the S. and S.E. the surface is elevated. The Isle of Ely forms part of the Bedford Level (q.v.), but most of the fen is drained. The Ouse, Cam, Nene and Lark are the chief rivers. Pop. 203,419.

Agriculture flourishes, the Cam valley being noted for its dairy farms and breed of sheep. Railway facilities are provided by the L.N.E. and L.M.S. railways, and waterway communication by the Old and New Bedford rivers. The chief towns are Cambridge, Ely, Wisbech, Chesterton, and March.

Cambridgeshire is rich in archaeological remains; at Thorney and Denny are abbey ruins, and ancient dykes are in the S.E.

The horse race known as the Cambridge-shire is run at Newmarket. The course is one mile and a furlong and the day the Wednesday of the Houghton meeting in October.

Cambridgeshire gives its name to a territorial regiment of the British Army. The 1st battalion was embodied in Aug., 1914, and went to France early in 1915 as part of the 5th Army Corps.

CAMDEN. City of New Jersey, U.S.A., co. seat of Camden co. It is on the Delaware river, opposite Philadelphia, with which it is connected by steam ferry and a suspension bridge, and is the terminus of the Atlantic City and other rlys. It has shipbuilding yards, iron foundries, chemical works, boot, paper, and leather factories, etc. It was named after the 1st Earl Camden. Walt Whitman lived and died here. Pop. 128,642.

Another Camden is in S. Carolina. Here on Aug. 16, 1780, Lord Cornwallis defeated a body of American colonists.

CAMDEN, MARQUESS. British title borne since 1812 by the family of Pratt. This family was settled in Devon in the time of Elizabeth, and in 1714 one of its members, Sir John Pratt, was made lord chief justice of England. His son, Charles Pratt (1714-94), also a lawyer, was created a baron in 1765. He was lord chancellor from 1766-70, and became Earl Camden in 1786. His son John, the 2nd earl, was made earl of Brecknock and Marquess Camden in 1812. The family seat is Bayham Abbey, Kent, and the marquess's eldest son is known as earl of Brecknock.



1st Earl Camden,
Lord Chancellor

CAMDEN, WILLIAM (1551-1623). English antiquary. Born in London, May 2, 1551, he was appointed second master at Westminster School in 1575. Camden had already begun the preparation of Britannia, a Latin

CAMBUSKEN-NETH. Ruined abbey in Stirling-shire. On the Forth, 1 m. E. of Stirling, it was founded 1147, by David I, and was the meeting place of several Parliaments, including that of 1326, the first attended by representatives of the towns. Here were buried James III and Margaret of Denmark; in 1865 their bones were re-interred under a tomb built at the instance of Queen Victoria.

CAMBYSES. King of Persia 529-522 B.C. Son of Cyrus the Great, in 525 he conquered Egypt, but his campaign against Ethiopia was unsuccessful. Suspecting his brother Smerdis of designs on his throne, he had him secretly murdered. A false Smerdis named Gaumata, claiming to be the brother of the king, arose in Persia and obtained some following. Cambyzes had to leave Egypt to crush the threatened insurrection, but on his way died in Syria of a wound accidentally self-inflicted. Pron. Cam-by-seez.

CAMDEN TOWN. District of N.W. London, forming a large portion of the metropolitan borough of St. Pancras. It has a station on the L.M.S. Rly., and is served also by an electric rly. Notable old taverns include the Britannia, Adam and Eve, and Mother Redcap. Most of the Camden Road is in the borough of Islington.

The name Camden Town group is applied to a group of modern British artists formed under the presidency of Spencer Frederick Gore (1878-1914).

CAMEL (Heb. gamal). Group of even-toed, ungulate, ruminating mammals, including the camels of the Old World and the llamas of the New. They are long in the neck, have a hump or humps on the back, and are covered with shaggy hair growing in patchy fashion. The upper lip is divided. Of the two species, the Arabian and the Bactrian, the former, which has a single hump, is found in N. Africa, Arabia, and other parts of Asia. It is longer in the limb than the Bactrian, and has a much shorter coat. This camel is known as the dromedary (*Camelus dromedarius*), but the term is usually restricted to riding strains. The spreading foot of the animal adapts it



William Camden,
English antiquary



Cambridgeshire. The northern half of this county forms part of the reclaimed fenland known as Bedford Level, and is intersected by artificial waterways

for travelling on loose sand, and it is able to go for three days without drinking, the stomach being provided with pouches in which fluid is retained. The Bactrian camel (*C. bactrianus*) occupies the desert regions of Central Asia. It has two humps, short legs, long hair, and is generally of heavier and clumsier build. Camel hair is used for making fabrics and artists' brushes. See Llama.

CAMEL CORPS. Soldiers mounted on camels are suitable for scouting and fighting in hot, sandy countries. There were distinct British and Egyptian camel corps, both of which became famous in the Sudan campaigns. In the Great War the camel corps was used in the campaign in Egypt against the Turks and against the Senussi. The Bikanir camel corps of the maharajah of Bikanir is noted.

CAMELFORD. Market town of Cornwall. It lies in a picturesque portion of the valley of the Camel, 12 m. by rly. N. of Bodmin on the Southern Rly. The large Delabole slate quarries are in the vicinity of the town. Market day, Fri. Pop. 1,400.

CAMELLIA. Genus of evergreen shrubs and trees of the order Ternstroemiaceae. They are natives of Asia, and have glossy leathery leaves and large white or rosy flowers. *Camellia japonica*, a native of Japan and China, and a favourite greenhouse plant, has produced a great number of varieties and hybrids. It is naturally about 20 ft. in height, with reddish flowers. See Tea.

CAMELOPARDUS or **CAMELOPARDALIS.** Constellation known to navigators of the 16th century, but first appearing in a celestial planisphere published by Jacobus Bartschius in 1624. A straggling constellation of stars, none brighter than fourth magnitude, it is situated between the Pole Star and Perseus.

CAMELOT. Legendary city where King Arthur held his court, and the name given in medieval romances to Caerleon-upon-Usk in Monmouthshire. Built in Roman times, it was long the garrison of the second Augustan Legion, and many Roman remains have been discovered. An oval earthwork, known as Arthur's Round Table, is a link with Arthurian legend. See Arthur; Caerleon.

CAMEL'S THORN (*Alhagi camelorum*). Leguminous shrub, a native of the Caucasus. It has simple leaves and pea-like red flowers in clusters, followed by woody seed-pods. A species growing in Asia and Africa has been thought to have been the source of manna of the Israelites. In hot weather honey-like drops exude from the leaves and harden by exposure to the air.

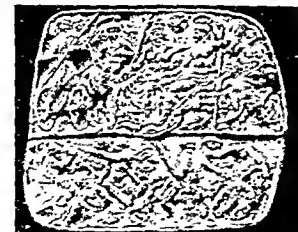
CAMEO (Ital. *cammeco*). Species of sculpture. Its materials are precious stones like the agate and onyx, and molluscan shells which have at least two layers of different tint. The cutting of gem cameos was an ancient art; that of shells is modern. The lower stratum provides the background, and the upper is carved in white in low relief.

CAMERA, PHOTOGRAPHIC (Lat. *camera*, arched chamber). Development of the camera obscura, which was a medieval optical device consisting of a dark box or chamber fitted with a lens by which the image of an object was cast upon a screen. On the invention of photography the camera obscura was designed to carry the sensitive plate, and has been improved to meet the requirements of different classes of photographers. It consists essentially of a box with a lens fixed to the front, and at the rear a carrier of the sensitive plate or film. The carrier for plates is usually detachable, and is known as a dark slide.

Cameras in use at the present time may be divided into (1) those used on a stand or tripod, and (2) those operated while held in the hand. The portable stand camera possesses certain movements designed to enable it to deal with different classes of work. These permit front and back to be tilted and swung in different directions. A rising front allows the lens to be raised or lowered as desired. A reversing back (the detachable frame carrying the focussing screen and dark slide) enables the operator quickly to place either in position for an upright or horizontal shape of picture. By means of a rack and pinion the lens can be moved away from or nearer to the plate for focussing.

Hand cameras, as a rule, do not possess these various movements, but are designed for portability and simplicity in use. Most are of the folding type, the lens being supported on a hinged baseboard which forms a protective cover for it when the camera is closed, while for others a box form is adopted, but now only for quite small sizes. A hand camera is invariably fitted with a shutter by which the plate or film can be exposed for a time short enough to secure a sharp photograph of objects in motion. The amount of subject included on the plate is judged from a finder, a small reflecting mirror attached to the lens in front.

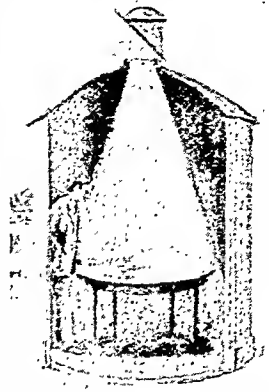
CAMERON, SIR DAVID YOUNG (b. 1865). Scottish painter and etcher. Born in Glasgow, he taught himself etching and dry point. He followed up his set of Clyde plates, 1890, with sets of North Holland, 1892; North Italy, 1895; London, 1899; Paris, 1904; and Belgium, 1907. He embellished books with etchings, collaborating, in 1902, with William Strang, in an edition of *The Compleat Angler*. R.A., 1920, he was knighted, 1924.



Cameo of the triumph of Tiberius, known as the Gemma Augustea

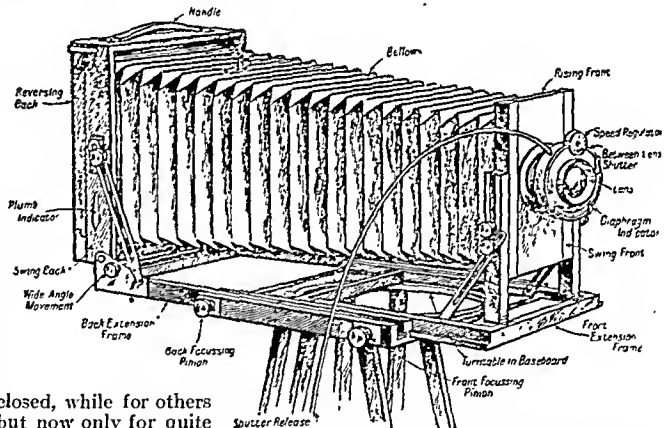
etchings, collaborating, in 1902, with William Strang, in an edition of *The Compleat Angler*. R.A., 1920, he was knighted, 1924.

CAMERON, SIR EWEN or **EVAN** (1620-1719). Scottish Highland chief, known as Lochiel. Eldest son of John Cameron, he lived as a hostage with the marquess of Argyll at Inveraray, 1641-47, when he returned to his clan as its head. Knighted by Charles II in 1681, he was for years in arms, and in 1689 fought at Killcrankie. He was a notable wolf hunter, and is said to have killed the last wolf seen in the Highlands with his own hands. Cameron died in Feb., 1719.



Camera. Camera Obscura, which throws images of external objects on a white table in a dark room

CAMERON, VERNEY LOVETT (1844-94). British explorer. Born at Weymouth, July 1, 1844, he entered the navy. In 1873 he was at Zanzibar in charge of the expedition to find Livingstone, who died before he arrived. After exploring the S. side of Lake Tanganyika, he proceeded to W. Africa, and reaching Katombela, Nov. 28, 1875, was the first traveller to cross Africa from E. to W. His other explorations included journeys from



Camera. Principal parts of a bellows camera giving considerable expansion to allow of accurate focussing. Lebanon to Bagdad and Basra, 1878-9, and in the interior of the Gold Coast with Richard Burton in 1882. He was killed when hunting, March 27, 1894.

CAMERON HIGHLANDERS. Scottish regiment, officially known as the Queen's Own Cameron Highlanders. It owes its origin to Alan Cameron, who about 1790 raised 700 young men in his native county of Inverness and, as their colonel, led them to the wars. As the 79th Cameron Highlanders they fought against Napoleon. At Tel-el-Kebir they led the charge on the Egyptian position, and at the battle of the Atbara were selected by Kitchener to storm the Arab zareba. They did good service in the South African War, and the regiment had a glorious record in the Great War. The depot is at Inverness.



Cameron Highlanders, regimental badge



Sir D. Y. Cameron, Scottish painter Russell

CAMERONIANS. Name given to the Covenanters who followed Richard Cameron (d. 1680). Their definite severance from the parent body was a result of the religious settlement of 1690. Like the Non-jurors in England they refused to take the oath of allegiance, or to perform any civil duty. In 1743 they formed themselves into a regular Presbyterian Church, the Reformed Presbytery, and are found chiefly in S.W. Scotland and N. Ireland. Later a branch was established in N. America. In 1876 most of their congregations united with the Free Church of Scotland. Richard Cameron was killed fighting against the king's soldiers near Auchinleck, July 20, 1680.

CAMERONIANS. Scottish regiment, officially the Scottish Rifles. It was first raised from the amnestied survivors of the Cameronian Covenanters to help William of Orange against James II. Enrolled in the regular army as the 26th regiment of the line, it fought in Marlborough's battles. The 2nd battalion, the old 90th, was raised in 1794, and fought in Egypt and at Corunna. In the Crimea the battalion took part in the assault on the Redan. The regiment won distinction in the Great War. The depot is at Hamilton.



Cameronians, regimental badge

CAMEROONS. Country in W. Africa, formerly a German protectorate, now divided between Great Britain and France. It is bounded W. by the Bight of Biafra, N.W. by Nigeria, N. by Lake Chad, E. and S. by French Equatorial Africa. The small Spanish colony of Rio Muni forms an enclave on the W. coast. Cameroons forms a rough triangle, with its apex resting on Lake Chad in the N. and its base on the Gabon Colony. From N. to S. it is about 990 m. long, and from W. to E. about 600 m. broad in its widest part. The chief rivers are the Logone, Chari, Benue, Sangha, and Sanaga.

Early in the Great War British and French forces invaded the Cameroons, and by the end of 1914, Duala and other centres had been occupied. During 1915 the progress of the Allies was slow, but by Feb., 1916, the conquest of the colony was completed. At the settlement after the Great War Cameroons was allotted to France and Britain under mandates of the League of Nations.

The British portion is a strip of territory stretching from the Atlantic along the Nigerian frontier to Lake Chad. Its area is 34,236 sq. m. and pop. about 700,000. The N. part is administered by the Residents of the adjoining provinces of Nigeria, and the S. part, known as the Cameroons Province, with Buea as its capital and Victoria as the chief port, is attached administratively to the Southern Provinces of Nigeria.

The French portion, with an area of 158,000 sq. m., is an autonomous territory under a commissioner, with its capital at Yaunde, and its chief ports Duala (the former capital) and Kribi. Pop. 1,550,000.

CAMILIA. In Roman legend, daughter of the Volscian King Metahus. Brought up by her father as a handmaid of Diana, she was famed for her fleetness of foot. In Virgil's Aeneid (xi) she is represented as having espoused the cause of Turnus against Aeneas.



Marcus Camillus, Roman hero
From a cameo

CAMILLUS. Marcus Furius (d. c. 365 B.C.). Hero of the early Roman Republic. He is said to have been dictator five times, besides holding other magistracies. After a ten years' siege he took the city of Veii, but being accused of

an unjust distribution of the booty, went into exile. When the Gauls under Brennus (390) had occupied all Rome except the Capitol, and the Romans were about to buy off the invaders, Camillus suddenly appeared and drove the Gauls out of Rome.

In ancient Roman times Camillus and Camilla were the names given to the boys and girls, children of free parents, who acted as attendants at various religious rites.

CAMISARDS. Name given to a Protestant sect that rose in revolt in the Cévennes, France, early in the 18th century. It comes from the French *camisade*, an attack in the dark, one when a shirt (*camise*) was worn over the armour so that comrades might be known.

Roused by the persecution that followed the revocation of the edict of Nantes, under Pierre, called Esprit Séguier, the Camisards in July, 1702, murdered their chief enemy, the missionary priest, François du Chayla, and soon a warfare, waged with extreme ferocity on both sides, began. Under Jean Cavalier, Roland, and other leaders, the Camisards fought well for about two years, but in the end the superior strength of the state began to tell, and in 1704 Cavalier arranged a peace with Marshal Villars.

CAMMAERTS, ÉMILE (b. 1878). Belgian poet. Born in Brussels, Mar. 16, 1878, he settled in England in 1908. His earlier works

included the translation of parts of Ruskin's writings into French, and essays in art criticism, *Les Bellini*. During the Great War his poems exercised considerable influence among Belgian, French, and English readers, being for the most part translated into English by the poet's wife, Tita Brandes Cammaerts. Other works included *Through the Iron Bars*, 1917; and *The Poetry of Nonsense*, 1925.



Émile Cammaerts, Belgian poet
Elliott & Fry

CAMOENS or **CAMOEIS**, **LUIS VAZ DE** (c. 1524-80). Portuguese poet. He belonged to an impoverished noble family, and was related to Vasco da Gama (q.v.). He fell in love with Catherine de Atayde, daughter of a high official, who disapproved of his suit. Camoens addressed many sonnets and other poems to her, with the result that, in 1546, he was banished from Lisbon. In 1547 he fought against the Moors, and in an attack on Ceuta lost



Luis de Camoens, Portuguese poet

his right eye. Again in Lisbon in 1549, he plunged into a disorderly life which led to imprisonment. While on service at Macao he was imprisoned, and on being taken back to Goa was shipwrecked, escaping with the MS. of his epic poem *Os Lusíadas*, the greater part of it written during these adventurous years in the East. In 1567, having reached Mozambique, he was imprisoned for nearly two years for debt, and did not arrive at Lisbon until 1570. In 1572 his poem was published. He died June 10, 1580.

Os Lusíadas, The Lusitanians, in English *The Lusíads*, is written in ottava rima: it is not only the chief work of Camoens, but may be regarded as Portugal's great contribution to literature. In addition to his epic, sonnets, elegies, eclogues, and other poems, Camoens wrote three comedies. In 1918 a Camoens Chair of Portuguese Language and Literature was established in King's College, London.

CAMOMILE or **CHAMOMILE** (*Anthemis nobilis*). Perennial dwarf herb of the order

Compositae, a native of Europe and N. Africa. Its branches spread along the ground, and its aromatic leaves are divided into thread-like segments. The daisy-like flower-heads have yellow tubular florets in the centre, surrounded by white strap-shaped ray-florets. The dried ripe flower-heads contain a volatile oil which is used in medicine.



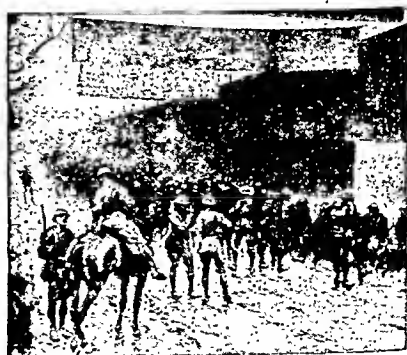
Camomile, the flower of which is largely used medicinally

CAMORRA. Secret or nominally secret organization, criminal, social and political, which arose in S. Italy in 1820. At this date, under the Bourbon tyranny in the

Two Sicilies, there were in Naples alone 70,000 members of secret societies. It was a definite and dreaded force until Garibaldi's entry into Naples in 1860, and though shorn of its strength, survived into the 20th century. The Neapolitan Camorra had its origin in Spain, and the word is of Spanish origin—*chamarra*, a cloak of rough material, worn by thief or bully.

CAMOUFLAGE. French slang word for the smoke made by lighting the end of a roll of paper and blown into a man's face as an insult. In practice camouflage is the strategic answer to the introduction of the aeroplane in warfare. Every solid object, or screening over it, casts its shadow, and its character is determined in the aerial photograph by the nature of the shadow it casts. The elimination and distortion of shadows are the chief problems.

The method used by the British in the Great War, and copied by the French, was the taut stretching of fishing net, threaded brush-wise with painted hay, or with knotted rags of canvas in imitation of surrounding vegetation, over guns, etc. Just over the gun and its pit an irregular pattern of open-textured canvas was attached to the net, this being opaque enough to screen all definite shadows



Camouflage. Road leading to a battle line camouflaged by mats hung at the sides and overhead

or the light soil of the earthworks around. See Q-Boat; Strategy.

CAMP (Lat. *campus*, a field). Area covered with tents for the accommodation of troops. The name is also applied to a collection of huts which take the place of tents, and if the occupation is permanent and buildings are erected, the area is called a standing camp, though the buildings are barracks, as at, e.g. Aldershot and Catterick.

The Roman camp was laid out in the form of a square, and protected by a rampart (*vallum*) and a ditch (*fossa*). It was divided into two parts by a broad road (*via principalis*)

running parallel with the front, terminating in two gates. The via principalis itself was cut at right angles by the via praetoria, at the end of which were the porta praetoria on the front and the porta decumana in the rear. The larger division of the camp, that towards the front, contained the tents of the legions and the allied contingents; the praetorium, the tent of the commander-in-chief; principia, the quarters of the chief officers (principes); the altar on which the general offered sacrifice; the tribunal, from which he addressed the troops or pronounced sentences; the quaestorium, or paymasters' quarters; the auralae, where the auspices were taken. The light-armed auxiliary forces were behind.

Concentration camp is the name given to the place used for the segregation of non-combatants, as in the S. African War; also to camps for interned aliens.

CAMPAGNA. Low-lying region surrounding Rome. Mostly an undulating plain, flat and marshy, by the Mediterranean, it rises on the N.E. to the Sabine Hills, and on the S.E. to the Alban Hills.

The inundations of the Tiber, the fumes from the sodden soil, and mosquitoes have completed the ruin begun by the Goths. Attempts have been made to improve the climate by drainage, afforestation, etc., but the Campagna remains mostly an unhealthy, desolate region. See Latium.

CAMPANIA. Territorial division of S.W. Italy. It comprises the provinces of Avellino, Benevento, Naples and Salerno, and has an area of 5,276 sq. m.

Campania was the name of an Atlantic liner belonging to the Cunard company. When built in 1893 she was Britain's fastest liner, having a speed of 22 knots. During the Great War the Campania acted as a seaplane-carrying ship. She was sunk in the Firth of Forth, after colliding with a battleship, Nov. 10, 1918.

CAMPANILE (Lat. campana, a bell). Originally applied to a bell tower in Italy, the term has been extended to similar structures, such as a church tower detached from the rest of the building. The typical form of the early specimens was square, with a perfectly plain outline, and no decoration except possibly at the top where the belfry was placed. At Ravenna, however, there are cylindrical towers of a date anterior to those at Rome. The most noted campanili are Giotto Bondone's at Florence, that in the Piazza di San Marco, Venice. Dating from 1150, it was rebuilt in 1911



Campanile in the Piazza di San Marco, Venice. Dating from 1150, it was rebuilt in 1911

There are a few campanili in Great Britain notably one at Chichester and another at Wilton.

CAMPANOLOGY (Lat. campana, bell; Gr. logos, discourse). Science or art of bell-ringing. The oldest society of bellringers would seem to be that of S. Stephen's of Bristol, which has traditions dating back to 1574. The notes of a peal of eight bells are arranged as a diatonic scale, the tenor or largest bell supplying the key-note, and the treble or smallest the octave. When bells are struck in their regular order they are said to be rung in rounds. When that order is varied and they exchange places they are rung in changes.

A peal consists of 5,000 changes at least, none of which may be repeated. The number of changes which can be rung in a peal is defined by mathematical law. Thus three bells permit of six changes, four bells of 24, and eight of 40,320. The simplest peals are Grandsire on an odd number of bells, Bob on an even number. See Bells; also illus. p. 225.

CAMPBELL. Name of a famous Scottish family, the head of which is the duke of Argyll (q.v.) The surname became very general in Argyllshire in the W. highlands, and there were soon numerous branches of the Campbells. Sir Duncan Campbell of Lochow, who was made Lord Campbell in 1445, was the ancestor of the dukes of Argyll and the marquesses of Breadalbane. Other branches of the Campbell family are represented by the earls of Loudoun and of Cawdor.

CAMPBELL, ALEXANDER (1788-1866). Founder of the sect known as Disciples of Christ, or Campbellites.



Alexander Campbell, founder of the sect termed Campbellites

Campbell died in W. Virginia, March 4, 1866.

CAMPBELL, GORDON (b. 1886). British sailor. He had a notable record in the Great War, being in command of one of the mystery Q ships in 1917. He later destroyed the German submarine UC29, being awarded the V.C., 1917. In 1921 he commanded the Impregnable and in 1925-27 the Tiger. He was made rear-admiral in 1928, in which year he retired, and in 1929 he published *My Mystery Ships*. See Q-Boat.

CAMPBELL, JOHN CAMPBELL, 1ST BARON (1779-1861). British lawyer. He was born at Cupar, Fife, Sept. 15, 1779, and in 1806 was called to the bar. He became attorney-general in 1834. 1835-39, and again in 1840-41, when he was made lord chancellor of Ireland and raised to the peerage. In 1850 Campbell was made lord chief justice, and in 1859 attained his ambition of being lord chancellor, a post which he held until his death, June 22, 1861. He wrote the *Lives of the Lord Chancellors*, of which three series appeared 1845-47, and *Lives of the Chief Justices of England*, 1849-57.

CAMPBELL, MRS. PATRICK (b. 1865). British actress. Born in London, Feb. 9, 1865, she was Beatrice Stella, daughter of John Tanner and Louisa Romani. In 1884 she married Patrick Campbell, who was killed in the S. African War in 1900. Having achieved success as an amateur, Mrs. Campbell made her first appearance on the professional stage at Liverpool in 1888. Her performance of *The Second Mrs. Tanqueray* at the St. James's Theatre, London, 1893, made her reputation as an actress, and among her later notable successes were *Juliet* (1895), *Magda* (1896), *Ophelia* (1897), *Lady Macbeth* (1898), all at The Lyceum; *George Sand* in P. Moeller's *Madame Sand*, at the Duke of York's Theatre, 1920, and the leading rôle in *The Matriarch* at The Royalty Theatre, 1929. She published *My Life and Some Letters*, 1922.



Mrs. Patrick Campbell, British actress

CAMPBELL, REGINALD JOHN (b. 1867). Anglican clergyman. Born in London, and educated at Christ Church, Oxford, he became



R. J. Campbell, Anglican clergyman
Russell

a Congregational minister in 1895. After some years at Brighton he succeeded Dr. Parker at the City Temple, London, in 1903. Four years later he published *The New Theology*, which he later repudiated. In 1915 he was received into the Church of England. Vicar of Christ Church, Westminster, 1917-21, he was vicar of Holy Trinity, Brighton, 1924-29. In 1930 he was appointed canon residentiary in Chichester Cathedral.

CAMPBELL, THOMAS (1777-1844). British poet. Born in Glasgow, July 27, 1777, the youngest son of a Virginia merchant, Alexander Campbell, in 1799

he published *The Pleasures of Hope*, which won immediate popular favour. In 1801 he contributed to *The Morning Chronicle* *Ye Mariners of England* and several other poems. In 1805 he received a pension of £200 a year. He died June 15, 1844.

Campbell's poetry is very unequal, but in his *Pleasures of Hope* he wrote lines that have become household words, while such pieces as *Ye Mariners of England* and *The Battle of the Baltic* are popular examples of national songs. *Hohenlinden* and *Lochiel* are also worthy of mention.

CAMPBELL, WILLIAM WILFRID (1861-1918). Canadian poet. Born at Berlin, Ontario, June 1, 1861, he was ordained in 1885. In 1891 he entered the civil service, and became bibliographer of the Dominion Archives at Ottawa. His first published volume of verse, *Lake Lyrics*, appeared in 1889; this was followed by *Collected Verse*, 1906, *Poetical Tragedies*, 1908, and *War Lyrics*, 1915.



W. W. Campbell, Canadian poet
Elliott & Fry

He wrote the novels, *Ian of the Oracles*, 1906, and *A Beautiful Rebel*, 1909. He died Jan. 1, 1918.

CAMPBELL-BANNERMAN, SIR HENRY (1836-1908). British statesman. Born in Glasgow, Sept. 7, 1836, he was a son of James

Campbell, of the firm of J. and W. Campbell; on the death of his uncle Henry Bannerman in 1872 he took the name by which he is known. His father was lord provost of Glasgow in 1840-43, and his only brother James Alexander Campbell (1825-1908), was a Conservative M.P. from 1880 to 1906.

Henry graduated from Trinity College, Cambridge, in 1858. He was returned as Liberal M.P. for Stirling Burghs in Nov., 1868, retaining this seat until his death. From 1871-74, and again in 1880, he was financial secretary to the War Office. In 1882 he became secretary to the Admiralty, and from 1884-85 was chief secretary to the lord-lieutenant of



Thomas Campbell, British poet
After MacIver



Sir Henry Campbell-Bannerman

Ireland. In the short Liberal ministry of 1886 he was secretary for war, and in 1892 he returned to the War Office as secretary, and remained there until 1895.

Knighted in 1895, Sir Henry succeeded Sir William Harcourt as leader of the Liberal party in 1899. In general he supported the South African War, although disapproving of it. In Dec., 1905, when Balfour's government resigned, King Edward sent for him to form a ministry. At the general election of Jan., 1906, the Liberals were returned with a large majority and C.-B. was confirmed as prime minister. On April 4, 1908, he resigned owing to ill-health, and on the 22nd died in Downing Street. Consult Life, J. A. Spender, 1925.

CAMPBELTOWN. Burgh and seaport of Argyllshire, 83 m. by boat S.W. of Glasgow. It is an important fishing centre, and has a fine natural harbour. Market day, Fri. Pop. 6,757.

CAMPERDOWN. Town of Victoria, Australia, in Hampden co., 123 m. by rly. W. of Melbourne. Near is the salt lake Corangamite, which covers 90 sq. m. Pop. 3,900.

CAMPERDOWN, BATTLE OF. Naval engagement, Oct. 11, 1797, between the English under Duncan and the Dutch under De Winter. With 16 ships Duncan attacked the enemy and forced them to surrender.

CAMPERDOWN, EARL OF. British title borne since 1831 by the family of Dunne, now Haldane-Duncan. The first earl was Robert, a son of Viscount Duncan, who in 1797 won the battle of Camperdown. He succeeded to the viscountcy in 1804, and in 1831 was made an earl. He took the additional name of Haldane, which was that of his paternal grandmother.

CAMPFOR. (Cinnamomum camphora). Evergreen tree of the natural order Lauraceae. A native of China, Japan, and Cochin China, it has small flowers without petals. The fruit is a small plum-like berry. The wood is used for making moth-proof cabinets. All parts of the tree contain a volatile oil, one of the constituents of which is the white crystalline substance called camphor, but it is from its wood that camphor is chiefly made. This, reduced to chips, is heated with water in a still, the camphor being volatilised with the water-vapour, and carried over to an earthenware vessel, where it deposits as a white mass.

Camphor, originally only obtained from the deposits occasionally found in the trunks of old camphor trees, has been known for centuries and much prized as a perfume. The volatile oil of the tree is used as a stimulating embrocation, but should not be confounded with camphorated oil or liniment of camphor, which consists of camphor dissolved in olive oil. Internally, preparations of camphor are administered to stimulate the flow of gastric juice and to increase expectoration in colds.

CAMPION. Popular name for various species of silene and lychnis. Thus *Silene latifolia* is the bladder campion, *S. maritima* the sea campion, *S. acaulis* the moss campion, *Lychnis alba* the white, *L. dioica* the red, and *L. coronaria* the rose campion.

CAMPION, EDMUND (1540-81). English Jesuit. Born in London, Jan. 25, 1540, he received deacon's orders in the Church of England, but entered the Society of Jesus in 1571. After teaching at Prague, Campion was sent to England in 1580 to minister to Roman Catholics, at that time forbidden to practise their religion in England. Captured in 1581, and charged with conspiracy against the crown, he was executed, Dec. 1, at Tyburn. He was beatified as a martyr in 1886.



Campion, *Lychnis alba*

CAMPION, THOMAS (c. 1567-1620). English physician, poet, musician, and masque writer. Born in London, he was held in high esteem as an authority on music by his contemporaries. The words and music of his English airs are full of charm, and the lines beginning *Rose-cheeked Laura, Come, make up one of the few perfectly successful rhymeless lyrics in the language.* His plea for unrhymed classical metres in his *Observations in the Art of English Poesy*, 1602, provoked Samuel Daniel's *Defence of Rhyme*, 1603. He died, Mar. 1, 1620. Consult Works, ed. A. H. Bullen, 1889; ed. P. Vivian, 1909.

CAMP MEETING. Name given to open-air religious gatherings, such as the revivalist assemblies, lasting several days, of the Methodist churches in the U.S.A. They were introduced into England early in the 19th century, when, refused sanction by the Wesleyan conference, their adherents formed the denomination known as Primitive Methodists. In the U.S.A. camp meetings have assumed a secular and educational character.

CAMPOBELLO. Island of New Brunswick, Canada. It lies in the Bay of Fundy, at the entrance to Passamaquoddy Bay. Some 9 m. long, it is well wooded. Its chief town, Campobello or Welsh Pool, is a popular resort, and trades in smoked fish. It is an outport of New Brunswick and stands on the coast opposite Eastport in Maine.

CAMPO FORMIO. Village in Italy, a few miles from Udine. Here was signed a treaty between the French Republic, represented by Bonaparte, and the Austrians, Oct. 17, 1797. By this Austria gave up the Austrian Netherlands to France and Milan and Modena to the new Cisalpine republic. Venice was partitioned, Austria being compensated for the above losses by a good share of the lands of the republic, including Dalmatia and Istria, while the Cisalpine state obtained the rest of the mainland, and France the Ionian islands.

CAMPOS. Name given to the tropical grasslands which form the natural vegetation of large areas of the comparatively dry southern Brazilian highlands.

CAMPO SANTO (Ital. holy field). Name for a burial ground in Italy, generally remarkable for its cloisters, galleries, or other architectural features. The Campo Santo of Pisa is surrounded by a tall cloister of considerable width, built in the 13th century, though much of the Gothic tracery was added two centuries later. The Campo Santo at Genoa, about 2 m. E. of the town, is modern.

CAMPSIE. District of Stirlingshire. It is 10 m. by rly. N.E. of Glasgow, by the L.N.E. Rly., and contains Lennoxton. Coal and limestone are worked, and there are chemical works and bleaching grounds. Near is Campsie Glen, a beautiful ravine of the Campsie Fells. Pop. 5,304.

There is a Campsie in New South Wales, 7 m. from Sydney.

CAMPUS MARTIUS (Field of Mars). Part of ancient Rome, so named from an altar to Mars erected on it. It was once bounded by magnificent buildings, including a stadium where the Roman youth exercised and the Roman people met in assembly. Hadrian or Aurelian enclosed it within the walls of Rome. See Champ de Mars.

CAMROSE, WILLIAM EWERT BERRY, 1ST BARON (b. 1879). British newspaper proprietor. Second son of Alderman John Mathias Berry of Merthyr Tydfil, and younger brother of Baron Buckland (q.v.), he was born June 23, 1879. In 1901 he founded Advertising World, and within a few years, in association with his brother, Sir J. G. Berry (q.v.), he had become one of the prominent figures in the newspaper world. In quick succession the brothers acquired control of

The Sunday Times, The Financial Times, and various important groups of London and provincial journals, as well as other large publishing and printing concerns, including the Amalgamated Press, Ltd. (q.v.). In 1928 Lord Camrose, along with Sir Gomer Berry and Sir Edward Hille, acquired The Daily Telegraph from Viscount Burnham (q.v.). He was created a baronet in 1921 and was raised to the peerage in 1929, taking the title of Baron Camrose of Long Cross.



Baron Camrose, Newspaper proprietor Russell

CAMWOOD OR BARWOOD. Red dyestuff, the wood of a leguminous tree, *Baphia nitida*. A native of W. Africa, it attains a height of 30 ft., and has shining leaves and white flowers. The wood yields a brilliant red dye.

CANA OF GALILEE. Village of Palestine, the scene of Christ's first miracle (John 2). The site is uncertain. Near Capernaum, W. of the Sea of Galilee, two villages, Kefer Kenna and Kana el Jellil, claim to represent the ancient one, while Conder argues in favour of Ain Kana, a spring near Nazareth.

CANAAN. Hebrew name for Palestine (q.v.). It originally denoted only the coastal region and the valley of the Jordan. Canaanites is the name applied to the descendants of Canaan, grandson of Noah (Gen. 9), and to the early idolatrous inhabitants of the land between the Jordan and the Mediterranean—Phoenicia and Philistia (Exod. 3 and 13; Num. 14).

CANADA. British dominion of North America. It includes the whole of the North American continent and islands N. of the U.S.A., except Alaska and Newfoundland, with its dependency Labrador. It is 3,684,723 sq. m. in area, and the official estimate (1928) of the population is 9,658,000. It is divided into nine provinces, namely, Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, British Columbia, Alberta, and Saskatchewan, and two territories, the Yukon Territory, and the North-West Territories. In 1927 the privy council awarded some 110,000 sq. m. of Labrador to Newfoundland. Ottawa is the capital.

The most important series of waterways is the St. Lawrence river system. Starting at the river St. Lawrence, it connects up with Lake Ontario, and thence by a series of canals through the great lakes establishes connexion between the Atlantic and Fort William and Port Arthur, cities in communication with Winnipeg and the West. It is closed, however, by ice for four winter months.

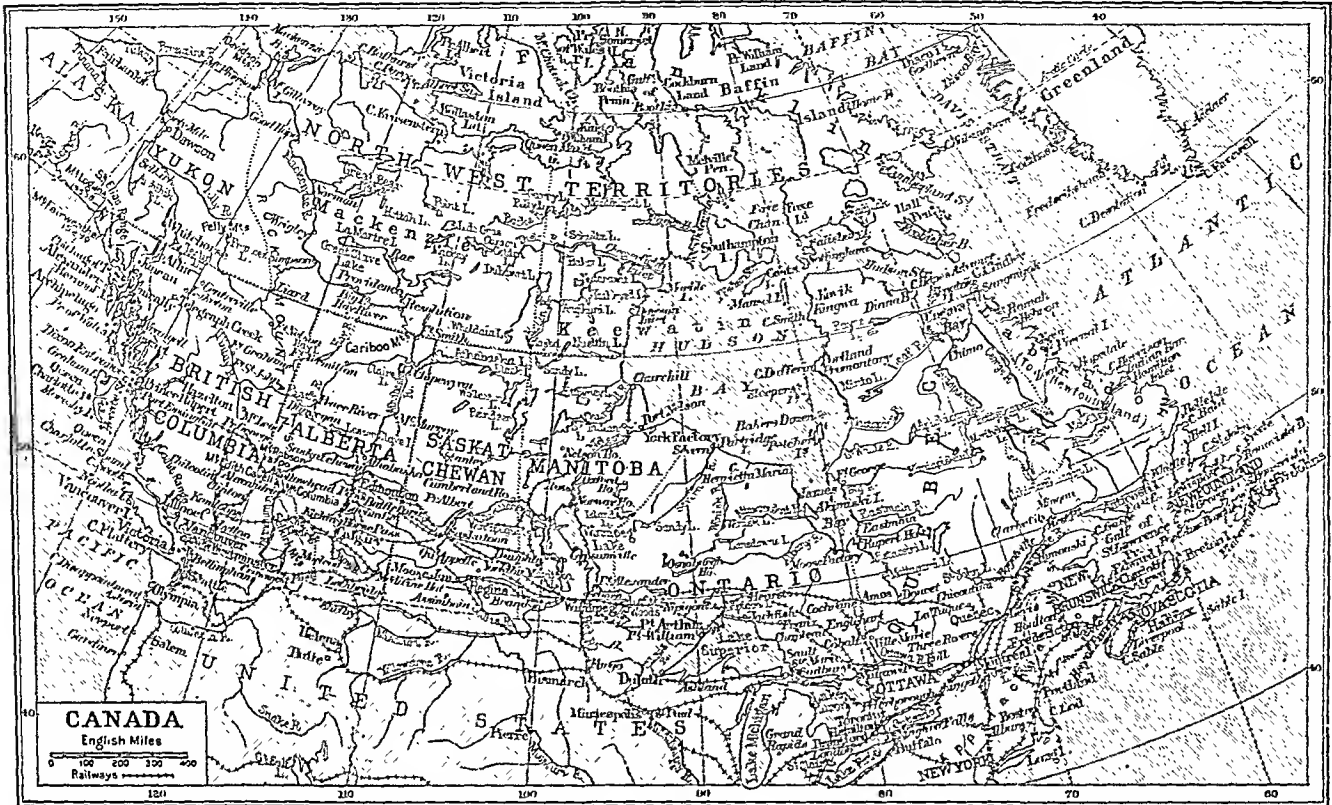
Lake Superior is the largest body of fresh water in the world. Other large lakes are the Great Bear Lake, Great Slave Lake, Lake Winnipeg, and Lake Athabaska. There are eight rivers over 1,000 m. in length: the Mackenzie, St. Lawrence, Nelson, Saskatchewan, Churchill, Columbia, Yukon, and Peace.

The Arctic zone, including the bleak islands of the North Atlantic coast, is tundra. Here are found the Arctic fox, polar bear, musk ox, lemming, and barren ground caribou. Farther S. is the sub-Arctic zone, with forests of spruce, poplar, birch, and jack pine, the home of the big game and fur-bearing animals, deer, elk, moose, and caribou. The black bear, fox, beaver, otter, marten, mink, and ermine are found here.

The transition zone contains forests of hardwoods, beech, maple, ash, oak, hickory,



Arms of Canada



Canada. British self-governing dominion extending across North America from the Atlantic to the Pacific, and experiencing great variations of climate and vegetation

elm, and yellow birch. In the S. of British Columbia there are great trees of the type found in Oregon, and abundant vegetation.

Outside the West coast, Canadian summers are short, warm, and dry; the winters long, dry, and cold; the springs short; and the autumns long and fine. On the W. coast the Pacific Ocean greatly modifies the climate.

INDUSTRIES. Agriculture is the staple industry of the country, the crops including wheat, the most important, oats, barley, rye, flax (for seed), maize, and hay. Stock raising, dairy farming, and fishing are important.

The forest resources of Canada are enormous, the more important timber areas being in British Columbia, Ontario, and Quebec. Pulp and paper are growing allied industries. Mining is another large industry. The minerals and metals include gold, copper, lead, nickel, silver, asbestos, coal, and petroleum. Canada is the greatest fur preserve of the world, and fur farming is increasingly followed. Water power has been enormously developed.

The principal rly. system is the Canadian Pacific Rly. (C.P.R.), which operates in all over 20,000 m. of line. This vast corporation played a large part in the opening-up of the New West. In 1928 it bought the rly. system of the prov. of Alberta. The other system consists of all the lines built or acquired by the Government, and is known as the Canadian National Railways.

HISTORY. Canada was discovered in 1497 by John Cabot, but the first attempts at settlement were made by Frenchmen, Cartier and Champlain. French folk settled in Nova Scotia and around Quebec and there prosperous French colonies arose. In 1713 Nova Scotia was ceded to England, and in 1763 Canada proper shared the same fate. The French remained in Lower Canada, but Upper Canada, or Ontario, was colonised by Britishers, many loyalists from the U.S.A.

In 1773 the Quebec Act enlarged the provinces and confirmed privileges to the French inhabitants. In 1810, after some trouble,

including a rising led by Papineau, Upper and Lower Canada were united. This paved the way for the larger union of 1867 by which the Dominion was created. Four provinces then joined it: two came in later and three were carved out of the western areas. The capital was fixed at Ottawa and Sir J. A. Macdonald was the first prime minister. Matters of importance were the rebellion of Louis Riel, the acquisition of the lands owned by the Hudson Bay Co., and the construction of a railway across the continent.

Macdonald, who was in power until his death in 1891, except for the years 1874-78, introduced protection, which has since been the national policy. His Conservative successors held office until 1896, when the Liberals, under Sir W. Laurier, came into power.

He and his party remained in power until 1911, when their proposals to make a reciprocity treaty with the United States led to their defeat. The Conservatives, now led by R. L. Borden, came into office, and were responsible for Canada's decision to enter the Great War.

In 1917, as in Britain, a coalition, with Borden at its head, was formed to carry on the struggle, and this lasted until July, 1920, when Borden retired. He was succeeded by Arthur Meighen, who was premier until 1921. In that year the liberals won the general election and came into power under W. L. Mackenzie King. The next election in 1925 gave the Conservatives a majority, but they only enjoyed a few months of office, because in Sept., 1926, another election reversed the verdict of 1925. King became premier for the second time, and was still in office in 1930.

On the outbreak of the Great War the Canadian government raised a first contingent of 32,000 men. Further contingents were organized, and by the autumn of 1916 the number enlisted had exceeded 370,000. The

war casualties totalled 215,545—killed in action or died of wounds, 50,869; died from other causes, 4,030; missing, 8,119; prisoners, 2,818; wounded, 149,709.

Canada is a self-governing dominion within the British Empire and a member of the League of Nations. The executive government consists theoretically of the governor-general and privy council. In practice it is a Cabinet under a prime minister, just as in Great Britain. The legislative power is vested in the senate of 96 members, who are nominated for life by the governor-general, and in the House of Commons of 245 members. Each of the provinces has a separate government, with a lieutenant-governor and a legislative body of one house, except Quebec, which has two.

CANADA BALSAM. Substance containing oils and resin derived from the balsam fir (*Abies balsamea*) of Canada. It forms an adhesive varnish when dried, and is largely used for cementing lenses, and for mounting objects on glass slides for the microscope.

CANADA HOUSE. London headquarters of the Canadian government. It serves as the offices of the High Commissioner for Canada and his staff. The building is at the corner of Cockspur Street, S.W.1.

CANADIAN MOUNTED POLICE. Mounted force, until 1919 known as the Royal North-West Mounted Police. Their duties are to maintain law and order in the thinly populated parts of Canada.

CANADIAN PONDWEED (*Elodea canadensis*). Waterweed of the order Hydrocharidaceae. A native of N. America, it has long, slender and brittle submerged stems, rooting at the joints.

CANAL (Lat. *canalis*). An artificial open water-channel, used to carry water for irrigation, town supply, or drainage, or for the purposes of navigation. Canals of the first class are more properly called aqueducts (q.v.). Navigation canals fall naturally into two classes: (1) Those which have the same



Canadian army badge

level throughout. (2) Those which cross ground higher than the water level at their extremities and are divided into steps or reaches at different levels. Transference of vessels from one level to another is made by a lock or some mechanical device. The longer canals, such as the Suez, Panama, Kiel and Welland, are known as ship canals.

The waterways of England and Wales form part of a connected system, lying chiefly in the midlands and in the southern part of the northern counties. It is entirely unconnected by inland water routes with the Scottish canals and rivers. Most of it lies within a quadrilateral bounded by a straight line drawn from the north coast of Somerset to the north coast of Kent, by a line drawn from London to Scarborough, by a line drawn from Scarborough to Barrow-in-Furness, and by a line drawn from Barrow to Bristol. The total mileage of canals at present used in the British Isles is about 4,670. In 1929 the Grand Junction Canal and a number of smaller ones (including the Regent's Canal) were united under the name of the Grand Union Canal, with a total length of 239 miles.

CANALETTO, ANTONIO (1697-1768). Venetian painter whose real name was Canale. Born in Venice, Oct. 18, 1697, he devoted himself to painting the life and buildings of that city. There are examples of his work in the National Gallery and the Wallace Collection in London. Canaletto visited England in 1746 and 1761. He died at Venice, Aug. 20, 1768. His nephew Bernardo Bellotto (c. 1724-80), also called Canaletto, painted similar subjects.



Canaletto, Venetian painter

CANARY. Bird of the finch family, a native of the Canary Islands. It is famous for its song. The wild canary (*Serinus canarius*) is yellowish-brown or green, with ashy sides streaked with black, and yellow forehead and underparts. Its song lacks the power or variety displayed by cage birds. The uniform yellow of the cage varieties is the result of artificial selection in breeding. The canary appears to have been first domesticated in Europe in the 16th century. The larger breeds are double the size of the wild bird. It breeds freely in captivity; four or five blue eggs are usually laid, and as many as four broods may be raised in a good season.



Canary. Four typical specimens of this favorite songbird. Left to right: above, Scottish Fancy and Lizard; below, Norwich and Belgian

The Norwich bird is noted for its rich colour and hardy constitution, the Yorkshire is a slender bird with close plumage, and the London Fancy is characterised by black wings and tail. The Scottish Fancy is a large bird with a hump-backed appearance, and the Lancashire Coppy is the largest of all the varieties, with a crest of radiating feathers. The rare Lizard canary gets its name from its spotted appearance. The Belgian, which usually fetches a high price, is hump-backed

to the verge of deformity. Roller canaries, chiefly bred in the Harz Mts., are famed for their sustained and melodious song, the result of prolonged training. In 1928 some breeders succeeded in producing a new canary, called the Gloucester Fancy.



Canary Grass

CANARY DANCE. Lively 16th century dance in three- or six-time. It owed its name to the Canary Islands, from which it was introduced by way of Spain. The dance is referred to by Shakespeare in *Love's Labour's Lost*—"Canary to it with the feet"—and *All's Well that Ends Well*.

CANARY GRASS (*Phalaris canariensis*). Annual grass, a native of countries bordering the Mediterranean. It has flat, lance-shaped leaves, and the flowers are produced in an egg-shaped panicle, variegated with green and white. The flattened yellow fruits of canary grass are widely used as food for cage birds.

CANARY ISLANDS (Span. *Las Canarias*). Archipelago in the Atlantic Ocean. Some 60 m. off the N.W. coast of Africa, they belong to Spain, of which for administrative purposes they are considered a province, and have an area of 2,807 sq. m. Pop. 503,151.

The islands are mountainous, and of volcanic origin, rising to 12,100 ft. in Pico de Teydo or Tenerife. The climate, though subject to occasional hurricanes with water-spouts, is mild and equable, and has made the islands a favourite winter resort. The people are mainly of Spanish descent, with traces of the original inhabitants, the Guanches (q.v.), now extinct. The islands have no railways, but have many good roads. There are three wireless stations.

The chief islands are Grand Canary, Tenerife, Fuerteventura, Lanzarote, Palma, Gomera, and Hierro or Ferro; the chief towns are Santa Cruz de Tenerife, the capital and an important coaling station, Las Palmas, the chief commercial town, Santa Cruz de la Palma, and Orotava. The ports are free ports.

The Canaries were known probably to the Phoenicians and certainly to the

Romans. They were rediscovered accidentally by a French ship in 1334, and taken possession of, in 1402, by Jean de Bethencourt, who relinquished his rights to the Spanish king.

The Canary Company was an English company of merchants trading with the Canary Islands. It received a charter from Charles II in 1665, which was withdrawn in 1667.

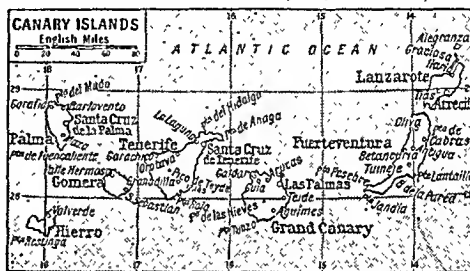
Canary wine, also known as Tenerife, is a still white wine produced in the Canary Islands. It enjoyed a high reputation in Elizabethan times.

Canary wood is a coarse kind of mahogany, the timber of *Persea indica*. An evergreen tree of the natural order Lauraceae, it is a native of the Canary Islands.

CANBERRA. City and capital, also federal territory of the Commonwealth of Australia. The federal territory, area 940 sq. m., is directly under the Commonwealth Government, and is surrounded by Murray co., New South Wales. The Murrumbidgee flows through it. Pop., federal capital territory, 7,700: Jervis Bay territory, 437.

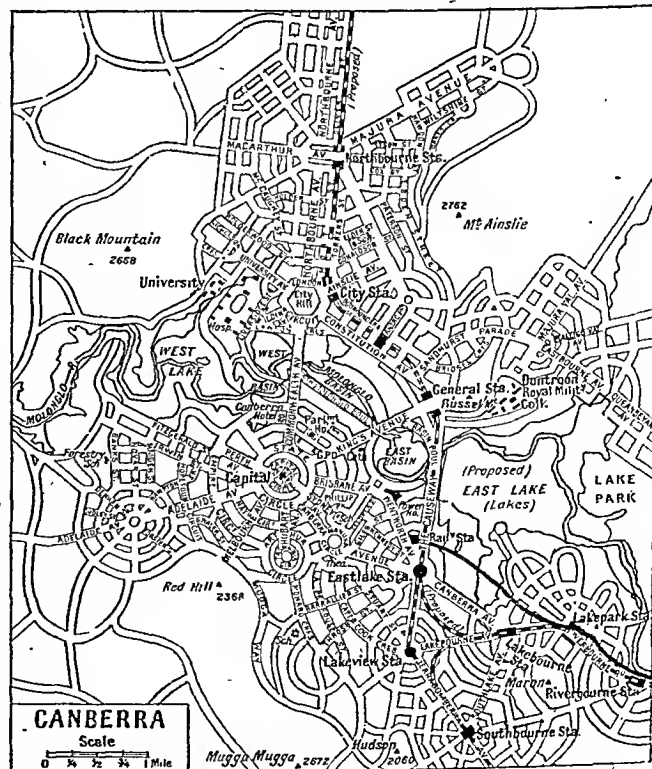
The site is on the Molonglo affluent of the Murrumbidgee, with the Australian Alps as a background on the E. It is an irregular amphitheatre dotted with Mt. Ainslie, Black Mt., Mt. Pleasant, and Mugga Mugga hills.

A rly. connects the site with Queanbeyan, N.S.W., 196 m. by rly. from Sydney. A survey for the line to Jervis Bay has been completed, and, in addition, a line from Canberra to Yass, New South Wales, via the Federal border, is projected. The latter line will, when completed,



Canary Islands. Map of this volcanically formed archipelago, famous for its perfect climate and luxuriant vegetation.

The volcanoes are inter-cover a total distance of approximately 43 miles. The Australian School of Forestry



Canberra. Plan of the Federal capital of the Australian Commonwealth

has been established within the city area, and a solar observatory at Mt. Stromlo. There is an Anglican cathedral. The buildings of the

CANDACE (Gr. Kandakē). Official name of ancient Ethiopian queens. Their wealth, implied in Acts 8, is exemplified by jewelry finds. Pron. Canda-see.



Canberra. The Parliament House of the Commonwealth, opened in 1927
Courtesy of the Australian Government

Commonwealth Parliament were opened by the Duke of York on May 9, 1927.

Canberra is also the name of a battleship, sister ship to the Australia (q.v.).

CANCAN. Parisian dance. It had the character of the quadrille, but was danced with wanton movements and contortions and was eventually prohibited by the French Government. The word came to be applied to any noisy or scandalous demonstration.

CANCER (Lat. crab). In astronomy, the smallest and least noticeable of the constellations of the Zodiac, between Gemini and Leo. In the midst of it are a pair of not very bright stars, Gamma and Delta.

CANCER. Disease characterised by the formation of a carcinoma, that is, a malignant tumour beginning in, and consisting of, epithelial cells. These are cells which cover the skin and mucous membranes, form glands, and occur in other situations in the body. The cancer cells resemble those from which they are derived, but are altered somewhat in appearance and size and have an independent existence. They invade the normal tissues by which they are surrounded and gradually replace them. They can also be disseminated throughout the body by means of the lymphatics and the blood stream.

This change in the nature of the cells is due to two factors. First, the presence of some exciting agent; second, some change in the body cells which makes them susceptible to invasion by the virus. This may be induced in various ways; in carcinoma it is due, in most cases, to chronic irritation. The nature of the exciting agent is still under discussion. One investigator affirms that it is a virus introduced from without; another, that it is in the nature of a ferment within the body.

The disease is of world-wide distribution, is more prevalent among civilized races and occurs among the old and middle-aged rather than the young. It is not inherited, though susceptibility to develop it may be transmitted. There is no evidence of it being an infectious disease. It may manifest itself in various forms, such as a lump felt in the breast or the stomach, an ulceration on or near the surface of the skin, etc. While pain may be severe in the later stages, it is not a common early symptom. An operation done in the early stages of the disease offers an excellent prospect of cure; an operation when the disease is thoroughly established, little or none. Radium is an important instrument in the treatment of malignant tumours when an operation is out of the question. (See Sarcoma.)

The London Cancer Hospital was founded in 1851. In 1861 the present building in Fulham Road was opened. In connexion with the hospital there is a Research Institute.

The Imperial Cancer Research Fund is a society, founded in 1902, to promote investigations into the causes, prevention, and treatment of cancer and malignant diseases. The office of the fund is at 8, Queen Square, Bloomsbury, London, W.C.

CANDIA (Gr. Megalokastro or Heraklion). Largest city and former capital of Crete, on the N. coast. Founded about 824 by Saracens, it was taken and fortified by the Genoese in the 12th century, and afterwards by the Venetians, who built the city walls, arsenal, and a cathedral. The cathedral was demolished in the 19th century, and a new Greek cathedral consecrated in 1893. Pop. 33,404. See Crete.

CANDLE. Article in common use for purposes of illumination. The earliest form of candle, known as a rushlight, was a partly peeled rush stem surrounded by resins or fats. Inexpensive candles, called dips, were made by dipping wicks into melted tallow. For ecclesiastical purposes the more expensive bleached beeswax was employed. This form was made by pouring the melted beeswax down the suspended wick, layer by layer. Modern candles are made of stearine or paraffin wax.

Standard candles, made of spermaceti, are used in photometry, or the comparison of the illuminating powers of sources of light, which is expressed in candle-power. The candle is arranged on one side of a paper having a grease-spot at the centre, and the illuminant to be tested on the other, at such distances that the grease-spot becomes invisible; or both are placed on the same side of a white surface and so adjusted that the shadows cast by an interposed rod are of equal density. The candle-power is then found by calculation from the respective distances of the illuminants.

CANDLEMAS. Christian festival commemorating (Feb. 2) in the Roman Catholic Church the Purification of the Virgin Mary, and in the Eastern Churches the Presentation of Christ in the Temple. The Anglican Prayer Book retains both commemorations.

The name Candlemas dates from the 11th century, when the ceremony of blessing candles and carrying them in procession began. In Scotland Candlemas is the first quarter day of the year.



Candelabrum.
Louis XVI example in ormolu

CANDLE NUT. Fruit of *Aleurites triloba*, a tree of the order Euphorbiaceae, a native of the Moluccas and the islands of the S. Pacific.

The fruit is round and fleshy, with two seeds like small walnuts and containing a large amount of oil. In some islands, stuck on reeds, they are used as candles, and in others as food, their flavour being very much like that of the walnut. The oil expressed from them serves as a "drier" for use with paint.



Candle tree. Central American tree with candle-like fruit

CANDLE TREE (*Parmentiera cerifera*). Tree of the natural order Bignoniaceae, a native of Panama. It has trefoil leaves and large greenish-white, bell-shaped flowers, succeeded by long, cylindrical waxy-looking fruits resembling large candles. They contain a large quantity of oil and are used as cattle food.

CANDLISH, ROBERT SMITH (1806-73). Scottish divine. Born in Edinburgh, March 23, 1806, he graduated at Glasgow University in 1823, and became minister of S. George's, Edinburgh, in 1834, where he took front rank as a preacher. At the disruption he was second only to Dr. Chalmers in the founding and organizing of the Free Church. Moderator of the assembly in 1861, the following year he became principal of New College, Edinburgh. He died in Edinburgh, Oct. 10, 1873.



Robert S. Candlish,
Scottish divine

CANDYTUFT (Iberis). Genus of herbs of the order Cruciferae.

Natives of S. Europe and W. Asia, they have smooth, round stems and narrow leaves. The white or purple flowers are produced in flat clusters (corymbs). One species (*Iberis amara*), with minute white flowers, occurs wild in the S. and E. of England. Several species are cultivated as garden flowers, e.g. rocket and common candytuft.



Candytuft,
Iberis umbellata

CANE (Lat. canna). Commercial name for the stems of various grasses and palms. The more important are bamboo, rattan, malacca, and sugar. See Bamboo, etc.

CANEA. Scaport and capital of Crete. On the site of the ancient Cydonia, on the N. coast, it has many Turkish mosques and Greek churches, a synagogue, and numerous relics of Venetian occupation. Pop. 26,604.

CANELLA. Bark of a small evergreen tree (*Canella alba*), of the natural order Canellaceae. It is a native of the West Indies. The whole tree has an aromatic fragrance, and when in flower perfumes a considerable area around it. The bark is used as a tonic.

CANFORD. Public school in Dorset. It is 2 m. from Wimborne and six from Poole, and was founded in 1923. The building was formerly the residence of Viscount Wimborne.

CANG or **CANGUE** (Port. canga, yoke; Chinese Kea). European name for a Chinese instrument of punishment of minor offenders.



Cang. Chinese instrument for punishing minor offenders

It consists of a large heavy slab of wood made to grip the neck. Thus pilloried, the culprit can neither lie down nor reach his mouth.

CANIS. Name of the two constellations, Canis major (the greater dog) and Canis minor (the lesser dog). Canis major possesses the brightest of all the fixed stars—white, scintillating Sirius. Canis minor in Ptolemy's catalogue numbered only one star besides Procyon, namely Gomeisa, the "dim-eyed." The Greater Dog has other stars: among them Murzim, and a little triangle of bright stars very close to the Northern horizon. See Constellation.

CANKER (Lat. cancer, crab). Disease affecting trees, particularly the apple and pear, producing deformity and slow decay. It may result from the attacks of the Woolly Aphis; from severe pruning late in the season, or from excessive growth too late to be ripened. In the plum tribe it often follows upon "gumming." To prevent canker care should be taken to plant in well-drained soil, to avoid the use of rank manures, and to prune cleanly.

The name canker is given to a disease of the ear, common in dogs and less frequently in the cat. Though applied to ulcer of the flap of the ear, the word really means an ulcerated condition of the inner lining. It may be caused by wax or dirt, or by parasites.

CANNA (Lat. a reed). Large genus of perennial herbs of the order Scitamineae. They have ornamental foliage and showy flowers. They are cultivated as hothouse plants, and used for summer bedding out of doors. The true petals are green and leaf-like, while what appear to be three brightly coloured petals are really the stamens, only one of which produces an anther. The tubers of some species are used as food; those of a Peruvian species cultivated in the West Indies yield a kind of arrowroot called Tous les mois



Canna indica, or Indian shot plant

vated in the West Indies yield a kind of arrowroot called Tous les mois

CANNABIS (Gr. Kannabis). Small genus of the order Urticaceae, and the name used by Dioscorides for the hemp plant, Cannabis sativa. Under the name of Cannabis indica, the dried flowering or fruiting tops of the female plant are employed in medicine, the extract or the tincture being given to relieve migraine and neuralgia. Cannabis indica produces a condition of mild intoxication. See Hemp.

CANNAE. Village of Apulia, Italy. Here a battle was fought between some 80,000 Romans and a Carthaginian army of about 40,000 under Hannibal. By skilful tactics Hannibal completely defeated the Romans.

CANNES. Watering-place of France, in the dept. of Alpes-Maritimes. Protected by hills on the N., it is 120 m. by rly. E. of Marseilles, and overlooks the Mediterranean. Its equable climate and beautiful surroundings have made it a popular winter resort. Near is Le Cannet, also a winter resort. The hill of La Californie, whereon is an observatory, is said to afford the finest view on the Riviera. In front of Cannes are the Îles de Lérins. The chief are S. Marguerite, on which the Man with the Iron Mask, and later Marshal Bazaine, were imprisoned; and S. Honorat, with an ancient abbey. A meeting of the Supreme Council of the Allies took place at Cannes, Jan. 6-13, 1922. Pop. 30,907.

CANNIBALISM. Practice of eating human flesh. It may be held to be coeval with the dawn of mankind. Before the development of the moral ideas no repugnance was felt to food-cannibalism under the impulse of hunger, or even of gluttony. A distinction,

however, would come to be drawn between the family group and strangers. The development of the totem theory of kinship limited these practices by putting a taboo upon the eating of one's totem. But with the growth of animism parts of the human body, whether friend or foe, would be consumed in order to acquire the deceased's strength or virtue and, later on, his soul.

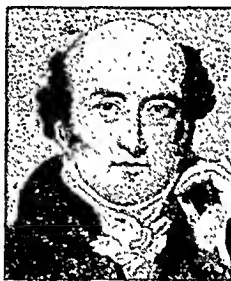
CANNING, CHARLES JOHN CANNING, EARL (1812-1862). Governor-general of India. Born near Brompton, London, Dec. 14, 1812, the



Charles John Canning, Earl Canning

third son of George Canning, he became Conservative M.P. for Warwick, 1836, and Viscount Canning 1837. In 1855 he succeeded Lord Dalhousie as governor-general of India. His impartiality during the Mutiny and the consequent reorganization of India earned him the thanks of both houses of Parliament. On the transference of the government of India to the crown in 1858 Canning became first viceroy. Created an earl in 1859, he died June 17, 1862.

CANNING, GEORGE (1770-1827). British statesman. Born in London, April 11, 1770, he entered Parliament as Tory member for Newport in 1794, and held a series of posts in Pitt's administration, achieving a reputation in the House of Commons as an orator, and among the public by his contributions to The Anti-Jacobin. In 1807 he joined the Portland ministry as foreign secretary.



George Canning, British statesman
After Lawrence

Canning's objection to the policy of Castlereagh (q.v.), the war secretary, in the conduct of the Peninsular War, ended in a duel between the two ministers, Castlereagh believing that Canning had intrigued against him. Both ministers resigned, but Castlereagh returned to office as foreign secretary in 1812, and Canning in 1816 as president of the India board of control. On the death of Castlereagh he was appointed to the post of foreign secretary in the Liverpool ministry.

He maintained Castlereagh's policy of non-intervention in the domestic affairs of European states, but also insisted openly on the right of Britain to intervene when non-intervention was violated by European powers. When Liverpool left office in 1827, Canning at last became prime minister, but he died four months later, Aug. 8, 1827, and was buried in Westminster Abbey. Consult Canning and His Times, J. A. R. Marriott, 1903.

CANNING TOWN. Industrial district of E. London, a ward of the borough of West Ham. At the junction of East India Road and Barking Road, it has a station on the L.N.E.R. Here are the Victoria and Royal Albert Docks. The site and buildings of the Thames Ironworks were acquired in 1928 for a shipping station. Pop. 28,383.

CANNOCK. Urban district and market town of Staffordshire. On the L.M.S. Rly., 130 m. N.W. of London and 8 m. N.W. of Walsall, it is a mining centre. Cannock Chase, a wild moor near, is rich in coal and ironstone. Market day, Sat. Pop. 32,930.

CANNON, TOM (1846-1917). British jockey. Born at Eton, he was associated with John Day, the trainer, whose daughter he married. As a jockey he won many of the classic races, including the St. Leger in 1880 and the Derby in 1882. He rode the winner in the Grand Prix de Paris five times. After giving up riding he became a trainer and died at Stockbridge, July 13, 1917. Cannon's three sons, Tom Cannon, junior, Mornington Cannon, and Kempton Cannon, were all leading jockeys for many years.

Cannon (Lat. canna, tube). General term for ordnance or artillery, now superseded by the term gun. See Artillery; Gun.

CANNON-BALL TREE (Couropita guianensis). Tree of the order Myrtaceae. A native of tropical America, it has alternate leaves and large whitish or rosy flowers. The large globular fruit is contained in a hard, woody shell.



Cannon-ball tree, Couropita guianensis

CANOE. Generically, a boat sharp at both ends, of slight draught and good beam, of sufficient stability to be navigable in deep and fairly rough waters, and light enough for transport overland by manual labour. A canoe may be propelled by hand paddles, or sailed under easily removed sails and spars. The name is derived from canoa, the Spanish form of a native Haitian word.

Canoes in use in different parts of the world are those of South America and Australia, made of bark; Eskimo canoes of seal or walrus skin; the long and narrow Dyak variety of the Malay peninsula, and the large Fiji canoes. A canoe in much favour on the Thames is the Canadian variety made of strips of bard grained wood $\frac{1}{2}$ in. thick. The wood is steamed and fitted over a mould. All canoeing matters are controlled by the Royal Canoe Club, with headquarters at Kingston-on-Thames. See illus. below.

CANON (Gr. rule, model). Musical composition based upon imitation. One voice or part (dux) leads off and another (comes) follows at an agreed interval of time and pitch.



Canoe. 1. N. American birch bark canoe. 2. Liberian dug-out. 3. South Sea Island outrigger dug-out. 4. Rob Roy canoe

Any interval may be used, also the devices of Inversion, Augmentation, Diminution, and Retrogression (Canerizans). When a canon can be performed many times over without a break it is called infinite; when it has a full close or coda it is finite. A famous three-part canon is Byrd's Grace, Non nobis, Domine. Mendelssohn's The Nightingale is a double canon.

CAÑON or CANYON (Span. tube). Deep, steep-sided, gorge-like river valley. The typical example of such formations is found in the W. states of the U.S.A. where there is an almost rainless plateau, in parts over 8,000 ft. high, crossed by the Colorado river. The river and its tributaries have cut their way vertically downwards through the plateau, which is composed of horizontal layers of hard and soft rocks. The hard rocks form steep cliffs and the soft rocks gentle slopes, giving the valley the shape of a narrow letter V. The deepest of the Colorado cañons is the Grand Cañon of Arizona.

CANON (Gr. list. rule). Term originally applied to all clergy (canonici) on the list at each church. Later it was restricted to cathedral clergy: canons regular, who lived under a rule; and secular canons, so called because they moved in saeculo (in this world) and undertook the cure of souls. Women who lived under a similar rule to that of canons regular were known as canonesses.

Residentiary canons have a right to a seat in the choir, a voice in the decisions of the chapter, and a prebend or competent portion of the chapter revenues. An honorary canon is a canon without emolument and no voice in the chapter. A minor canon is one who, while he has a stall, has no prebend, and is not responsible for the preaching.

Canon law was originally a body of ecclesiastical law for the government of the clergy and affairs of the church, compiled from the writings of the fathers, the decrees of general councils and the epistolary orders and proclamations issued by the respective popes. Various collections of these rules or canons were made and were adopted by the states of Christendom as part of their own laws.

CANON, BIBLE. List of books in the O.T. and N.T. accounted of Divine inspiration. While the canon of the N.T. is of general acceptance throughout all Christian churches of the E. and W., the canon of the O.T. in the Roman Catholic Church includes those books which were rejected by Protestants at the Reformation and are classed as Apocrypha.

CANONBURY. Dist. of London in the borough of Islington. It is bounded by Upper Street on the E. and by Southgate Road on the W., and is served by the L.M.S. Rly. Canonbury Tower, in Canonbury Place, was first occupied by the prior and canons of S. Bartholomew's, Smithfield. It then passed to Sir John Spencer and next to the marquess of Northampton, and is now a club. Pop. 29,997.

CANONISATION. Process in the Roman Catholic Church of declaring and decreeing that a person is to be venerated as a saint. It extends over a number of years. The congregation of rites is the official body deputed by the pope to examine all causes brought forward. If the claims are satisfactory the person is first beatified, and permission given for local veneration. See Beatification.

CANONS. Estate near Edgware, Middlesex. Named from the priory of S. Bartholomew, Smithfield, it passed in 1710 to James Brydges, afterwards duke of Chandos (q.v.), who built a mansion, the theme of Pope's Epistle on False Taste, and laid out a park. The estate, known as Canons Park, was sold to the N. London Collegiate School for Girls, and for building purposes, in 1929.

CANOPUS. First star of the constellation Argo (Alpha Argus). It is in the southern heavens. It must be at least 300 light years distant, so that its light may be equivalent to that of 22,000 suns like ours. See Constellation.

CANOPUS. Ancient town near Abukir, Lower Egypt. Giving its name to the Canopic arm of the Nile it was a busy trading mart until superseded by Alexandria. Here was a

celebrated temple of Serapis. The Canopus stèle (Gr. pillar), found at Tanis, 1866, and now at Cairo, is a limestone slab inscribed in hieroglyphic, demotic, and Greek. It records a priestly decree in honour of Ptolemy III.

At Canopus were made the so-called Canopic jars, a set of four jars, of alabaster, terra-cotta, or wood, containing the entrails of embalmed human bodies in ancient Egypt.

CANOPUS. Nameship of a class of six British battleships built between 1899 and 1902. She was unable to take part in the Coronel actions owing to her slow speed. At the battle of the Falklands, though not actually in the engagement, she fired the first



H.M.S. Canopus, the battleship which fired the first shot in the battle of the Falkland Islands, 1914

shot at the enemy. The Goliath and the Ocean, two of the class, were lost at the Dardanelles.

CANOPY (Gr. konopcion, mosquito-curtain). Term signifying generally a roof of hard or soft material supported on pillars or poles. It is applied in architecture to the stone or wood covering of pointed or circular form over a door, niche, window, or tomb.



Canopy in a butress, Roslyn chapel, Edinburgh

Among the most famous are Perseus with the head of Medusa, Cupid and Psyche (several versions), The Three Graces, The Magdalen, Venus Leaving the Bath, and The Dancing Nymphs. He died Oct. 13, 1822.

CANSO, CAPE. Easternmost extremity of Nova Scotia. On the S. side of Chedabucto Bay in lat. 45° 17' N., long 61° W. It has a wireless direction-finding station. Near is Canso, a fishing centre and the terminus of many Atlantic cables.

The Gut of Canso is a channel between Nova Scotia and Cape Breton Island, Canada, connecting the Atlantic with Northumberland Strait. It is some 17 m. long and has an average breadth of 2½ m.

Cantacuzene (Cantacuzenus). Name of a Byzantine family, the chief member of which was the emperor John V or VI (q.v.).

CANTALUPE or CANTALOUPE. Variety of melon coming originally from Armenia, but introduced to Britain from Cantalupo, near Rome, hence the name. It is distinguished by its small, round shape and rough, irregularly meshed, netted surface. See Melon.

CANTEEN (Ital. cantina, wine-cellar). Originally a soldier's water-bottle, the term is generally applied to the liquor bar and wet canteen in barracks and on board troopships. The dry canteen provides articles of food, tobacco, and other things required by soldiers and their families living in barracks.

During the Great War, navy and army canteens assumed considerable proportions, and on April 11, 1916, the army canteen committee commenced its duties. The tenant system in the navy was abolished on June 1, 1917, and the navy canteens, like the army canteens, were provided by the Navy and Army Canteen Board acting under the direct control of the Admiralty and the War Office.

CANTERBURY. City of Kent and the ecclesiastical metropolis of England. It lies in a valley on both banks of the Stour 55 m. by road and 62 m. by rly. S.E. from London on the Southern Rly.

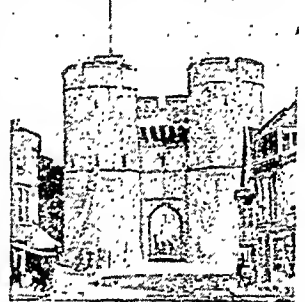
The cathedral, a double cruciform pile, was founded by S. Augustine, who constituted the see in 597, consecrating a Roman church as his cathedral.

Partly rebuilt by Odo about 950, it was destroyed by fire in 1067, and in 1070 Lanfranc began the construction of a new building, which Anselm carried on, and Prior Conrad finished by adding the choir. Fire demolished the choir in 1174, its reconstruction being undertaken by William of Sens and completed by William the Englishman in 1184. Prior Childen erected a new nave and nave transepts in the 14th century, and the addition of the central, or Bell Harry, tower by Goldstone and Archbishop Morton about 1495 completed the building, which is an example chiefly of the Transition-Norman and Perpendicular styles.

Of the parish churches the most notable is S. Martin's, which has a font reputed to be that in which Augustine baptized Ethelbert. S. Dunstan's Church contains memorials of the Roper family, and in the vault is the head of Sir Thomas More. Of interest are the remains of the ancient walls, the Dane John (Donjon), an artificial mound, the ruined Norman keep of the old castle, the Guildhall, and the Chequers Inn of Chaucer's Canterbury Tales. There are, besides, the King's School, traditionally founded in the 7th century, and refounded by Henry VIII (1541), S. John's Hospital, founded by Lanfranc, the Clergy Orphan School, and the Simon Langton Schools, which incorporated the blue-coat school founded by Queen Elizabeth.

During the reign of Elizabeth, Walloons settled in Canterbury and introduced silk weaving. Modern industries include agriculture, brewing, and tanning. The Canterbury week, a fashionable cricket festival, is held annually, in which the Kent county eleven oppose others. Canterbury was an old British city and an important military station of the Romans. The murder of Becket here made it a resort of pilgrims. Pop. 23,737.

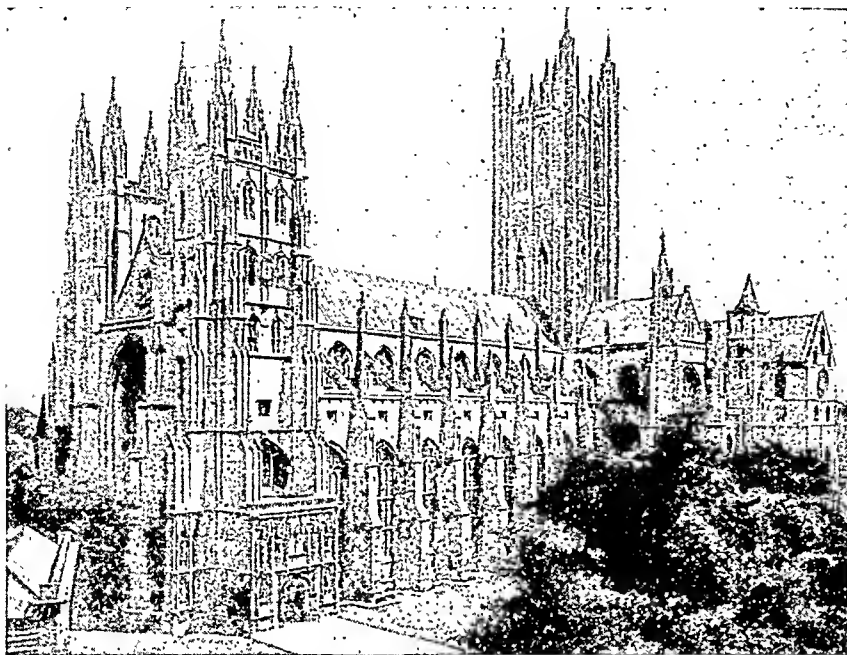
The Archbishop of Canterbury is the chief dignitary of the Church of England



Canterbury. The 14th century West Gate, part of early fortifications Frith



Antonio Canova, Italian sculptor After Lawrence



Canterbury Cathedral from the south-west. The first English cathedral in point of time, it is also one of the most beautiful. For over a thousand years it has been the headquarters of the Church of England
Frith

Officially designated primate and metropolitan of all England since 1353, and the first peer of the realm, he crowns the sovereign in Westminster Abbey and is empowered to grant degrees in divinity, law, and medicine. The archbishop of Canterbury's official residences are the Old Palace, Canterbury, and Lambeth Palace, London, S.E. See Archbishop.

CANTERBURY. Prov. dist. of New Zealand. In the east-central part of South Island, it has a coastline of about 200 m. and an area of 13,858 sq. m. It is celebrated for its sheep, reared in the vast Canterbury Plains (nearly 4,000 sq. m. in extent) lying to the E. of the Southern Alps. Christchurch is the capital. Pop. 213,890. A suburb of Sydney, New South Wales, is called Canterbury.

CANTERBURY BELL (*Campanula medium*). Biennial plant of the order Campanulaceae. It is about 3 ft. in height, with bell-like blossoms, white, blue, rose, or lavender in colour. Originally a native of S. Europe, it was introduced to English gardens before the end of the 16th century. It thrives in heds or borders in any ordinary garden soil.



Canterbury bell. Favourite flower of old English gardens

CANTHARIDES (*Cantharis* or *Lytta vesicatoria*) OR SPANISH FLY. Beetle about $\frac{3}{4}$ in. in length, of a bright, metallic, coppery-green colour. A powder formed by crushing the beetle is also met with. The

active principle is a crystalline substance called cantharidine. Preparations of cantharides are used in medicine to produce counter-irritation and blistering in cases of pleurisy, pericarditis, and inflammation of the nerves. Poisoning by cantharides may occur from swallowing preparations intended only for external use.

CANTICLES. Common name for the O.T. book called in the Vulgate *Canticum Canticum*. The Hebrew title is "The Song of Songs, which is Solomon's." The language of the book shows peculiarities which suggest either a North Palestinian origin or post-exilic influences. In the latter case the

ascription to Solomon would be due to an editor, and the book itself would seem to belong to the 3rd century B.C. The theme of the book is the mutual love of husband and bride, the former being represented by King Solomon and the latter by a Shulamite maiden.

CANTON. Name of a territorial division in Switzerland and France. In Switzerland the cantons are the states of the federation. In France the word is used for a much smaller area, ranking between the *arrondissement* and the commune. Each *arrondissement* is divided into cantons, each of which has its magistrate (*juge de paix*). See Switzerland.

CANTON (Chinese, Sheng cheng or Kwang-chow-fu). City of China, capital of the prov. of Kwangtung. On the Chu-kiang or Canton river, 80 m. from its mouth, it is the chief commercial city of southern China after Hong-Kong. The city proper is surrounded by a wall 6 m. in circumference, an inner wall separating the old and new portions, and along both banks of the river extend its suburbs.

The city contains upwards of 120 temples and two pagodas. The Plain Pagoda, dating from the 9th century, is a Mahomedan mosque 160 ft. high, and the other is a 6th century octagonal nine-storied structure, 170 ft. high. Other buildings are the Roman Catholic cathedral, the mint, and the arsenal. A feature of the city is the large number of boats on the river which are used as permanent residences. The harbour is shallow. Large vessels discharge at Whampoa, 10 m. below Canton. Pop. 1,370,000. See China.

CANUTE I (c. 994-1035). Danish king of England. Known as Canute the Great, he was

the son of Sweyn Forkbeard, king of Denmark, who drove Ethelred out of England in 1013, and was acknowledged as king by the English Witan. Sweyn died in 1014, and Canute claimed the throne. He was opposed by Ethelred, who had returned, but the latter died in 1016, and Canute and Edmund Ironside decided to divide England between them. Within a few weeks of the agreement Edmund was slain, and Canute became sole king.

He married Emma, Ethelred's widow, sent away the Danish armies, and divided the country into five great earldoms or provinces. Law and order were restored. Canute aimed at creating a great northern empire which would include England, Denmark, and Norway. He died Nov. 12, 1035.

CANVEY. Island off the coast of Essex. It is in the Thames estuary, 30 m. E. of London, covers about 7 m., and is reached by the L.M.S. Rly., the station being Benfleet, with which it has communication at low tide by a causeway. The island, which is low and marshy, was reclaimed from the sea in the 17th century. In 1929 it was proposed to build a bridge to the mainland. Pop. 600.

CAP (Lat. *eappa*). Close-fitting covering for the head. The Roman pileus, an early form of cap, was almost identical with the pilos of the Greeks. In England caps were worn at a very early date. Kings are represented with them on their heads, and by an Act of Parliament of 1571 all men and boys over six years of age, the upper classes excepted, were ordered to wear the city flat cap or statute cap of wool on Sundays and holidays. This developed into the peaked cap.

Other forms of cap are the biretta, or square cap of the priest and the French advocate, the black cap of the judge, the bishop's cap of Anglican prelates, and the skull-cap long associated with astrologers and magicians. The college cap, known as "mortar-board," is an academic head-dress evolved, as are the biretta and bishop's cap, from an early soft square cap. In military regulations the word cap is used for the head-dress of soldiers who do not wear a helmet, shako, bushy, or bonnet.

CAPABLANCA, JOSÉ RAOUL (b. 1888). Cuban chess player. Born at Havana, Nov. 19, 1888, he soon became one of the best players in Cuba, and beat the island champion. About 1905 he went to New York, and in 1909 beat F. J. Marshall, the champion of the U.S.A. From 1921 to 1927 he was champion of the world, but afterwards he was beaten at Buenos Aires by Dr. Alekhine (q.v.). He wrote *My Chess Career*, 1920; *Chess Fundamentals*, 1921.



José Capablanca, Cuban chess player

CAPACITY (Lat. *capax*, holding much). Word used by electricians in several senses. The electrostatic capacity of a condenser, for example, is its capacity to retain a charge of electricity at a given difference of potential. It is measured by the quantity of electricity which must be imparted to it to raise its potential from zero to unity. The unit of capacity is the farad; the microfarad is one millionth part of a farad.

The carrying capacity of a cable is measured by the number of amperes of current it is capable of conducting. The storage capacity of an accumulator is the total quantity of electrical current it will give out. It is expressed in ampere hours.

CAPACITY. In English law, the power to perform certain contracts or exercise certain rights. Minors have only a limited liability capacity; lunatics are without civil capacity; felons are temporarily incapacitated.



Canton, Water front and Roman Catholic cathedral, built in 1860

CAPE BRETON. Island at the N.E. extremity of Nova Scotia. Politically part of the prov., it is separated from the mainland by the Gut of Canso and has an area of 3,120 sq. m. Its coast is deeply indented by bays, forming many good harbours, including Aspey, Sydney, Louisburg, Gaharus, and St. Peter's. Bras d'Or Lake, a gulf penetrating from the E. coast, almost divides the island into two, the severance being completed by St. Peter's Canal. There is a good deal of coal in the island, Sydney being the chief mining town. Pop. 130,000. See Nova Scotia.

CAPE COAST (formerly Cape Coast Castle). Seaport of the British Gold Coast colony, W. Africa, 80 m. W. of Accra. First settled by the Portuguese in 1610, it was named by them Cabo Corso, the name Cape Coast Castle referring both to this and the fortress built by the Swedes in 1652. In 1659 the Dutch took it, but in 1664 it was seized by the British, and it has always remained British. It was the chief town until 1876, when Accra became the capital. At its open roadstead vessels discharge passengers and cargo by surf boats. Pop. 15,000.

CAPE COD. Peninsula of Massachusetts, U.S.A. It forms a S.E. extension of the state and separates Cape Cod Bay from Nantucket Sound. About 65 m. long, and from 1 m. to 10 m. broad, it is served by a rly., and contains several good harbours. Its outline is continuously being modified by currents. A canal at its W. end connects Barnstable and Buzzard's bays, saving about 75 m. on a journey from Long Island Sound to Boston. Cape Cod has a wireless station.

CAPE GOOSEBERRY (*Physalis peruviana*). Perennial herb of the order Solanaceae. A native of S. America, it has become naturalised in S. Africa and other warm countries. It attains a height of 3 ft., and has downy heart-shaped leaves. The flowers are whitish, with spotted corolla, and an inflated bladder-like calyx. This remains, when the corolla has fallen, to protect the globose pale gold fruit, which is edible.

CAPE HUNTING DOG (*Lycan pictus*). Aberrant member of the dog family, found only in S. and E. Africa. Somewhat resembling a long-tailed hyaena, its coat is blotched with black, white, and yellow. It hunts in packs, and can easily run down antelopes.

CAPE K, KAREL (b. 1890). Bohemian writer. Born Jan. 9, 1890, the son of a doctor, he was educated in Prague, Berlin, and Paris. With his brother, Joseph, he attracted attention by his short stories and his theatrical productions in Prague. To a wider public he became known by his plays, especially *R.U.R.* (Eng. trans. 1923) and *Insect Play*, both satires on modern life. The former introduced the mechanical man, Rossum's universal robot. His other writings include some further plays, short stories, especially in a volume called *Painful Stories*, novels, and *Letters from England*, 1925.

CAPEL, ARTHUR CAPEL, BARON (c. 1610-49). English royalist. Elected member for Hertfordshire in the Short Parliament and the Long Parliament of 1640, he was created Baron Capel of Hadham, Herts, in 1641. He fought for the king during the Civil War, escorted the

queen to Paris, helped Charles to escape from Hampton Court, and in Aug., 1648, surrendered to Fairfax at Colchester. He was beheaded March 9, 1649.

His eldest son, Arthur (1631-83), was created earl of Essex, 1661, and was lord-lieutenant of Ireland, 1672-77. He was arrested on the discovery of the Rye House Plot, and was found dead in the Tower, July 13, 1683. From him the present earl of Essex is descended.

CAPEL CURIG. Village of Carnarvonshire. 6 m. W. by N. of Bettws-y-Coed, it is a tourist and fishing centre frequented by artists, botanists, and geologists. Pop. 359.

CAPELLA (Lat. goat). One of the three brightest stars in the northern sky, also called Alpha Aurigae. It is a double star, the components being nearly equal in size, but not equally bright.

CAPE OF GOOD HOPE. One of the four provinces of the Union of South Africa, in short, the Cape Province. Its coastline extends over 1,300 m. from the mouth of the Orange river on the W. to that of the Um-tamvuna on the E. The Orange separates it from the S.W. Africa Protectorate and the Molopo from the Bechuanaland Protectorate. The province consists of Cape Colony proper, together with Pondoland, Bechuanaland, East Griqualand, Tembuland, and Transkei. Its area is 276,536 sq. m. Cape Town is the capital, Port Elizabeth being the next town in size. The pop. is 2,781,542, the Europeans numbering 706,137 in 1926.

The chief rivers are the Orange and its tributary, the Vaal, which receives the waters of the Harts, Riet, and Modder. The Orange system drains the great interior tableland. There are forest regions in Pondoland and Knysna. The plateaux of the interior are covered with shrub, but in the coastal regions plant life is rich and varied. Sheep feed on the veld, where the elephant, rhinoceros, and other large animals have almost disappeared.

The prov. sends 58 members to the House of Assembly of the Union of South Africa, and eight to the Senate. Local affairs are managed by an elected council, with an executive of four members, presided over by an administrator, appointed by the Union Government.

The history of the prov. begins with the discovery of the headland by the Portuguese in 1488. They named it the Cape of Storms or the Cape of Good Hope, and the term "the Cape" has stuck to the district. In 1651 the Dutch made their first settlement. In 1795 Cape Town was taken by Great Britain, but in 1802 it was returned to the Dutch. In 1806 it was again seized, and in 1814 was ceded to Britain. In 1865 Kaffraria was added to Cape

Colony, as was Transkei, the land across the river Kei. in 1877. See South Africa.

CAPER. Unopened flower-buds of the Caper-tree (*Capparis spinosa*). This is a shrub of the order Capparidaceae, native of S. Europe and the Mediterranean region. The flower-buds or the unripe fruits are pickled in vinegar.

CAPERCAILLIE or **CAPERCAILLIE** (Tetrao urogallus). European game bird known also as wood grouse or cock of the woods. It resembles the blackcock, being blackish grey in plumage, with a more or less green breast in the male. The hen has a reddish breast. It is one of the game birds of Scotland, where it was introduced from Sweden.

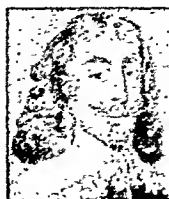
CAPER N EDWARD (1819-94). British poet. Beginning life as a worker in a lace factory, he was afterwards rural postman of Bideford. In 1856 he brought out his first volume of Poems by the Bideford Rural Postman, followed by *Ballads and Songs*, 1858, and *Wayside Warbles*, 1865. Capern died at Braintree, Devonshire, June 4, 1894.

CAPERNAUM. Village of Palestine, on the N.W. coast of the Sea of Galilee. It was intimately associated with Christ's ministry (Matt. 4, 8, and 17; Mark 1; Luke 4; John 2 and 6). It is identified by some critics with Tel Hinn, by others with Khan Minyeh.

Capet. Name of the royal family of France, whose kings ruled from 987-1789 and again from 1814-48.

CAPE TOWN. Capital of Cape Province. It is the oldest settlement in S. Africa, and the seat of the legislature of the Union of S. Africa. Between Table Mountain and Table Bay, it was laid out by the Dutch in 1652, and was captured by the British on Sept. 16, 1795, and again in Jan., 1806.

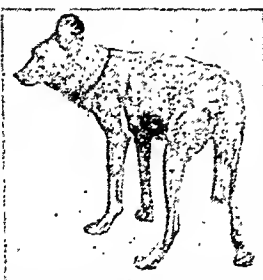
The city is beautifully situated, and presents a striking appearance from the sea. Its geographical situation and harbour facilities have made it one of the great world ports of call. There are extensive commercial docks and a breakwater. Exports include wool, wines, ivory, gold, diamonds, and ostrich feathers.



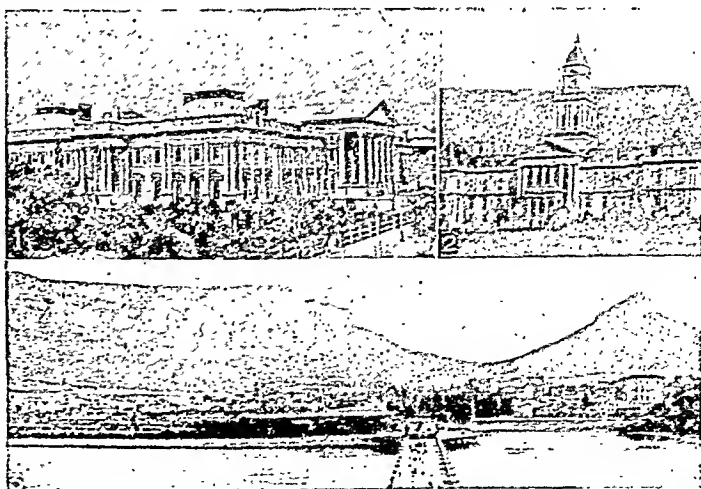
Baroa Capel,
English royalist
After Jansen



Capercailzie,
European game bird



Cape Hunting Dog, a savage dog
which is notable for its speed



Cape Town. 1. Union Houses of Parliament. 2. City Hall, which has a clock tower and belfry. 3. Panorama of the city from the sea, with Table Mountain in the background
Valentine and Topley

Cape Town is laid out regularly in blocks, and many of the old Dutch houses still stand. Notable buildings are the Houses of Parliament, the cathedral, the city hall, the castle,

and the Old Town House. It has a wireless station. At Rondebosch, the chief residential suburb, is Groot Schuur, the late Cecil Rhodes, and now the official residence of the prime minister of the Union near which is the Rhodes Memorial. The University of Cape Town, established in 1918 as one of the three universities of South Africa, consists of the college erected on Groot Schuur. Pop. 212,997, Europeans 130,568 in 1926.

CAPE TO CAIRO RLY. This was built to connect Cape Town with Cairo, a distance of about 6,000 m. Progress has been made from Cape Town to Northern Rhodesia, from Cairo to Shellal in Egypt, and from Wadi Halfa to Khartum. The S. section has been carried across Belgian territory to Bukama on the Congo, and has brought Cape Town into connexion with Stanleyville on the equator and Dar-es-Salaam on the coast. The N. section has been carried S. to Sennar on the Blue Nile, with a branch almost due W. to el Obeid.

CAPE VERDE (Port. Ilhas do Cabo Verde). Group of fourteen mountainous and volcanic islands in the Atlantic. Situated 350 m. W. of Cape Verde, the most westerly promontory of Africa, they were discovered in 1441-56 by the Portuguese, and belong to Portugal.

The chief islands are Santiago (São Thlago), containing the capital, Praia; Santo Antão; São Vicente, with the coal station of Porto Grande (Mindello); São Nicolão, Boa Vista, Sal, Fogo, Brava, and Maio. São Vicente has a cable station and a wireless station. The inhabitants are of mixed negro and Portuguese origin and speak a dialect of Portuguese. Area 1,475 sq. m. Pop. 142,552.



Capital. Example from Temple Church, London

CAPITAL PUNISHMENT. The penalty of death. In England, by the law of 1861, only for treason, murder, piracy with violence, and the firing of government arsenals and dockyards can the death penalty be inflicted. In point of fact, treason and murder alone remain capital offences, and the method of punishment is by hanging. The home secretary can advise the crown to grant a reprieve. Several European countries have abolished capital punishment.

In 1930 a committee inquired into the desirability of abolishing capital punishment in Great Britain. There is a society for its abolition in Victoria Street, London, S.W.1.

CAPITOL. General name for the Capitoline Hill (Mons Capitolinus), one of the seven hills of Rome. Its S. extremity ends in the Tarpeian

Rock, over which criminals were thrown. The Capitol, or temple of Jupiter, founded by Tarquinius Priscus, was completed by Tarquinius Superbus. Three times it was burned down, in 83 B.C., A.D. 69 and 80. Restored by Domitian, it was the chief temple in Rome. On the Capitoline Mount were many other temples and statues of deities. The present buildings—II Campidoglio—were designed by Michelangelo at the suggestion of Pope Paul III, and comprise palace, museum, etc. See Rome; also illus. below.

CAPITOL. Name given to the seat of the Congress of the U.S.A. at Washington. The first capitol was begun in 1793, first used in 1800, and finished in 1811. This building was burned by the British in 1814 and was rebuilt 1815-27, while a wing was added in 1851-63. The present building stands at the east end of Pennsylvania Avenue. The word is also used for the legislation buildings in the state capitals. e.g. at Albany. See Washington.

CAPITULATION. In international law, the drawing-up of conditions for the surrender of a fortress, an army, etc. A conquering commander has the right to sign the terms of capitulation as well as the defeated commander. By the terms it is illegal to pillage the surrendered town.

CAP MARTIN. Promontory and winter resort of France. It is on the Riviera, between Mentone and Monaco. The promontory is 235 ft. high, and on its summit are traces of an 11th century convent.

CAP OF MAINTENANCE OR **CAP OF DIGNITY.** Low cap of crimson velvet, turned up with a broad border of ermine, the border having two short pointed tails. It is borne before the king on coronations, and worn by him during part of the ceremony. This cap of dignity is often used in heraldry as a charge, and also for supporting crests.

CAPORETTO.

Village of Italy on the river Isonzo. It gives its name to a battle which was a German-Austrian victory over Italians, Oct. 1917. This battle was one of the greatest disasters sustained by the Allied armies in the Great War.

The battle began on Oct. 23-24 with an intense bombardment from Plezzo to the sea, and on Oct. 24 large infantry forces were hurled against the Italian second army from Monte Rombon to near San Gabriele. The Italian centre broke, and the front between the height of Krasji and the Vodil height was

pierced. From W. of Tolmino to Auzza the Austrians also broke through. Despite stubborn defence the Italians were driven back and Caporetto was gained by the enemy. The headlong retreat of the second army blocked the roads, preventing fresh troops being sent to stem the enemy's advance.

On Oct. 26 the Austrians pressed down the valleys of the Judrio and the Natissone, and the strategical position was such that General Cadorna ordered a retreat, first to the Tagliamento, and finally to the Piave, which was reached on Nov. 10. The battle cost the Italians the important towns of Gorizia, Cividale, and Udine and the whole of N. Venetia. The losses of the Italians were very heavy; the Germans put them at 200,000 in prisoners alone, and about 2,000 guns. To meet this overwhelming danger five British and six French divisions were sent to Italy from the western front. See Cadorna, L.; Piave.

CAPPADOCIA. District of Asia Minor. This rough hilly country was in Roman times bounded N. by Pontus, E. by Armenia, S. by the Taurus Mts., and W. by Lycaonia and Galatia. After forming part of the Persian and Greek Empires, it was for a time independent, but became a Roman province A.D. 17. In one period it included Pontus. Its capital was Mazaca, afterwards Caesarea, the modern Kaisariyeh.

CAPRI (anc. Capreae). Island of Italy. At the S. end of the Bay of Naples, 3 m. off the Sorrento peninsula and 21 m. S. of Naples, it has an area of 5½ sq. m.

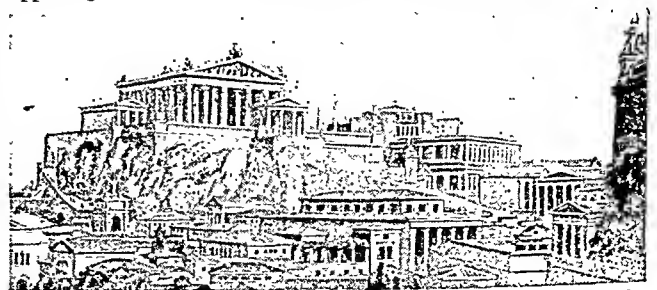
It is mountainous, with cliffs rising to 900 ft., its highest point being Monte Solaro, 1,920 ft. The only safe landing-place, Marina Grande, is on the N. side. The climate is mild, and the scenery beautiful. Among attractions are the grottoes, or sea-caverns, the best known being the Blue Grotto.

Capri. The famous Blue Grotto, a great sea cavern 175 feet long

Capri was celebrated in Roman times. Augustus and Tiberius resided here; the latter built twelve villas. There are remains of Roman villas, cisterns and baths. Pop. 7,000.



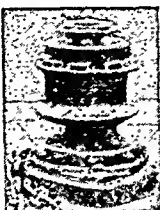
Cap of Maintenance, donned by the British sovereign at his coronation



Capitol, Rome. Reconstructed view from the Palatine hill of the ancient capitol, dominated by the Temple of Jupiter. See above

CAPRICORN (Lat. goat-horned). The Zodiacal constellation, also called the Goat-Fish from being represented with the fore part of a goat and the tail of a fish. One of the tropics is called Capricorn. See Constellation.

CAPSTAN (Lat. capistrum, halter). Revolving bollard used for lifting the anchor or hauling in cables aboard ship. Capstans are usually worked by steam. Formerly they were turned by sailors, who hove them round by means of stout pieces of wood called capstan bars.



Capstan. Steam capstan, with anchor chains

CAPSULE. In botany, a seed case of diverse forms in various kinds of plants. It is sometimes only one-celled (unilocular), but frequently has two (bilocular), three (trilocular), or more cells. The case dries as the seed ripens, and sometimes falls off entire, but more usually splits partially or wholly, discharging the seeds through the openings.

CAPTAIN (Lat. caput, head). British title borne by officers in the navy, army and royal air force, by men in charge of ships of all kinds, and more generally by leaders in the various branches of sport and other forms of activity.



Captain, naval, marks of rank

In the British navy a captain ranks next below a rear-admiral, and usually commands one of the larger units of the fleet. When he commands an admiral's ship he is called a flag-captain. In relative rank a naval captain corresponds to a colonel or lieutenant-colonel in the army. As a sign of his rank a captain has on the sleeves of his coat four stripes of gold braid with a loop

In the British army a captain ranks next below a major and above a lieutenant. His rank is marked by three stars on the sleeve. In the British R.A.F. a group captain corresponds in rank to a captain in the navy and a colonel in the army. In the merchant service the title captain is given in practice to every seaman who commands a vessel. In legal language, the captain is the ship-master, and he has grave responsibilities towards owners, passengers, and crew.



Captain, military, marks of rank

CAPUA. City of Italy, on the river Volturno, 27 m. by rly. N. of Naples. The see of an archbishop, it has an 11th century cathedral, now mostly modernised. Founded 856 B.C., Capua became second in commerce and wealth to Rome, and was famed for its dyes, wine and textile wares. But luxury led to degeneracy, and the city was conquered, after its alliance with Hannibal, by the Romans in 211 B.C. There are many remains of antiquity, the chief being those of the amphitheatre and baths. Pop. 13,195.



Capuchin Monkey, a dweller in the tree-tops. See above

CAPUCHIN MONKEY (*Cebus capucinus*). Group of American monkeys known also as the Sapajous. The term is applied more especially to the Weeper Sapajou of Brazil. The fur is golden brown, paling to yellow, and the hair on the crown of the head has the appearance of being well brushed back. Its supposed resemblance to a monk's hood accounts for the name. See illustration below.

CAPUCHINS (late Lat. caputium, hood). Independent branch of the Franciscan order of friars. Founded in the Marches of Italy in the 16th century by Matteo di Bassi, who aimed at restoring the primitive and stricter observance of the rule of S. Francis, the reform spread quickly. The Capuchin Friars occupy themselves mainly with mission work. See Franciscans; Friar.

CAPULET. Anglicised form of the name of one of the rival families of Verona (Cappelletti) whose quarrels form the story on which Shakespeare founded his *Romeo and Juliet*.

CAPYBARA, OR **CARPINCHO** (*Hydrochoerus capybara*). Largest member of the rodent order of mammals. It is about 4 ft. long and

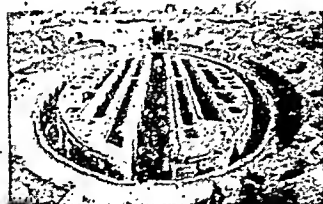


Capybara or Carpincho, the largest member of the rodent mammals

attains a weight of about 100 lb. Its hair is coarse and reddish brown. It is found only in S. America, where it lives on the banks of the rivers and lakes. The animals are usually seen in herds of twenty or more. They feed mainly on water plants, but sometimes do great damage by devouring crops. They are hunted for their skins, and the flesh is eaten.

CARABINIERS OR **CARABINEERS**. Regiments of cavalry equipped with a musket called a carbine. In England the 6th Dragoon Guards were known as the Carabineers, they having been armed with the carbine when the regiment was formed in 1692. The name is now borne by the 3rd Dragoon Guards, with which the 6th has been amalgamated.

In Italy the term Carabinieri is used for the gendarmes or police.



Capua. Ruins of the amphitheatre, capable of holding 60,000 spectators

CARACAL. Rare wild cat, related to the lynx group. Found in Africa and S. Asia, it is reddish brown in colour, with ears tufted like those of the lynx, but with a longer tail and no ruff round the neck. It is believed to prey upon gazelles and birds.

CARACALLA (A.D. 188-217). Roman emperor 211-217. Son of Septimius

Severus, his original name was Bassianus, afterwards changed to Marcus Aurelius Antoninus. He was nicknamed Caracalla from the long Gallic cloak of that name, which he greatly affected. Severus died at York in the course of a punitive expedition against the northern tribes. Caracalla, who was suspected of having poisoned him, was proclaimed joint emperor with his brother, Geta, but the following year he slew Geta, and in the reign of terror that followed about 20,000 of Geta's adherents were put to death. The latter part of Caracalla's reign, noted for extravagance as well as cruelty, was spent in travel. He was murdered near Edessa at the instigation of the praetorian prefect Macrinus, who succeeded him.

CARACARA (*Polyborus tharus*). S. American hawk. It feeds mainly on carrion, is long in the leg, runs swiftly, and lives almost entirely on the ground. In many of its habits the caracara suggests a game bird.



Caracara, S. American hawk

CARACAS. Capital of Venezuela and of its Federal District. It is near the foot of the Silla de Caracas, 7 m. S. of La Guayra, its port on the Caribbean Sea, with which it is connected by a narrow-gauge rly. 24 m. long. The city contains the federal palace, a cathedral, presidential house, and a university. There is a wireless station. Pop. 135,253.

CARACTACUS (c. A.D. 51). British king. He was the son of Cunobelin, Shakespeare's Cymbeline. After a long and determined resistance, he was defeated by the Romans in 51, perhaps near Shrewsbury, and sent in chains to Rome, where he figured in a procession before Claudius, who set him free.

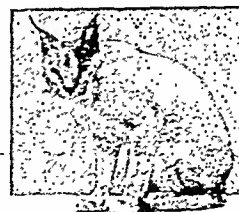
CARADOC SERIES. Geological term. Originally applied to all deposits between the Llandilo Flags and Limestones and the Upper



Carabinieri. Italian mounted policeman

Llandovery or May Hill beds, it is now restricted to the upper portion of the Ordovician between the Llandilo Flags and the Ashgill Series or Upper Bala. It consists chiefly of black graptolitic shales and muddy sediments, with thin volcanic ashes.

CARAN D'ACHE (1858-1909). Professional name of Emmanuel Poiré, French caricaturist and illustrator. Born in Moscow, he afterwards went to Paris and specialised as an illustrator of military subjects, contributing to various comic and satirical journals. He may be regarded as the originator, in France, of the pictorial story without words, in which he was long without a rival. He died Feb 26, 1909. See Caricature.



Caracal. A rare wild cat of the lynx family

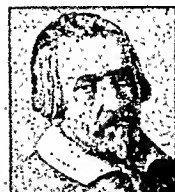
CARAPA (*Carapa guianensis*). Large tree of the order Meliaceae. A native of S. America, its leaves consist of eight to ten pairs of leathery lance-shaped leaflets. The fruit is round, about 4 ins. across, and splits into five segments, setting free a large number of oily seeds from which carap, or crab-oil, is obtained. The bark is used as a febrifuge and for tanning; while the timber is used for furniture, masts, and spars.

CARAT. Term used to express the degree of purity of gold, and also applied to a weight used for diamonds and other precious stones. In stating the grade of purity of gold the weight under consideration is divided into 24 equal parts, or carats. Thus pure gold is called 24 carat gold; gold containing $\frac{2}{3}$ alloy, is 22 carat gold; gold containing $\frac{1}{3}$ alloy, 18 carat gold, and so on. With the exception of gold for wedding rings, which is 22 carat, jewellers

seldom use gold of a higher grade than 18 carat. In 1905 an international metric carat of 200 milligrammes was suggested, and by 1914 this was in general use.

CARAUSIUS (d. A.D. 293). Roman usurper and emperor of Britain. A Gaul by birth, he became commander of the fleet. His loyalty having become suspect, Carausius crossed to Britain, and, supported by the fleet and soldiers, proclaimed himself Augustus (287). In 293 he was murdered by Allectus.

CARAVAGGIO, MICHELANGELO AMERIGHI DA (1569-1609). Italian painter. Born in the village of Caravaggio, Lombardy, whence he



M. A. da Caravaggio, Italian painter. Self-portrait in Uffizi Gallery.

took his name, his Card-players brought him the patronage of Cardinal del Monte. His masterpiece, the *Pietà*, is at the Vatican. Vienna has his superb *Lute-player*, and he is represented in the National Gallery, London, by *Christ and the Disciples at Emmaus*. Amidst his triumph he killed a friend in a quarrel, and fled to Naples and on to Malta. De-

ported from Malta to Syracuse, he eventually settled at Naples, where he founded the powerful but turbulent school of the *Tenebros*.

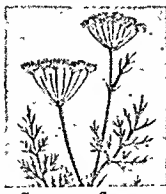
CARAVAN (Pers. *karvan*). Word used throughout Asia Minor, Persia, Arabia, and parts of northern Africa for a body of traders travelling together for their own protection.

The camel plays a large part in the caravan, as it is used to carry the wares. Mules and asses, however, are sometimes used, while the traders themselves sometimes ride on horseback or journey on foot. A leader is appointed, and the days are portioned into regular intervals for travel and for rest. The caravans follow usually well-defined routes, covering 20 or 25 miles a day. A building erected for the reception of caravans is called a *caravanserai*.

In Britain the word caravan has come to mean the vehicle in which persons can make their home and travel at the same time, and a holiday spent in this way is known as *caravanning*. Consult *The Whole Art of Caravanning*, Bertram Smith, 1907.

CARAVEL or **CARVEL** (late Lat. *carabus*, light boat). Name given in the 15th and 16th centuries to a small vessel, broad in the bows, with narrow, high-built stern, and to some extent lateen-rigged.

CARAWAY (*Carum carui*). Biennial herb of the order Umbelliferae. A native of N. Europe and N. and W. Asia, it has large much-divided fern-like leaves. The small white flowers are massed in a compound umbel. The oblong fruits are the caraway seeds of commerce, esteemed for flavouring owing to the aromatic volatile oil they contain. The liqueur known as *kummel* is manufactured from caraway seeds.



Caraway, flowers and leaves

CARBERRY HILL. Elevation in Midlothian, just outside the town of Musselburgh. Here the forces of Mary Queen of Scots met those of her foes, June 14, 1567. The queen surrendered without fighting.

CARBIDES. Compounds of carbon with another element, such as boron, silicon, tungsten, iron, chromium, or calcium. It is probable that in the manufacture of steel carbides of iron and other metals are formed which contribute to the hardness of the metal. The most extensively used carbide is calcium carbide, from which acetylene is made. See *Calcium*.

CARBOHYDRATES. Name given to certain bodies of complex chemical constitution. They consist of carbon, oxygen, and hydrogen, the two last named being present in the proportions necessary to form water. They constitute a valuable class of foodstuffs, the most important being starch and sugar. Carbohydrates undergo oxidation in the body, thus producing heat and energy, and they also go to the building up of new fatty tissues.

CARBOLIC ACID or **PHENOL** (C_6H_5O). Body prepared by distillation of coal-tar. When pure it is a colourless, crystalline substance, but it rapidly absorbs water from the air, assuming a pinkish colour and eventually becoming a thick, syrup-like liquid. Carbolic acid is a powerful disinfectant and is used for sterilising surgical instruments, etc. It is a strong poison.

CARBON. One of the most important non-metallic elements. Its symbol is C, its atomic weight 12, and its atomic number is 6. The chemistry of carbon forms the larger part of chemical science. Carbon is contained in all animal and vegetable matter, and also in the mineral kingdom, where, as carbonate, it forms a large part of the earth's crust. Carbon in the form of coal is the chief source of power at present known, and petroleum, also largely employed as a source of energy, is a carbon compound. Carbon exists in the air as carbonic acid gas, and in untold quantities in the atmosphere of the sun. It occurs in the free state in nature as the diamond and as graphite, while a third form is made by carbonising animal or vegetable matter. These are known as allotropic modifications. See *Charcoal*; *Coal*; *Diamond*; *Graphite*.

Carbonising is the removal of vegetable matter from masses of animal fibre by the reduction of the cellulose to carbon.

CARBON BISULPHIDE (CS_2). This is a colourless liquid with an ethereal odour when pure, but generally with a disagreeable sulphurous smell. It is used for the extraction of fats and oils, as a solvent for chloride of sulphur in vulcanising rubber, for the recovery of sulphur from mineral ores, as a germicide and insecticide, and as a poison for moles and rabbits.

CARBON DIOXIDE or **Carbonic Acid Gas** (CO_2). This is a heavy, colourless, and odourless gas found in nature in the free state, and also combined with alkali metals and other elements. It is a constituent of the atmosphere, and a product of respiration. It does not support combustion, and is used for extinguishing fires. Carbon dioxide accumulates in old wells, cellars, and coal-pits, where it is known as *choke-damp*. In solid form, carbon dioxide is like snow, and can be exposed to the air for some time without loss. Compressed into rods, it is used as a caustic in surgery. Carbon dioxide does not support respiration, and when the amount in the air is increased to 15 or 20 p.e. it may rapidly prove fatal.

CARBON MONOXIDE or **Carbonic Oxide** (CO) is a colourless, odourless gas which burns with a pale blue flame. Carbon monoxide is formed when charcoal is burnt, and as it is a very poisonous gas many deaths have been caused by burning charcoal in a brazier in a closed room. For a similar reason, the use of a geyser in a bathroom is dangerous unless precautions are taken to ensure ventilation. Carbon monoxide is a constituent of water-gas made by passing steam over red-hot coke.

CARBONARI (Italian, charcoal-burners). Name given in Italy, and later in France, to certain secret societies that flourished early in the 19th century. The earliest arose in the kingdom of Naples during the Napoleonic wars; it aimed at securing greater liberty for the people. In 1820 the carbonari were strong enough to bring about a revolution in Naples, and to force King Ferdinand to grant a constitution.

CARBONATES. Salts formed by the union of carbon dioxide with a basic element. Carbon dioxide (CO_2) is an acid-forming oxide, which, dissolved in water, forms carbonic acid (H_2CO_3). Carbonates are found widely distributed in nature, calcium carbonate being met with as marble, whiting, and limestone, and in the shells of fish. The double carbonate of magnesium and calcium is known as *dolomite*.

CARBONIFEROUS. Rocks lying between those of the Devonian Old Red Sandstone and those of the Permian. In Britain they are divided into an upper and lower series. The lower series consists of the Carboniferous limestone and the upper of the millstone grit surmounted by the coal measures. The rocks of the lower series are deep-water in character, while those of the millstone grit and coal measures are largely of shallow water type. The limestones are blue-grey, often oolitic, well-bedded rocks, and reach a thickness of 3,000 ft. in the Bristol district.

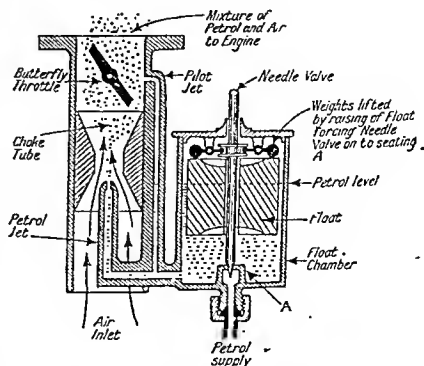
CARBON PROCESS. Method of making photographic prints. A sheet of paper coated with gelatin mixed with a pigment, and made sensitive to light, is exposed to daylight behind the negative, the coating of gelatin becoming insoluble in warm water to a depth varying with the degree of light action. The image is developed by washing out the still soluble gelatin with hot water.

CARBORUNDUM (Carbo and corundum). Chemically a silicon carbide or silicide of carbon. It appears in the form of fine blue, green, or brown crystals. It is infusible by heat up to 2,220° C., and is equally unaffected by atmospheric influences or by acids. Its most striking physical property is its extreme hardness. Carborundum is manufactured from siliceous sand (54.2 p.e.), coke (34.2), sawdust (9.9), and common salt (1.7), in the electric furnace, the salt being used as flux. Carborundum is employed on a large scale as an abrasive, as a superior substitute for emery.

CARBUNCLE. Localised gangrene of the tissues beneath the skin. The treatment is incision and removal of the dead tissue and attention to the general health.

Carbuncle is also the term applied to garnets cut in round or oval form with smooth dome.

CARBURETTED HYDROGEN. Term formerly applied to marsh gas and olefant gas. The name is now given to water gas which has been enriched by mixing it with benzene vapour or oil gas.



Carburettor. Diagram of a common pattern, showing how the mixture of petrol and air is effected

CARBURETTER. Device for charging air with a hydrocarbon in a gaseous or very finely divided form. Motor-car carburetters, using petrol as the hydrocarbon, differ widely in design, but are alike in general principles. Petrol from the storage tank enters at the top of a float chamber. A needle valve attached directly to, or controlled by, the float

prevents more petrol entering when it has risen almost level with the top of a jet. The jet projects vertically into a mixing chamber, which is open to the air and communicates with the engine by a pipe wherein is a throttle-valve. When the engine is working, air is sucked into the mixing chamber, and, meeting petrol drawn out of the jet in the form of a fine spray, is carburetted. Paraffin carburettors are similar, except that the mixing chamber must be heated to vaporise the paraffin. The necessary heat is supplied from outside by a lamp for starting, and afterwards by the exhaust gases. See Motor Car.



Carcassonne. The Gothic walls and fortifications of this ancient city of Southern France

CARCASSONNE. City of France, capital of the dept. of Aude. On the river Aude, 57 m. S.E. of Toulouse, it is divided by the river into two parts, the old city on a hill on the right and the new town on the left, connected by two bridges. The former contains the old Romanesque and Gothic cathedral of S. Nazaire, begun in the 11th century, and the castle. The 13th century cathedral of S. Michel and the church of S. Vincent are in the newer town. The fame of Carcassonne rests upon the fortifications surrounding the old city. Restored in the 19th century by Viollet-le-due, they consist of two ramparts protected by 54 towers and pierced by two gates, both elaborately defended. The city is a centre of the wine trade and a port on the Canal du Midi.

CARCHEMISH. Ancient stronghold at Jerablus on the right bank of the Euphrates, N.E. of Aleppo, Syria. On the Damascus-Nineveh caravan road, its neolithic settlement developed into an opulent centre of Hittite and Mushkian life. British Museum excavations, 1878-81, resumed in 1911, yielded lion-gates and many remarkable sculptural remains. See Hittites.

CARDAMOM (*Amomum cardamomum*). Aromatic perennial herb of the order Scitamineae. A native of the E. Indies, it has a creeping root-stock, and the lance-shaped leaves are arranged in two ranks along the stems. The brownish flowers are produced near the ground, and are succeeded by capsules filled with small aromatic seeds, which are the cardamoms of commerce. They have stimulant properties.

CARDIFF. City, county borough, and seaport of Wales. It stands on the Bristol Channel, at the mouth of the river Taff, 145 m. W. of London on the G.W. main line from London to Neyland, on Milford Haven. Made a city in 1905, its chief magistrate is entitled lord mayor. Pop. 225,600.

Cardiff's main industry is the shipping of the South Wales steam coal. The docks, known officially as the Bute Docks, are five in number, Queen Alexandra, Roath, Roath Basin, East, and West. Facilities for shipping are supplemented by the Penarth Docks and Barry Docks in the vicinity. Here are steel works, copper works, flour mills, biscuit factories, dry docks for ship repairing, engineering shops, wagon building and repairing works. The town is the chief shopping centre for the mining valleys, and the principal wholesale distributing centre for the surrounding districts.

The modern streets and buildings, the absence in the town centre of any evidence of the industries, which are mainly grouped about the docks, the abundance of open spaces, and the trees planted in the residential streets, make Cardiff an attractive city. The two buildings of historic interest are S. John's Church and the castle, largely rebuilt by the 3rd marquess of Bute.

In Cathays Park (60 acres) are the city hall and law courts, the National museum of Wales, the University College of S. Wales and Monmouthshire, the registry of the university of Wales, the Glamorgan county hall, and the technical school. Roath Park, the largest in Wales, covers 166 acres. The S. Wales Engineers' Institution, the public library, the medical school and King Edward VII hospital, and the general post office in Westgate Street are important buildings. There is a stock exchange. The call number of the broadcasting station is 5WA. Cardiff is the seat of a Roman Catholic archbishop. In 1929 the Canadian Pacific Rly. made Cardiff a port for their Atlantic services. After the Great War the city adopted Lens.

Cardiff City is a famous football club, which won the Association Cup in 1927. Its ground is in Ninian Park. The Rugby football club is also famous.



Cardiff. The City Hall in Cathays Park. Above: the Castle; the oldest part is of the 12th cent.

CARDIGAN. Borough, market town, and co. town of Cardiganshire. It is on the river Teifi, 116 m. N.W. of Cardiff on the G.W. Rly. Little remains of the castle (1160). Market day, Sat. Pop. 3,450.

Cardigan Bay is a semicircular sweep of the Welsh coast, extending about 55 m. from N. to S., with a coast measurement of about 130 m. The north portion is called Tremadoc Bay.

CARDIGAN, EARL OF. English title, borne since 1661 by the family of Brudenell. Sir Thomas Brudenell, who had suffered for his loyalty to Charles I, was the first earl. His descendant, George, the 4th earl, was made duke of Montagu in 1776, but having no sons this title became extinct when he died in 1790. His brother James, however, secured the earldom of Cardigan, which passed in 1837 to James Thomas Brudenell, 7th Earl (1797-1868). Born at Hambleden, Bucks, Oct. 16, 1797, Lord

Cardigan commanded the Light Brigade at Balaklava. At his death, March 28, 1868, the earldom passed to a cousin, the 2nd marquess of Ailesbury, and has since been held by his descendants. See Balaklava.

CARDIGANSHIRE. Maritime co. of S. Wales. It has a coastline of about 50 m. on Cardigan Bay, and is bounded N. by Merionethshire and Montgomeryshire, E. by Radnorshire and Brecknockshire, and S. by Carmarthenshire and Pembrokeshire. Its greatest length from E. to W. is 40 m., its greatest breadth from N. to S. is 30 m., and its area is 692 sq. m. The surface is fairly level on the coast, but mountainous in the interior and N. and E., Plynlimon, on the Montgomeryshire boundary, being 2,468 ft. high. The Teifi, Dovey, Aeron, Ystwith, and Rheidol are the chief rivers, and there are numerous lakes, especially in the northern part. Cardigan is the county town, and Aberystwith, Lampeter, New Quay, Aberayron, Tregaron, and Llandyssul are other places. Cardiganshire returns one member to Parliament. Pop. 60,881.

Cardiganshire was conspicuous during the rebellion of Owain Glendower early in the 15th century, in the Civil War, and in the Rebecca Riots of 1843.

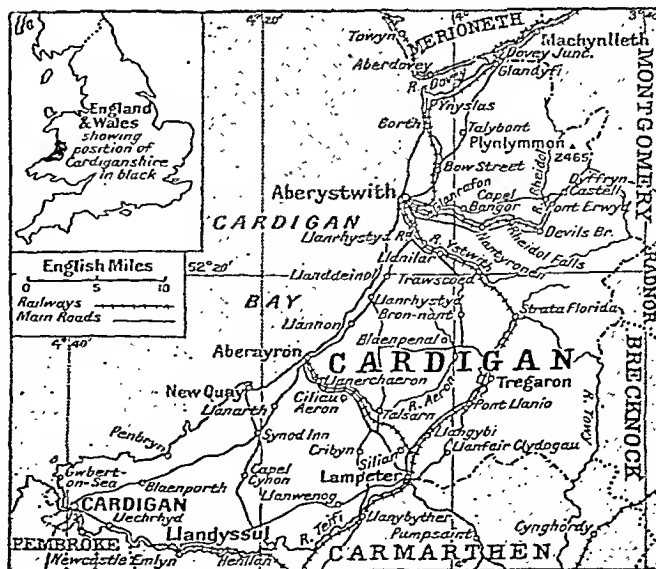
CARDINAL (Lat. *cardo*, hinge). Dignitary of the Roman Catholic Church. The pope alone has the right of nominating and deposing a cardinal, and while the college of cardinals has varied greatly in numbers, it does not as a rule exceed 70, and its members

should be representative of all Catholic nations. A cardinal ranks next to the pope and above all other ecclesiastical dignitaries, and is addressed as Eminence. Most cardinals are bishops. The insignia are the red hat and the scarlet biretta.



Cardinal's red hat, the distinguishing mark of this dignity

CARDINAL BIRD (*Cardinalis*). Name of several species of birds found in N. and Central



Cardiganshire. Map of this mountainous county of South Wales

America, especially given to the Virginian nightingale (*C. virginianus*). It has brilliant red plumage. Its song is melodious, and it is a favourite in aviaries. See illus. p. 360.

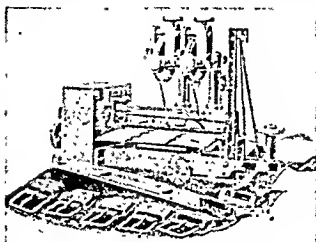
CARD INDEX. Method or system of keeping lists of names and other records in cards arranged alphabetically, numerically, or otherwise, in preference to keeping such records in books. The advantage of the card index system lies principally in the fact that it can be expanded indefinitely without the disturbance of order, and it can be contracted by the withdrawal of out-of-date or unneeded records.



Cardinal bird
Red-crested cardinal
See art. p. 359

CARDINGTON. Village of Bedfordshire. It is 3 m. from Bedford, with a station on the L.M.S. Rly. Here John Howard lived for a time, but the place is known to-day because of the aircraft works where the R101 and other airships were built. See Airship.

CARDIOGRAPH (Gr. kardia, heart; graphein, to write). Medical instrument employed for determining the character and rate of the movements of the heart.



Cardiograph. Instrument for measuring the heart's action

CARDOON (Cynara cardunculus). Perennial herb of the order Compositae. A native of S. Europe, it attains a height of about 5 ft. and has large spiny leaves, deeply indented. The flower-head is like a thistle, many leathery oval bracts enclosing the purple flowers. It is best known as a cultivated plant, when it is treated much like celery. The globe artichoke is derived from the cardoon.



Cardoon, blanched leaves and flowers

CARDROSS. Village of Dumbartonshire. It stands on the Clyde, 3½ m. by rly. N.W. of Dumbarton on the L.M.S. Rly. Robert the Bruce died, June 7, 1329, at Cardross Castle, which stood between Cardross and Dumbarton. Smollett, the novelist, was born here. Pop. 11,609.

CARDS, PLAYING. Pieces of thick paper or pasteboard used in various games of chance. The modern pack of playing cards consists of 52 cards, divided into two black suits: spades and clubs; and two red suits: diamonds and hearts. In each suit there are 13 cards: king, queen, knave (or jack), and ten others, bearing pips in number from ten down to one, the last being called the ace. In many games the ace counts as the highest card. In poker an extra card called the joker is used.

Cards are generally believed to have been invented in Asia and to have been introduced into Europe about the middle of the fourteenth century, by the end of which they were in common use. The court or picture cards have lent themselves at all times to illustrations of notable personages; to caricature, political and otherwise; and even to religious subjects. From 1615 there has been a duty on playing cards in Great Britain; beginning at 5s. per gross of packs, it rose in 1789 to 2s. 6d. each pack, was reduced to 1s. in 1828, and in 1862 to 3d. per pack. See Auction Bridge; Bridge; Contract Bridge; Poker; Whist, etc.

CARDWELL. Town of Queensland, Australia. It stands on Rockingham Bay, about 800 m. N.N.W. of Brisbane. Its harbour is one of the safest on the coast. Pop. 3,500.

CARDWELL, EDWARD CARDWELL, VISCOUNT (1813-86). British politician. Born at Liverpool, July 24, 1813, he entered parliament as a Peelite in 1842. Under

Palmerston he was chief secretary for Ireland in 1859, becoming chancellor of the duchy of Lancaster, 1861-64, and secretary for the colonies, 1864-66. Under Gladstone he was secretary for war from 1868-74. Cardwell introduced the system of short service and the reserve, and procured the abolition of promotion by purchase. Raised to the peerage as Viscount Cardwell of Ellerbeck in 1874, he died Feb. 13, 1886, when the title became extinct. See Army.

CAREW, THOMAS (c. 1595-1645). Courtier and lyrical poet. Son of Sir Matthew Carew, of Middle Littleton, Wiltshire, he became secretary to Sir Dudley Carleton in Italy, and accompanied Lord Herbert of Chisbury to France. "He that loves a rosy cheek" is perhaps his best-known song, and "Ask me no more" his best.

CAREY, JAMES (1845-83). Fenian and informer. Born in Dublin, he started life as a bricklayer like his father, and became a successful builder, and was elected to the Dublin Town council. He became a Fenian, and in 1882 took an active part in the plot which ended in the assassination of Lord Frederick Cavendish. Arrested in 1883, he turned Queen's evidence. To clude vengeance, he sailed for South Africa, but was shot dead on board ship, July 6, 1883.

CAREY, WILLIAM (1761-1834). British Baptist missionary and Orientalist. Born at Paulerspury, Northamptonshire, Aug. 17, 1761, in 1787 he was appointed minister at Moulton, later removing to Leicester. A leading spirit in the foundation of the Baptist Missionary Society, in 1793 he went to India as a missionary. Professor of Oriental languages at Fort William College, Calcutta, 1801-30, he died at Serampore, June 9, 1834.



William Carey,
British missionary
From a portrait by nome

CARHAM. Village of Northumberland. It is on the Tyne, 19 m. S.W. of Berwick-on-Tweed, on the L.N.E. Rly. Here the English were defeated by the Scots in 1018. Pop. 841.

CARIAMA. Large, long-legged bird of S. America, allied to the cranes, and in appearance resembling the secretary bird. There are two species, both brownish grey in colour, found respectively in Brazil and Argentina. They live in the open, and feed mainly upon snakes, lizards, rats, and mice.

CARIBBEAN SEA. Arm of the Atlantic Ocean. Lying between the Antilles, the N. coast of S. America and the E. coast of Central America, it is connected on the N.W. with the Gulf of Mexico, by Yucatan Strait, and with the Pacific by the Panama Canal. It has a maximum length of 1,750 m. It takes its name from the Caribbee Islands. The Indians met with by Columbus on its coasts were called Caribs. Their name is embodied in the word cannibalism (q.v.).

CARIBOU. American reindeer. They are grouped into two sub-species, known as the Barren Ground and the Woodland caribou. The former is only found in Arctic districts of North America, and is usually small, with long, slightly curved antlers; the Woodland caribou roams the forest districts of Canada, and has shorter, much-branched horns. Of the same species as the European reindeer, it has never been domesticated.

CARICATURE (Ital. caricare, to overload). Drawing or description of a person or thing made deliberately grotesque and ludicrous by means of a pronounced exaggeration of feature, dress, habit, or other characteristic. The whole is so contrived as to preserve the general likeness. Caricature is used both as an instrument of ridicule and of chastisement. Max Beerholm may be cited as a successful caricaturist of the one mode, and Louis Raemaekers of the other.



Thomas Carew,
English poet
After Van Dyck

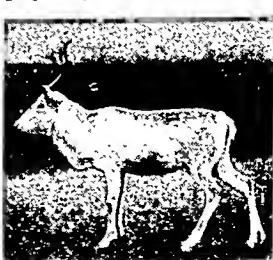
In England caricature of the coarser sort flourished in the 18th century. As a rule the 19th century caricaturists evinced a much stronger regard for decency and drawing. George Cruikshank and Hablot K. Browne (Phiz) were seldom malevolent, while the leading Punch men—John Leech, John Tenniel, Charles Keene, Richard Doyle, George du Maurier, and Harry Furniss—were great artists who hardly ever transgressed the bounds of taste.

Among present-day caricaturists may be mentioned Percy Hutton Fearon (b. 1874), who, under the pseudonym Poy, contributed regular cartoons to The (London) Evening News. His pictorial figures, John Citizen and Dilly and Dally, were very popular. Equally prominent was D. Low, formerly of The Star and later of The Evening Standard. Both these mainly confined their efforts to political subjects. W. K. Haselden (b. 1872) became cartoonist to The Daily Mirror in 1904, and his cartoons during the period of the Great War were specially striking. His Big and Little Willie series, dealing with the Kaiser and the Crown Prince, were the most famous. Tom Webster (b. 1888), after being political cartoonist to a London daily newspaper, developed a remarkable gift as a humorous delineator of sporting events.

CARIES (Lat. rottenness). Diseased condition resulting from inflammation of bony tissue. Its most frequent form is dental caries, brought about partly chemically and partly parasitically. Foodstuffs of a starchy or sugary nature are decomposed by bacteria invariably present in the mouth, giving rise to acid which decalcifies the enamel. This breaks down, the bone of the tooth is similarly disorganized, and the pulp of the tooth destroyed by the bacteria.

No race of mankind is exempt from the disease. It may be prevented by selecting foods which do not leave a residue of fermentable carbohydrates. See Teeth.

CARILLON (Fr. chimes). Set of bells played by some kind of keyboard mechanism,



Caribou or American reindeer, common in the forest districts of Canada
Berridge

acted by hand or by power. In England only a few buildings possess this kind of tune-producer, e.g. the Royal Exchange, London. On the Continent carillon-playing has been for centuries important. As a war memorial the idea of installing keyboard carillons has been adopted at Loughborough, Wellington, New Zealand, and other places. The New Zealand carillon was erected in Hydo Park, 1930, before being taken to its destination. See Bruges; Campanology.

CARINUS, MARCUS AURELIUS. Roman emperor, A.D. 283-85. Cruel and dissolute, he was a capable soldier and fought with success against the Britons and Alamanni, put down the revolt of Julian in Pannonia, and defeated Diocletian, who had been declared emperor at Chalcedon by the troops.



Carisbrooke. Entrance to Carisbrooke Castle, with the Keep built by Henry I

CARISBROOKE. Village in the Isle of Wight. An ancient and historic place, a Roman villa was found in the valley of the Lugley. The Norman castle was built by William Fitz Osbern, the first lord of the island. The keep was added in the time of Henry I, and Elizabeth enlarged the fortifications. Charles I was imprisoned here for 14 months, 1647-48: as were his two youngest children, one of whom, Elizabeth, died here in 1650. Pop. 4,767.



Alexander Mountbatten, Marquess of Carisbrooke
Specialist

In 1917 the title of marquess of Carisbrooke was given to the eldest son of Princess Henry of Battenberg. He served in the Great War with the Guards, and in 1917 married Irene, daughter of the earl of Londeshorough.

CARLETON, WILLIAM (1794-1869). Irish novelist. Born at Prillisk, co. Tyrone, Feb. 20, 1794, his best work is to be found in his *Traits and Stories of the Irish Peasantry*, 1830 and 1833. Of his novels *Fardorougha*, the *Miser*, 1839; *Rody the Rover*, 1845; and the *Black Prophet*, 1847, are notable. He died at Dublin, Jan. 30, 1869.

CARLILE, WILSON (b. 1847). Founder of the Church Army. Born at Brixton, Jan. 14, 1847, he was ordained in the church of England in 1880. Two years later he started the Church Army in a slum behind Vincent Square, Westminster, and continuously acted as its hon. chief secretary. He was appointed rector of S. Mary-at-Hill, London, in 1892, and prebendary of S. Paul's in 1906. See Church Army.



Wilson Carlile, founder of the Church Army
Special News Co.

CARLINE THISTLE (*Carlina vulgaris*). Biennial herb of the order Compositae. It is a native of Europe, Africa, and W. Asia. About 1 ft. high, it is common on heaths and dry pastures. The much divided leaves are prickly, each lobe ending in a spine. The florets are purple, and the flower-head is invested by persistent chaffy yellow scales.

CARLINGFORD. Market town of co. Louth, Irish Free State. It is on the S. shore of Carlingford Lough, at the foot of Carlingford Mt., 10 m. by rly. N.E. of Dundalk, and is a favourite watering-place. Its fisheries,

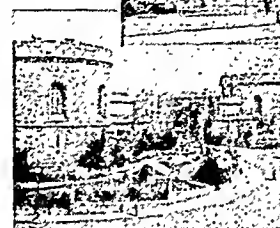
especially of oysters, are important. It has remains of King John's castle, erected about 1210, and a monastery, founded 1305. Pop. 547.

Carlingford Lough, between co. Down and Louth, is 10 m. long and about 2 m. wide. It can take the largest ships, and is connected by the Newry Canal with Lough Neagh.

CARLISLE. City, county borough and co. town of Cumberland. It is 299 m. by rly. N.N.W. of London, and 22½ m. E.N.E. of Silloth, its port. At the confluence of the rivers Caldew, Petteril, and Eden, it is one of the principal rly. junctions of the United Kingdom, being served by the L.M.S. and L.N.E. railways.

The Augustinian church, founded by William Rufus in 1092, was created a cathedral by Henry I in 1133. It is noted for its fine E. window. In its nave Sir Walter Scott was married in 1797. The 11th century castle, with Norman keep, is now used as a barracks. Other prominent buildings are the court house, town hall, library and museum, and grammar school. The town cross was erected in 1682.

Among the indus-



Carlisle. County buildings on the site of the old Citadel. Above, the Cathedral, founded in the 12th cent.

tries are cotton and woollen manufactures, iron founding, tanning, and hewing. he sides a large rly. repair works.

In June, 1916, the Government started experiments in state ownership of the liquor traffic in Carlisle. Market day, Sat. Pop. 56,620.

CARLISLE, EARL OF. English title borne by the families of Hay and Howard, its present holders. James Hay, one of the intimates of James I, was created earl of Carlisle in 1632. His second wife, Lucy, daughter of the 9th earl of Northumberland, figured largely in the intrigues of the Civil War, and is the theme of verses by Herrick, Suckling, and others. When James, the 2nd earl, died in 1660, the title became extinct.

In 1661 Charles Howard was made earl of Carlisle by Charles II.

Frederick, the 5th earl, who succeeded in 1758, was an active politician during a long life and Viceroy of Ireland, 1780-82. George, the 7th earl (1802-64), was also notable as a politician. He was chief secretary for Ireland, 1835-41, chancellor of the Duchy of Lancaster, 1850-52, and lord lieutenant of Ireland, 1855-58 and 1859-64. The earl's seats are Naworth Castle, Carlisle, and Castle Howard, Malton, Yorkshire.



Carlisle thistle

CARLISTS. Supporters of Don Carlos and his successors in their claim to the Spanish

throne. They waged two wars without success, but their activities did not cease until the death of Don Carlos in 1909.

CARLOS I (1863-1908). King of Portugal. Born Sept. 28, 1863, of the house of Braganza-Cohurg, he succeeded his father, Louis I, Oct. 19, 1889. In May, 1907, he aroused hostility by suspending the constitution and appointing Franco as dictator. Franco's conduct increased this hostility, and on Feb. 1, 1908, Carlos and his elder son Louis were assassinated in Lisbon. He was succeeded by Manoel, the only surviving son, who was deposed Oct., 1910. See Portugal.



Carlos I,
King of Portugal

CARLOS, DON. Name of several claimants to the Spanish throne, the supporters of whom were called Carlists.

When Ferdinand VII died in 1833 he left his kingdom to his daughter Isabella. Thereupon his brother Carlos (1788-1855) claimed it, and civil war broke out. This raged until 1839, when, owing partly to the hostility of Great Britain and France, Carlos admitted defeat and left the country. He died March 10, 1855.

The claims of Don Carlos were, however, kept alive and in 1872, following serious disturbance in Spain, a grandson, also Don Carlos (1848-1909), took the lead in another civil war. This lasted until 1876, when Alphonso XII was recognized by the European powers. Don Carlos, having left the country, died July 18, 1909, leaving a son, Jaime (b. 1870).

An earlier Don Carlos was the eldest son of Philip II of Spain. As a boy he showed signs of insanity and was put under restraint. His death on July 24, 1568, aroused suspicions of foul play, and several dramas have been written about his mysterious fate.

CARLOW. Inland co. of the Irish Free State. Generally flat or undulating, its surface becomes elevated in the S.E.; Mt. Leinster (2,610 ft.), Blackstairs Mt. (2,409 ft.), and Knockroe (1,746 ft.) are the loftiest summits. The Barrow and Slaney are the chief rivers. Agriculture occupies most attention. The co. is served by the Gt. Southern Rlys. Carlow is the co. town. Pop. 34,476. See map. p. 362.

CARLOW. Urban district, co. and market town of co. Carlow, Irish Free State. At the confluence of the Barrow and Burren, it is 56 m. by rly. S.W. of Dublin. It has a Roman Catholic cathedral, and S. Patrick's College (1795), a Protestant church, court house, and county buildings. Market days, Mon. and Thurs. Pop. 7,163.

CARL ROSA OPERA COMPANY. Society founded in London in 1875 by Carl August Nicolas Rosa (1842-89). This company has been influential in forming English taste in opera, especially in the provinces.

CARLTON HOUSE. London mansion which formerly stood in Pall Mall. Built on a site fronting St. James's Park, by Henry Boyle, Baron Carleton, it was acquired by Frederick, prince of Wales, father of George III, in 1732. In 1783 it became the residence of the prince of Wales, afterwards George IV.



Don Carlos (d. 1855).
Spanish prince



Don Carlos (d. 1909).
Spanish prince

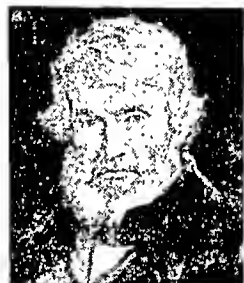


Lucy, Countess of
Carlisle
After Van Dyck

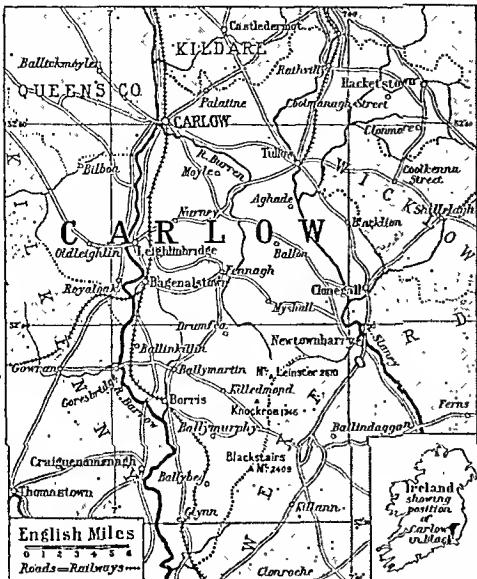
The house was taken down in 1827, when a series of lectures from 1837 to 1840 in Willis's the columns of the Corinthian portico were Rooms, the most notable being those on transferred to the National Gallery. The German Literature and Heroes and Hero Worship. Out of the last-named grew the volume of that title published in 1841. Oliver Cromwell's Letters and Speeches: with Elucidations, appeared in 1845. Five years later came the stinging Latter-Day Pamphlets, while the Life of John Sterling appeared in 1851. The many volumes of Frederick the Great were published between 1858 and 1865, after which he did no further work of importance outside the Reminiscences of his own life, edited by J. A. Froude, and published soon after his death on Feb. 4, 1881.

CARLYLE; THOMAS (1795-1881). British essayist, historian, and philosopher. Born on Dec. 4, 1795, in the parish of Ecclefechan, in Dumfriesshire, his father was a mason. He received an excellent education; first at a school in Annan, then in the university of Edinburgh, where he chiefly studied mathematics. He started life as a schoolmaster, but soon turned to a literary life. The series of articles in The London Magazine on Schiller, afterwards incorporated in the Life, inaugurated his career in 1823. The following year was partly occupied by miscellaneous biographies for Brewster's Edinburgh Encyclopedia; but was chiefly remarkable for the translation of Wilhelm Meister's Apprenticeship, followed three years later by Wilhelm Meister's Travels, vol. iv of German Romance.

In 1826 Carlyle married Jane Welsh (1801-66), and in 1828 moved to the moorland farmhouse of Craigenputtock, Galloway, where he remained six years. Mrs. Carlyle was a brilliant woman, and the publication of her correspondence gave her a sure position among British letter writers. At Craigenputtock Carlyle wrote and published Sartor Resartus and some of his best miscellaneous Essays. In 1834 he moved to 185 (now No. 24), No. 10 Row, Chelsea, where he was sea, ed to spend the last of his life. The stormy volume The French Revolution and the last sentence of the third volume was written on Jan. 12, 1837. But this brought no immediate reward, and it was only the intervention of Harriet Martineau and other friends that prevented him from migrating to America. He delivered



Thomas Carlyle, after the portrait by Sir John Millais
National Portrait Gallery



Carlow. Map of this Irish agricultural county. See p. 361

CARMAN, WILLIAM BLISS (1861-1929). Canadian poet. Born at Fredericton, New Brunswick, April 15, 1861, he made his home in the U.S.A. He became in 1890 literary editor of The New York Independent. His first volume of verse, Low Tide on Grand Pré, 1893, was the pioneer of a succession of volumes which placed him in the front rank of Canadian poets. Others are Ballads of Lost Haven, 1897, Pipes of Pan, 1903, Daughters of Dawn, 1912, and April Airs, 1916. Carman died June 8, 1929.



Jane Carlyle,
British author
From miniature by
K. Maclean

CARMANIA. British triple-screw turbine liner of 19,524 tons gross and 19 knots speed, launched at Clydebank in 1905 for the Cunard company. Early in the Great War she was commissioned for naval service and fought a successful action off Trinidad Island, S. Atlantic, with the German armed merchant cruiser Cap Trafalgar, Sept. 14, 1914. The latter was sunk.

CARMARTHEN. Borough and co. town of Carmarthenshire. Situated on the Towy river, 8 m. from Carmarthen Bay, it is served by the G.W. and L.M.S. railways. It has a grammar school. The county gaol incorporates part of the old castle. Market days, Wed. and Sat. Near are large iron and tin works. Pop. 10,011.

Carmarthen Bay is an extension of Bristol Channel, between S. Gowan's Point, Pembroke, and Worms Head, Glamorgan.

shire. It receives the Taff, Towy, and several smaller rivers. Burry Inlet is an E. arm.

CARMARTHENSHIRE. Southern maritime county of Wales. With about 35 m. of coast on Carmarthen Bay, it has an area of 910 sq. m. Pop. 175,073.

Mountainous on the N. and E. borders, the remainder of the surface is hilly and undulating and traversed by many valleys; the highest point is Carmarthen Van (2,632 ft.). The principal river is the Towy; the Vale of Towy, a fertile tract, is 30 m. long and has an average breadth of about 2 m. Agriculture and breeding of stock are the most important industries. The G.W.R. main line to Pembroke and Fishguard, with its branches, afford communication. Carmarthen, Llanelly, Ammanford, Llandilo, Kidwelly, and Llandovery are the chief towns. See map below.

CARMEL, MOUNT (Heb. orchard). Hill in Palestine which gives its name to a range of hills 14 m. in length from N.W. to S.E. The height (1,750 ft.) lies W. of the plain of Esdraelon and overlooks Haifa and the Mediterranean. It was the scene of Elijah's sacrifice (1 Kings 18).

CARMELITES. Order of mendicant friars. Founded at Mt. Carmel by Berthold in the 12th century, the rule was sanctioned in 1210, and before the end of the 13th century the order had spread to Europe, and had houses in Kent and Northumberland. The order is still distinguished for its austerities and attention to the contemplative life. The habit is brown, and the mantle of white wool; hence the name Whitefriars.

Carmelite House and Carmelite Street, London, E.C., derive their name from the Carmelite Priory which at the time of the dissolution of the monastic houses occupied land between the Thames and Fleet Street.



Carmelites. Dress of the order

Carmen Sylva. Pen-name of Elizabeth, queen of Rumania. See Elizabeth.

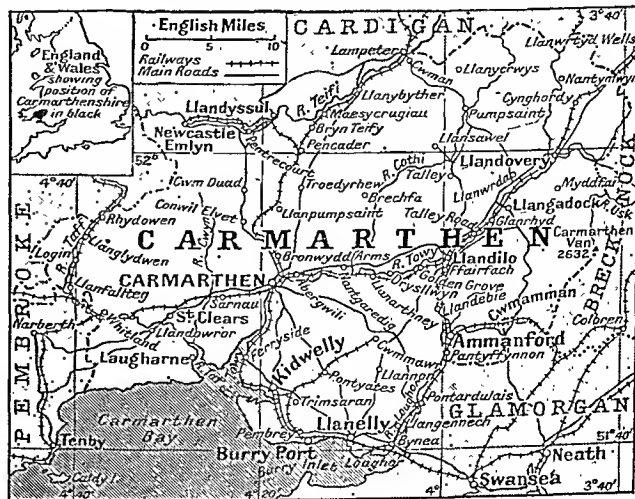
CARMINATIVE (Lat. carminare, to card wool, cleanse). Drug which stimulates

puttock, Galloway, where he remained six years. Mrs. Carlyle was a brilliant woman, and the publication of her correspondence gave her a sure position among British letter writers.

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Carlyle. No. 5 (now No. 24)
Cheyne Row, his Chelsea home
D. McLeish



Carmarthenshire, Wales. Map of the largest county in Wales. See above

the movements of the stomach and intestines, and thereby assists in the expulsion of gases, and relieves flatulency and colic.

The more important are aromatic substances, bitters, valerian, camphor, and volatile oils.

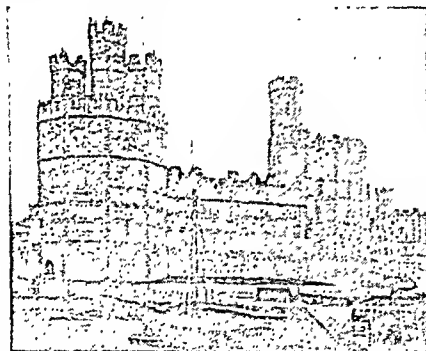
CARMINE. Red colouring matter obtained from the cochineal insect. It is prepared by boiling the crushed insects with water, allowing the sediment to subside, and then adding alum or cream of tartar to the clear liquid, when the carmine is precipitated. Carmine is used in dyeing scarlet cloth, as an artists' colour, and for colouring dentifrices.



Carnac. Thousands of granite menhirs arranged in definite alignment on the plain near Carnac

CARNAC. Village of France, in the dept. of Morbihan, 10 m. S.W. of Auray. It is noted for its megalithic monuments. Rows of granite menhirs, 18 ft. down to 2 ft. high, stand in definite alignments. An oval chambered tumulus, Mont St. Michel, 380 ft. long, averaging 33 ft. high, yielded fine jadeite celts, turquoise and ivory beads.

CARNARVON. Borough, market, and eo. town of Carnarvonshire. It is near the S. entrance to the Menai Strait, 69 m. W. of Chester, on the L.M.S. Rly. Its castle, begun by Edward I in 1283, is in good preservation. The parish church dates from the 14th century. In the Eagle Tower Edward II is said to have been born. Much of the old town wall is still intact. There is a wireless station. Market day, Sat. Pop. 8,301.



Carnarvon Castle. In the Eagle Tower, in the foreground, Edward II is said to have been born

An old Roman station, Carnarvon was the residence of Welsh princes down to 873. There are a circular mound and vestiges of a Roman fort, villa, and baths.

There is a town called Carnarvon in Cape Province, S. Africa, and a township of the same name in Tasmania.

Carnarvon Bay is an opening of the Irish Sea, on the angle formed by the cos. of Carnarvon and Anglesey.

CARNARVON, EARL OF. Title held by the family of Herbert since 1793. Henry Herbert, a grandson of the 8th earl of Pembroke, was the first earl. Henry, the 4th earl (1831-90), was in 1885-6 lord-lieutenant of Ireland, and he took a leading part in the negotiations with the Irish leaders. The 5th earl (1866-1923) worked with Howard Carter, with whom he discovered the tomb of Tutankhamen (q.v.) in Nov., 1922. He died in Cairo, April 5, 1923. The earl's seat is Highclere Castle, Newbury, and his eldest son is called Viscount Portchester.

CARNARVONSHIRE. The most N.W. county of the Welsh mainland. It is bounded N. by the Irish Sea, E. by Denbighshire, S. by Merionethshire and Cardigan Bay, and W. by Carnarvon Bay and Menai Strait. It has an extreme length from N. E. to S. W. of 56 m., greatest breadth of 27 m., and an area (including a small detached part in Denbighshire) of 572 sq. m. The S. promontory of Lleyn occupies about one-half the total length. Great Orme's Head is the N. extremity.

The surface is mountainous, especially towards the centre, where the maximum elevations are attained in Snowdon (3,560 ft.), the loftiest summit of England and Wales, Carnedd Llewellyn (3,484 ft.), and Carnedd Dafydd (3,426 ft.). The chief river is the Conway. There are several lakes. The county has the Penrhyn slate quarries. There is a little mining, but agriculture is the chief industry. Carnarvon, Bangor, Conway, Llandudno, Bethesda, and Pwllheli are among the principal towns, the last being the terminus of the L.M.S. and the branch line of the Cambrian (G.W.) Rly., which serves the S. Coast. Pop. 130,975.

CARNATIC. District of India. Originally the name of the Kanarese country, it came to mean the Tamil country of Madras, one of the principal scenes of the struggle between English and French in the 18th century. The name is applied to the S.E. of Madras and to the southern part of the Bombay Presidency E. of the W. Ghats, close to its original locality.

CARNATION (late Lat. carnatio, fleshiness). Hardy perennial plants of the order Caryophyllaceae; genus, *Dianthus*. The flowers are of nearly every shade of colour except blue. About thirty actual species and hundreds of florist-raised varieties are in cultivation. Carnations are divided into classes according to colouring. The three desiderata in growing good carnations are colour, scent, and size, but all three qualities are rarely found in a single plant. Flowers of moderate size, with perfume, are considered to be the best.



Carnation in full bloom

CARNAÚBA PALM OR WAX PALM (*Copernicia cerifera*). Perennial plant of the order Palmae. A native of Brazil, it grows to a height of 40 ft., with a trunk 6 ins. or 8 ins. in diameter, ending in a tuft of fan-shaped leaves. When young, these leaves are coated with lemon-coloured wax, which is used for candle-making, etc. The hard wood of the trunk is used for building; the recently formed upper part yields a kind of sago. The young leaves are given to horses as food.

CARNEDD DAFYDD. Mt. of Carnarvonshire. About 6 m. N.E. of Snowdon, it is included in the Snowdon system, and is 3,426 ft. high. The peak is connected by a narrow ridge with Carnedd Llewellyn (3,484 ft.).

CARNEGIE, ANDREW (1835-1919). Scottish business man and philanthropist. Born at Dunfermline, Nov. 25, 1835, he emigrated to



Carnarvonshire. Map of this mountainous county of North Wales

Pittsburg, U.S.A., in 1848. Carnegie established the Keystone Bridge Works and Union Ironworks at Pittsburg, introduced the Bessemer process in 1868, and became head of the Homestead and other steel works. The various firms he controlled were consolidated into the Carnegie Steel Co. in 1889, and this was merged into the U.S. Steel Corporation in 1901. In that year he retired from business, and made Skibo Castle, Sutherlandshire, his residence.



Andrew Carnegie, Scottish philanthropist

Carnegie now became known for his extensive and generous gifts. He endowed a great number of public libraries in Great Britain, America, and other English-speaking countries; established a fund, known as the Carnegie Trust, for assisting students at the Scottish universities; while his other benefactions included the Carnegie Institute for Technical Education at Pittsburg, 1900, and the Carnegie Hero Fund for the U.S.A. and Canada, 1904, and for the United Kingdom, 1908. Other funds were given to the Carnegie endowment for international peace, 1910, and to the burgh of Dunfermline. There is also the Carnegie United Kingdom Trust, which distributes money for philanthropic purposes. He died Aug. 11, 1919.

CARNERA, PRIMO (h. 1907). Italian boxer. He came to England in 1929, where on Oct. 17, at the Albert Hall, London, he defeated Jack Stanley in 108 seconds. After subsequent contests, he left for the U.S.A. in 1930, where he gained other sensational victories.

CARNIVORA (Lat. caro, flesh; vorare, to devour). Generally, all predatory and distinctively flesh-eating animals. All members of the order Carnivora, which includes a vast number of species, have teeth specially adapted for flesh-eating, though a few—like some bears—live mainly on vegetables or fruit. The Carnivora are usually divided into eleven families: Cats, civets, hyaenas, aard-wolves, dogs, bears, racoons, weasels, sea-lions, walrus, and seals.

CARNOT, LAZARE NICOLAS MARGUERITE (1733-1823). French soldier and mathematician. Born at Nolay, Burgundy, May 13, 1753.

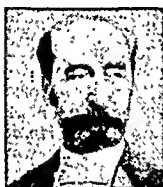
Carnot entered the army as an engineer, and was elected to the National Assembly in 1791. Appointed to a seat on the Committee of Public Safety, he undertook the reorganization of the armies of the Revolution, raising 14 armies. Minister of War in 1800, he retired in 1801, owing to his disapproval of Napoleon's monarchist plans, and spent much of the rest of his life in scientific pursuits. In the campaign of 1814 he distinguished himself by his defence of Antwerp. He died Aug. 2, 1823.



Lazare Carnot,
French soldier

His eldest son, Nicolas Léonard Sadi Carnot (1796-1832), laid the foundation of the modern science of thermodynamics. His theory of the reversible heat-engine embodies what is known as Carnot's cycle of operations, from which he deduced the principle that the transference of heat from a colder body to a hotter is possible only by the application of mechanical work. He died of cholera in Paris on Aug. 24, 1832.

CARNOT, MARIE FRANÇOIS SADI (1837-94). French statesman. Born at Limoges, Aug. 11, 1837, he became an engineer, and in 1870 was entrusted with the task of organizing resistance to the Germans in the departments of the Eure, Calvados and Seine Inférieure. Elected to the chamber of deputies in 1871, he became secretary to the minister of public works in 1878 and minister of finance in 1885. In 1887, Carnot was elected president by a large majority, but at the height of his popularity he was fatally stabbed at Lyons by an Italian anarchist named Caserio, June 24, 1894.



M. F. S. Carnot,
French statesman
Pierre Petit

CARNOTITE. Essentially vanadate of uranium and potassium. Containing about 54 p.c. of uranium oxide, it occurs as a canary-yellow impregnation of sediments in Utah and Colorado, and is also reported from S. Australia. It is an important source of uranium and radium.

CARNOUSTIE. Burgh and coast town of Angus (Forfarshire). It is 10 m. N.E. of Dundee, on the L.N.E. and L.M.S. Rlys. Facing the North Sea, it is a watering-place, with good bathing facilities and golf links. Pop. 5,957.

CARNWATH. Parish and village of Lanarkshire. On the Carnwath Burn, 6 m. E.N.E. of Lanark by the L.M.S. Rly., it lies in a coal and ironstone district. Pop. 6,547. Carnwath gives the title of earl to the family of Dalzell or Dalryell.

CAROB. Leguminous evergreen tree (*Ceratonia siliqua*). A native of the Mediterranean countries, it attains a height of 40 ft. or 50 ft. The fruits are flat, pulpy pods about 6 ins. long, glossy, and dark purple, containing a number of small hard seeds. The fleshy pods are sweet, and mucilaginous, and are used as food for cattle, and to some extent by man. A mucilage known as gum tragacanth is prepared from the pods. Another name for the pod and tree is locust.



Carob. Foliage and
bean of this ever-
green tree

CAROLINA. NORTH. A S. Atlantic state of the U.S.A., one of the 13 original states of the Union. Its area is 35,927 sq. m.

The W. portion, traversed by the Appalachian system, contains many summits above 6,000 ft., a number of which are clad with forests. Separated from the mainland by Pamlico, Albemarle, and Currituck Sounds is a chain of long, narrow sandy islands or heaches, which throw out three prominent capes, Fear, Lookout, and Hatteras. Maize, wheat, cotton, tobacco, and fruit are cultivated. Raleigh is the capital. Pop. 2,759,014.

CAROLINA, SOUTH. A S. Atlantic state of U.S.A., one of the thirteen original states of the Union. Its area is 30,989 sq. m. The surface rises from a low and level coast belt to a height of more than 3,500 ft. in the W., where it is broken by spurs of the Appalachian system. The coast is harried in parts by islands separated by narrow straits. Wheat, maize, rice, and tobacco are cultivated, but the cotton crop is of greatest importance. Phosphate rock, granite, and other minerals are worked. The capital is Columbia. Pop. 1,779,084.

CAROLINE ISLANDS. Archipelago in the N.W. Pacific. They lie E. of the Pelew Islands and S. of the Ladrone or Marianne Islands and cover an area of about 390 sq. m. The three groups formerly belonged to Spain, but, with the exception of Guam, in the Ladrone group, were sold in 1899 to Germany. For administrative purposes they were divided into the Eastern Carolines, with Truk and Ponapé as centres of administration, and the Western Carolines, with Palaw and Yan as administrative centres.

The Carolines comprise over 500 coral isles and islets. Occupied by the Japanese in 1914, they are now governed by Japan under mandate from the League of Nations. Pop. 24,000.

CAROLINE (1683-1737). Queen of George II of Great Britain. Born March 1, 1683, she was the daughter of Frederick, margrave of Brandenburg-Ansbach. In 1705 Caroline was married to George, electoral prince of Hanover.

and for nine years she lived at Hanover. In 1714 she followed her husband and his father, by this time King George I, to England. She took her husband's part in his quarrel with his father, and, exiled from the king's court, passed much time at Richmond. In 1727 Caroline became queen consort, and for ten years her influence on public affairs was pronounced. She died Nov. 20, 1737. Caroline had a large family, her sons including Frederick, prince of Wales, and the duke of Cumberland (1721-65).

CAROLINE (1768-1821). Queen of George IV. Born May 17, 1768, daughter of Charles William Ferdinand, duke of Brunswick, and Augusta, George III's sister, she married her cousin George, the prince of Wales, in 1795. They were formally separated a year later, after the birth of the Princess Charlotte. In 1820 George had her name removed from the Prayer Book, and in June a bill was brought in to dissolve her marriage on the ground of adultery committed by her. She was eloquently defended by Lord Brougham, and the bill was abandoned on the third reading. On July 19, 1821, she was excluded from the coronation ceremony, and she died in August.



Caroline of Brunswick,
wife of George IV
After Lawrence

CAROLUS. Latin form of Charles. A British gold coin issued by Charles I was so named. Its value was 20s., increased later to 23s. The Carolus dollar was named after Charles III of Spain.

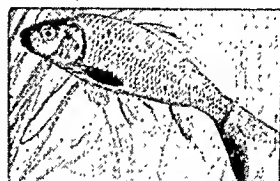


Carolus. Gold
coin of Charles I

CAROLUS-DURAN, EMILE AUGUSTE (1838-1917). French painter. Born at Lille, July 4, 1838, his real name being Charles Emile Auguste Duran, he first exhibited at the Paris Salon in 1863. For many years he produced a series of portraits of women and children. In association with Puvis he helped to found the Société Nationale des Beaux Arts, of which he became president in 1898. In 1905 he was appointed director of the École Française in Rome. He died in Paris, Feb. 18, 1917.

CARP (Cyprinidae). Family of fresh-water fishes. It includes more than 100 genera, distributed over most parts of the world, with the

exceptions of S. America and Australasia. The common carp (*Cyprinus carpio*) of British ponds is a native of central Asia, and was introduced into Great Britain in the 15th century. Although in the free state a comparatively small fish, in captivity the carp has been known to exceed a weight of 25 lb. It lives in ponds to a great age.



Carp. Fresh-water fish found in
most parts of the world

CARPACCIO, VITTORIO (c. 1450-c. 1522). Venetian painter. His best and most characteristic works are in the Venice academy, among others nine pictures illustrating the life of S. Ursula, A Patriarch of Grado Casting out a Devil, and The Presentation in the Temple, generally regarded as his masterpiece.

CARPATHIANS, THE. Range of mountains in Central Europe. It extends in a curve from the N. of Bratislava (Pressburg) in Czecho-Slovakia to Orsova in Rumania. The range traverses Czecho-Slovakia and forms the boundary of that state with Poland and Ukraine, thereafter becoming the natural division between Transylvania and Rumania proper. Its total length is about 900 m., and its breadth varies from 20 m. to 200 m.

On the N.W. the range connects with the Alps by the Little Carpathians, continues N.E. and E. by the White Mts. and the Beskids to the Forest Carpathians, and finishes S.E. in the Transylvanian Alps. In the central Carpathians are the Tatra Mts., S. of the Beskids. The Gerlsdorfer (8,737 ft.), in the High Tatra, is the highest peak in the whole range.

On Jan. 23, 1915, the Austrians, supported by German forces, started a great offensive over the whole Carpathians on a front 200 m. in length, but this definitely failed after the capture of Przemyśl, by Russians, on Mar. 22.

CARPEAUX, JEAN BAPTISTE (1827-75). French sculptor. Born at Valenciennes, May 11, 1827, he entered the École des Beaux Arts, Paris, in 1844. After ten years he won the Prix de Rome with his Hector and Astyanax, but it was not until 1863, when his group of Ugolino and his Children won the first medal at the Salon.



J. B. Carpeaux,
French sculptor

that public attention was attracted by his work. Among notable achievements were his designs decorating the pavilion of Flora in the Tuileries and the Group of the Dance, executed in 1869, for the façade of the New Opera. He died Oct. 12, 1875.

CARPENTARIA, GULF OF. Indentation of the N. coast of Australia. Its length and breadth average 350 m., and its extreme headlands are Capes York and Arnhem. The gulf is shallow, its coasts are low, and it contains a large number of islands. The ports are Burketown and Normanton. Discovered by the explorer Tasman in 1606, it was named after the governor-general of the Dutch East Indies, Pieter Carpenter.

CARPENTER, ALFRED FRANCIS BLAKE-NEY (b. 1881). British sailor. Born Sept. 17, 1881, he entered the navy in 1897, and was promoted commander June, 1915. In the Great War Carpenter commanded the *Vindictive* at the attack on Zeebrugge, April 22-23, 1918, and for his valour received the V.C., awarded on the selection of the officers and the naval assaulting party. He was subsequently promoted captain and appointed to the Naval Intelligence Department. In 1924-26 he was captain of Chatham Dockyard. He published *The Blockading of Zeebrugge* in 1921. See Zeebrugge.



Alfred F. B. Carpenter,
British sailor
Russell

CARPENTER, EDWARD (1844-1929). British author and social reformer. Born at Brighton, Aug. 29, 1844, he purchased land and settled down near Sheffield and lived as a market gardener, taking an active part later in the socialist movement, visiting Walt Whitman in the U.S.A. and travelling in India. He died June 28, 1929. His writings include *Towards Democracy*, 1883-1892, completed 1905; and *Pagan and Christian Creeds: Their Origin and Meaning*, 1920. Consult *My Days and Dreams*, autobiog., 1916.

CARPENTER, JOHN (c. 1370-1441). Benefactor to the city of London, and one of the executors of Sir Richard Whittington. He was town clerk, 1417-38; M.P. for the city in 1436 and 1439; and compiled the *Liber Albus*, an account of the city's privileges, which was not printed till 1859. His bequests included one which served in 1837 as the foundation of the City of London School.

CARPENTER, MARY (1807-77). British philanthropist. Born at Exeter, April 3, 1807, she was the eldest daughter of Dr. Lant Carpenter (1780-1840), a Unitarian divine. She started a society for visiting the poor in Bristol in 1835, and in 1846 opened a ragged school. She founded several reformatory schools, and many of her suggestions were included in the *Industrial Schools Acts* of 1857, 1861, and 1866. She died June 14, 1877. Consult *Life*, J. Carpenter, 1879.



Mary Carpenter,
British philanthropist
Russell

CARPENTER BEE (*Xylocopa*). Genus of solitary bees of large size, which construct nests in the wood of trees. They bore a long hole, divided into cells by partitions formed of the wood-dust, and deposit an egg in each. The larvae pass through the stages of their development in the cells. See Bee.



Carpenter bee,
Xylocopa teredo

CARPENTIER, GEORGES (b. 1894). French boxer. Born at Lens, France, Jan. 12, 1894, he began his boxing career when quite a youth, and, after many successes, in 1913 he defeated the English heavy-weight champion, Wells, at the National Sporting Club, London, in one round. In 1919 he defeated J. Beckett in the fight for the heavy-weight championship of Europe, also in one round. In 1921 he was beaten at Jersey City by Jack Dempsey.



Georges Carpentier,
French boxer

CARPET. Woven fabric used to-day for a floor covering. The earliest mention of carpets dates back to remote antiquity, a carpet loom and its workers being shown in an Egyptian fresco (about 3000 B.C.). They were in use in England in the time of Henry VIII, and even more extensively in the reign of Elizabeth, when direct communication with the East had been opened up. In 1701 a charter was granted to the weavers of Wilton and Axminster, a proof that the industry had already made a start in England. About 1740 the earl of Pembroke brought over weavers from France, and introduced into Wilton the manufacture of loop-pile, or Brussels carpeting, which developed soon after into the cut pile fabric now known by the name of Wilton. Carpets of the ingrain or Kidderminster type were being made in Kidderminster in 1736, while the manufacture of the Brussels and Wilton types was started in 1745 in that town, which is the most important centre of the carpet industry in the United Kingdom. Carpets are of two classes: those made by hand, and those made by machine.

CARR, ARTHUR WILLIAM (b. 1894). English cricketer. Born at Mickleham, Surrey, May 21, 1894, he was educated at Sherborne, where he distinguished himself at games. As a cricketer he qualified for Nottinghamshire and he played in the county team before the Great War. In 1919 he was made captain, and he was captain in 1923, when his county won the championship. In 1926 Carr captained the English team in four of the test matches against Australia.

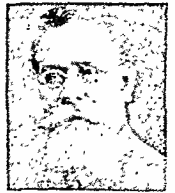
CARRACCI, LODOVICO (1555-1619). Italian painter. Born in Bologna, April 21, 1555, he started an art school at Bologna, persuading his cousins, Agostino and Annibale, to cooperate. Thus arose the school of the Incamminati or Eccelesies. Among Lodovico's most attractive pictures are *The Madonna and Child with Angels and Saints* and *The Birth of the Baptist*. He died Dec. 13, 1619.

Agostino Carracci (1557-1602) was occupied with engraving from 1576-99. His masterpiece is *The Communion of S. Jerome*, in the Bologna Gallery. He died March 22, 1602.

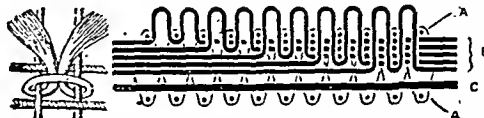
Annibale Carracci (1560-1609) was engaged upon the Farnese frescoes. The most familiar of his works is the *Three Marys*, now at Castle Howard, Yorks. He died July 15, 1609.

CARRAGEEN. Alternative name for the seaweed *Chondrus crispus*, or Irish moss (q.v.).

CARRANZA, VENUSTIANO (1859-1920). Mexican statesman. In 1893 he joined in a revolt against President Diaz, in 1910 associated himself with Madero, and after the murder of the latter in 1913 he organized a revolution with the help of Villa, Obregon, and Gonzalez. In Oct., 1915, he was recognized by President Wilson as president of Mexico, Great Britain and other Entente Powers afterwards following suit. A revolution broke out in April, 1920, and Carranza was killed May 20, 1920. See Mexico.



Venustiano Carranza,
Mexican statesman



Carpet. Section of 5-frame Brussels carpet: A, chain; B, pile warp; C, stuffer warp. Left, a Turkish knot



Carpet. Section of 5-frame Wilton carpet: A, chain; B, pile warp; C, stuffer warp

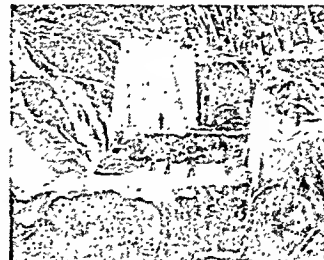


Carpet. Section of 3-shot imperial Axminster: A, chain; B, tufts; C, stuffer warp; D, double welt
By courtesy of Sir Isaac Pitman & Sons, Ltd.

CARRARA. Town of Italy, in the prov. of Massa e Carrara. It is 3 m. by rly. N.E. of Avenza, its port, itself 16 m. S.E. of Spezia. It has a 13th century Gothic church. It is noted for its marble quarries. The marble is mostly white, but yellow, green, and black are also found. Much of the finest white marble is exported for statuary. Pop., with Avenza, 52,729.

CARRHAE. Ancient city of Mesopotamia, about 25 m. S.E. of Edessa. It is the Haran of the O.T. Here the Romans under Crassus were defeated by the Parthians, 53 B.C.

CARRIAGE (Old Fr. *cariage*; cf. *carroche*, *coach*.) Vehicle for conveying passengers. An early form was that of the chariot mentioned in Genesis. A small open carriage was used for a French queen. A coach was introduced into England for Queen Mary in 1555. Stage wagons started in London in 1564, and hackney coaches began to ply for hire in 1625. These vehicles were without springs; it was not until 1804 that the elliptical spring was introduced. Carriages and gigs were two-wheeled carriages of the 18th century; tilburies, stanhopes, and the hansom (1821) belong to the early 19th century. Lord Brougham introduced the brougham in 1839; the landau and victoria followed.



Carrara. One of the marble quarries

four of the test hopes, and the hansom (1821) belong to the early 19th century. Lord Brougham introduced the brougham in 1839; the landau and victoria followed.

The word carriage is also applied to the coaches used on rlys., to the wheeled support of a gun, to the framework upon which a coach is built, and to mechanical contrivances which carry some parts of a machine. In Great Britain the trade of carriage building has become almost extinct, owing chiefly to the advent of the motor car. It is now merged in that of coach building. See Berlin; Brougham; Buggy; Cab; Coach; Railway.

CARRIAGE LICENCE. In the United Kingdom an annual payment is made by those who keep carriages. It is included in the licences collected by the county councils and other local authorities, who pay part of the proceeds into the national exchequer. Carriages pay £2 2s. a year if drawn by two or more horses; £1 1s. if drawn by one horse, being a four-wheeled vehicle; 15s. if drawn by one horse, being a two-wheeled vehicle; and 15s. for a hackney carriage.

CARRICK (Celtic, rock). Old division of S. Ayrshire. S. of the river Doon, its W. portion is covered by rugged hills and the centre is mainly moorland. As Great Steward of Scotland, the prince of Wales receives the title of earl from Carrick. Robert the Bruce and other kings were earls of Carrick.

The Irish title of earl of Carrick comes from Carrick-on-Suir, and has been borne since 1748 by the family of Butler. In 1912 Charles, the 7th earl, was made a peer of the United Kingdom as Baron Butler.

CARRICK-A-REDE. Rocky islet off the N. coast of co. Antrim, Northern Ireland. Of volcanic formation, it is 350 ft. high, and is used as a salmon-fishing station. A rope-bridge spans the chasm between the islet and the mainland.

CARRICKFERGUS. Urban district, seaport, and market town of co. Antrim, Northern Ireland. It stands on the N. side of Belfast Lough, 9 m. N.E. of Belfast by the L.M.S. Rly. Its industries include flax, spinning, oyster-fishing, salt-mining, and the manufacture of linen and leather goods. The 12th century castle and portions of the old walls remain. Market day, Sat. Pop. 4,610.

CARRICK-ON-SHANNON. Market town and co. town of co. Leitrim, Irish Free State. Part of it is in co. Roscommon. On the river Shannon, 38 m. S.E. of Sligo, it is served by a branch of the Gt. Southern Rlys. The assize town, it trades in grain and dairy produce. Pop. 1,026.

CARRICK-ON-SUIR. Urban district and market town of co. Tipperary, Irish Free State. It is on the Suir, 14 m. E. of Clonmel by the Gt. Southern Rlys. The river is spanned by bridges connecting it with Carrickbeg. It has a ruined castle, formerly the seat of the dukes of Ormonde. Market day, Sat. Pop. 4,657.

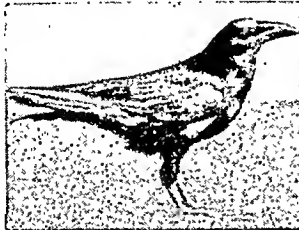
CARRIER. Literally, one who carries anything. Railway and canal companies, shipping firms, lightermen, and others that undertake to carry goods are known as common carriers, and are on a special footing before the law. A common carrier is bound to carry any goods that may be offered to him, providing they belong to the class he purposes to carry, the person sending them is willing to pay the usual charges, and his vehicles are not already full. The carrier must deliver the goods without unreasonable delay, and he is liable if the goods are damaged or lost.

CARRIER. Medical term for a person apparently in sound health, whose secretions contain the organisms of an infectious disease, and who may in consequence quite innocently be the means of starting an epidemic. Typhoid fever, for instance, may be carried in this way.

CARRIER WAVE. In wireless telephony, the wave resulting from the continuous high-frequency oscillation sent out by a transmitter. It is modulated, or varied in amplitude, by speech or other sounds directed into a microphone which forms part of the apparatus. See Beat: Wireless.

CARRINGTON, SIR FREDERICK (1844-1913). British soldier. Born at Cheltenham, Aug. 23, 1844, he was educated at Cheltenham College and entered the army, S. Wales Borderers, in 1864. In 1877, in S. Africa, he became known as a leader of light horsemen, and Carrington's Horse took part in the war against the Kaffirs in 1877. In 1893 he became commandant of the Bechuanaland Police, and he was commander-in-chief during the rebellion in Rhodesia. He helped to raise the siege of Mafeking and died March 22, 1913.

CARRION CROW (*Corvus corōnē*). One of the two European species of crow, the other being the hooded crow (*C. cornix*). It is bluish black in colour, and the skin at the base of the beak is covered with short feathers. The carrion crow inhabits wooded districts, and is usually seen either singly or in pairs. It eats carrion; but eggs and young birds and the freshwater mussel enter into its diet. It also seeks small crabs and dead fish on the seashore. The nest is usually built on the bough of a tree, close to the trunk. See Crow.



Carrion Crow. Bird found in most parts of Great Britain

CARRION FLOWER (*Stapelia*). Genus of leafless, perennial plants of the order Asclepiadaceae. Natives of S. Africa, they have dwarf stems, with large, showy flowers. These have a five-lobed corolla, tinted with purple, yellow and flesh-colour, spotted and marbled to resemble decaying flesh in harmony with the odour of carrion which they give off, and which attracts numerous carrion-loving flies.



Carrion Flower, native of S. Africa

CARROLL, LEWIS (1832-98). Pseudonym of Charles Lutwidge Dodgson, English author and mathematician. Born at Daresbury, near Warrington, Jan. 27, 1832, he was fellow and mathematical lecturer at Christ Church, Oxford, 1854-81. It was to amuse Alice Liddell, daughter of the dean of Christ Church, that he wrote the book which first brought him fame, *Alice in Wonderland*, 1865, followed by *Through the Looking Glass*, 1871. Both books, to which Tenniel contributed illustrations, have been translated into French, German, Italian and Dutch. The later fanciful works of Dodgson were *The Hunting of the Snark*, 1876; *Sylvie and Bruno*, 1889; and *Sylvie and Bruno Concluded*, 1893. He died Jan. 14, 1898.



Lewis Carroll, British author

CARRON. Name of five rivers and one sea-loch of Scotland. The most important is a river of Stirlingshire which rises in Carron Bog and flows E. to the Firth of Forth at Grangemouth.

Its length is 20 m. The others are shorter streams. One is a tributary of the Nith in Dumfriesshire and another is in Kincardineshire. The remaining two are both in Ross-shire, and the sea loch Carron is in the south-western part of that county.

CARRON. Village of Stirlingshire. It lies near the river Carron, 2 m. N.W. of Falkirk. The Carron ironworks here were founded in 1760. They gave the name carronade to a short naval cannon of cast iron, invented in 1776 by General Robert Melville, and still manufacture iron ware. Pop. 3,586.

A mixture consisting of equal parts of lime water and linseed oil is called carron oil from being first used, in the case of burns, at the Carron ironworks.

CARROT (Lat. *carota*). Vegetable of the order Umbelliferae, and genus *Daucus*. One of the most useful vegetables and valuable



Carrot. Left to right: Early Market; Golden Ball; Long Forcing; Summer Favorite; Red Elephant

for light soils, the carrot is easily raised from seed sown first in Feb. and then in succession for later crops. In the late autumn any carrots not required for immediate use should be raised and stored. The roots should be packed in sand.

CARSE O' GOWRIE. Low-lying alluvial tract of Perthshire and Forfarshire (Angus). It lies N. of the Firth of Tay, between Invergowrie and Kinnoull Hill, and is 15 m. long by 2 m. to 4 m. broad. The word carse means the fertile land on the banks of a river.

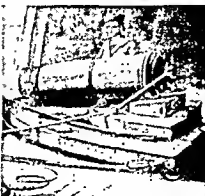
CARSHALTON. Urban district of Surrey. It stands on the Wandle, 11 m. S. of London by the Southern Rly., which has stations here. It has a fine old church, and the grounds of Carshalton Park are now a public park. Pop. 14,021.

CARSO. Alternative name for the limestone region in Yugo-Slavia known as Karst (q.v.). In the Great War four battles were fought in the Carso (Karst) region between the Italians and the Austrians, in 1916 and 1917. Considerable forces were employed in each and both sides captured many prisoners and gained ground, but these battles had little effect on the ultimate outcome of the war. In the fourth battle, fought in Sept. 1917, batteries of British 6-in. howitzers co-operated with the Italians.

CARSON, EDWARD HENRY CARSON, BARON (b. 1854). British politician. Born Feb. 9, 1854, he became member of the English and also of the Irish bar and was retained as counsel in many important cases. In 1892 he had entered Parliament as M.P. for Dublin University, and soon became prominent among the Ulster Unionists. He had already been solicitor-general for Ireland, when in 1900 he was made solicitor-general for England and was knighted. In 1912-13 he led the opposition to the Home Rule bill, but when it passed the Commons he was the official head of the Ulster volunteers, who were raised to resist it. Made a lord of appeal, 1921, he took the title of Baron Carson of Duncairn. He retired in Oct., 1929.



Baron Carson, British politician Russell



Carronade. Short naval gun cast at the Carron Works

CARSTAIRS. Village of Lanarkshire, Scotland. It is on the Clyde, 1 m. from the junction on the L.M.S. Rly. where the main line branches to Edinburgh and to Glasgow. Pop. 1,828.

CARSTARES, WILLIAM (1649-1715). Scottish statesman and divine. Born at Cathcart, Feb. 11, 1649, he was engaged for many years in conspiring against Charles II, and was imprisoned at Edinburgh, 1674-79, and again in 1683. Made court chaplain to William III, he was his intimate adviser. He took a prominent part in promoting the Revolution settlement and the Union. He died Dec. 28, 1715.



William Carstares,
Scottish divine

CART. River of Renfrewshire. It is formed by the junction of the Black Cart (9 m.) and White Cart (19 m.) at Inchinnan Bridge. The combined stream enters the Clyde after a course of 1 m. The Cart and Forth Junction Canal affords direct communication with the Forth and Clyde Canal.

CARTAGENA or **CARTHAGENA**. City and seaport of Spain, in the prov. of Murcia. On a deep bay of the Mediterranean, 326 m. by rly. S.E. of Madrid, it is the principal naval harbour of Spain. The site was chosen by Hasdrubal about 242 B.C., for the new citadel of the Carthaginian dominion in Spain: he named it Nova Carthago. It became a flourishing city, but was captured by the elder Scipio Africanus in 209 B.C. Under the Romans it also prospered. Sacked by the Goths in 425 A.D., it later came under the Moors. Cartagena exports lead, copper, iron, sulphur, and zinc, besides wine, fruit, and grain. It has a wireless station. Pop. 96,981.

CARTAGENA or **CARTHAGENA**. City and seaport of Colombia, capital of the dept. of Bolivar. It has the largest and best harbour on the Caribbean coast, and has rly. communication with Calamar, on the river Magdalena. Founded in 1533, it was heavily fortified, but was captured by pirates in 1544, and again by Drake in 1586. In the war of independence it fell to Bolivar, but although soon recaptured, was freed from Spain in 1821. It has a cathedral and a university. Pop. 68,119.

CARTE, RICHARD D'O'LY (1844-1901). Theatrical manager. Born in London, May 3, 1844, in 1875 he produced Gilbert and Sullivan's Trial by Jury at the Royalty Theatre, London, and from that date until 1899, first at the Opéra Comique, and later at the Savoy, which he built, Carte was associated with the production of light opera. The Palace Theatre of Varieties, London, erected by Carte as the Royal English Opera House, was opened in 1891 with the production of Sullivan's *Ivanhoe*. He died April 3, 1901.



Richard D'O'ly Carte,
theatrical manager

CARTER, HOWARD (b. 1873). British Egyptologist. Born at Swaffham, Norfolk, he first went to Egypt in 1890, and later worked with Sir Flinders Petrie at El-Amarna. Appointed inspector-general of antiquities at Thebes, 1901, in 1907 he began his association with the 5th earl of Carnarvon in exploring the Valley of the Kings. On Nov. 5, 1922, in almost the last explored piece of ground, he made his sensational discovery of the tomb of Tutankhamen (q.v.). In 1923 he published, with A. C. Mace, an account of his investigations here. See Carnarvon, Earl of.



Howard Carter,
British Egyptologist
F. J. Mortimer

CARTERET, JOHN (1690-1763). British politician. Born April 22, 1690, he succeeded to the barony of Carteret at the age of five, and later sat in the House of Lords as a Whig and a supporter of the Protestant succession. In 1721 he joined the administration of Townshend and Walpole, and from 1724 to 1730 was lord lieutenant of Ireland. On Walpole's fall in 1742 Carteret joined the new ministry with the direction of foreign affairs, and as its virtual head. But his policy was denounced as Hanoverian in England, and in 1744 he retired. In that year he became Earl Granville, succeeding to the title on the death of his mother, who had been created countess in her own right. He joined the Pelham administration in 1751 as lord president of the council, an office which he retained until his death, Jan. 2, 1763. See Granville, Earl.

CARTHAGE (Phoenician Karthadisha, new city; Lat. Carthago; Gr. Karchēdon). Famous ancient city on a peninsula on the N.W. coast of Africa, near the modern Tunis. According to tradition it was founded by Phoenician settlers from Tyre under Dido (q.v.). The oldest part of the town was called Byrsa (citadel), perhaps from the story that Dido purchased as much land as could be covered by the hide (Gr. byrsa) of an ox, which she cut into strips so that it surrounded a large tract of ground. There were two harbours, the inner, called Cothion, for warships. On the land side the town was protected by a triple wall.

The Carthaginians were at the height of their power before the first Punic war (264 B.C.). In the 4th century B.C. their empire extended from the altars of the Philæni, near the great Syrtis (gulf of Sidra) on the E. to the Pillars of Hercules (Gibraltar) on the W. Sardinia, Corsica, and Malta were in their hands; Hanno the navigator founded colonies on the W. coast of Africa, and Himilco sailed along the W. coast of Spain and Gaul. Their importance as traders is shown by the fact that as early as 509 they concluded a commercial treaty with the Romans.

Although defeated (480) by Gelon, the tyrant of Syracuse, the Carthaginians would probably have succeeded in subjugating Sicily but for the intervention of the Romans. The three Punic wars (264-241, 218-201, 149-146) ended in the triumph of the Roman arms. Cato's demand, *delenda est Carthago* (Carthage must be destroyed), was carried out to the letter; after a three years' siege the city was taken by storm by the younger Scipio and razed to the ground. The territory became the Roman province of Africa.

In the time of Augustus, Carthage again began to prosper. During the 1st and 2nd centuries of the Christian era Carthage, next to Rome and Alexandria, was the most important city in the Roman empire. The prov. became the home of what was known as African Latinity. It was also a stronghold of Christianity. Numerous church councils or synods were held there. From the end of the 2nd century Carthage had a bishop, and such

fathers of the church as Augustine, Cyprian and Tertullian were natives of North Africa.

In 439 the Vandals under Geiseric (Genserich) made themselves masters of the Roman dominions, and Carthage the capital of their kingdom. Carthage was reconquered by Belisarius (533) and re-united to the eastern empire under the name of Justinianopolis. Finally it was burned in 698 by the Arabs.

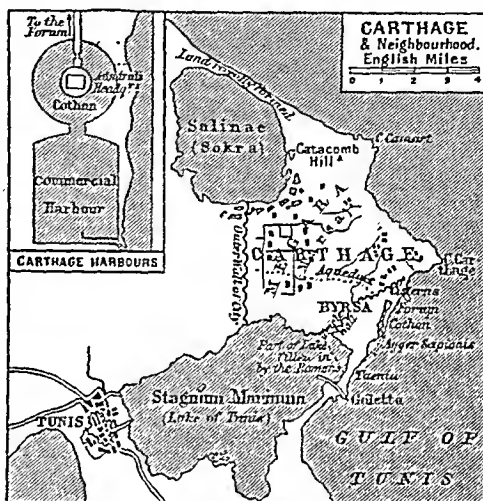
Since the French occupation of Tunis, researches and excavations have led to important Punic and Roman discoveries. Consult Carthage and the Carthaginians, R. B. Smith, new ed., 1897.

Carthamin. Red colouring matter of safflower (*Carthamus tinctorius*), formerly much employed as a dyestuff. See Safflower.



Carthusians.
Dress of the order

CARTHUSIANS (Fr. Chartreuse; Lat. Cartusia). Religious order, founded by S. Bruno at Chartreuse in the 11th century. In England a Carthusian monastery was called a charterhouse, the English form of Chartreuse. The chief characteristics of the Order are a separate dwelling house in the precincts of the charterhouse for each monk, and the general assembly in the church twice in the day and once at night. The habit is white serge, and the badge a globe surrounded by seven stars. See Chartreuse.



Carthage. Map of this ancient city and its surroundings. Inset, a plan of the harbours

CARTIER, SIR GEORGE ETIENNE (1814-73). Canadian statesman. Born Sept. 6, 1814, he was called to the bar. He took part in the rebellion of 1837-38, but was soon pardoned and in 1848 became a member of the legislature. In 1857 he was made attorney-general for Lower Canada and from 1858 to 1862 he and Sir J. A. Macdonald were joint premiers. Cartier was one of the Fathers of Confederation, and minister for militia and defence in the first Dominion cabinet (1867). Created a baronet in 1868, he resigned office just before his death in London, May 21, 1873.



Sir George Cartier,
Canadian statesman

CARTIER, JACQUES (1494-1557). French explorer. He was born at St. Malo, Dec. 31, 1494, and conducted three expeditions across the Atlantic. In the first, in 1534, he reached Newfoundland and sailed about the eastern coasts of Canada. In 1536 he recrossed the ocean and discovered the St. Lawrence river. A third voyage in 1541 in search of Saguenay, near the river Saguenay, was without result. He died Sept. 1, 1557.



Jacques Cartier,
French explorer

CARTILAGE (Lat. cartilago, gristle). Tissue of the body occurring in two forms, hyaline cartilage and fibro-cartilage. Hyaline cartilage consists of a clear ground-substance through which are scattered cartilage cells. It is found covering the ends of bones which form joints; forming rib cartilage; and constituting the embryonic structures which eventually become bones. Fibro-cartilage has a ground substance pervaded with fibres of connective tissue. White fibro-cartilage forms the disks which join the vertebrae of the spine together; yellow fibro-cartilage is found in the external ear.

CARTON, R. C. (1856-1928). Pseudonym of Richard Claude Critchett, British dramatist. He is remembered chiefly for a fine series of light comedies on contemporary manners, in most of which his wife, Miss Compton, was the leading lady. These included: *Sunlight and Shadow*, 1890; *Liberty Hall*, 1892; *The Home Secretary*, 1895; *Lord and Lady Algy*, 1898; *The Rich Mrs. Repton*, 1904; *Mr. Preedy and the Countess*, 1909; *The Bear Leaders*, 1912. He died April 1, 1928, and his wife the following month.

CARTOON (Lat. charta, paper). Term used in art in two senses. (1) A drawing on strong, tough paper preliminary to the execution of the subject in its proper medium or material. The artist is thus afforded an opportunity of correcting the drawing, composition, or colour scheme in advance. (2) The principal picture, generally of topical interest, in certain illustrated periodicals. The cartoons in *Punch* by John Leech, Sir John Tenniel, Linley Sanbourne, Bernard Partridge, L. Raven-Hill, and other artists are celebrated. See *Caricature*.

CARTOUCHE (Fr. from Lat. charta, paper). Wooden cases to hold about 400 musket-balls, also a leather sling belt in which artillerymen used to carry the ammunition from the wagon to the gun. In architecture a cartouche is an ornamental tablet, moulding, or scroll, having an inscription or emblem.

CARTOUCHE. Term applied by Champollion to the linear device employed in ancient Egypt for enclosing royal, and occasionally divine, names and titles in hieroglyphic inscriptions. At the beginning of dynastic history it was a circle resting on a bar, suggesting a signet ring. As the number of enclosed characters increased it became oblong with rounded ends, and a plain or decorated bar at one end, resembling a knotted cord. The term now commonly designates both the enclosing device and its contents.

CARTRIDGE (Fr. cartouche). Metallic, textile, or paper receptacle, usually of approximately cylindrical shape, containing the propellant charge and in some cases the projectile and igniter for any fire-arm, or an explosive charge made up into a convenient form for blasting purposes. The first military rifle cartridge to contain its own means of ignition in addition to the bullet and charge was that for the needle gun. On the adoption of the Snider rifle by Britain in 1866, a cartridge with a metal case was introduced. The cap was in the base, and the escape of gas and flame from the breech was eliminated. The present military rifle cartridge weighs about 400 grs. complete and is about 3 ins. long. Sporting cartridges are of similar general construction, but paper cases with brass bases are generally employed. See *Ammunition*; *Artillery*; *Bullet*; *Rifle*.

CARTWRIGHT, EDMUND (1743-1823). British inventor. Born April 24, 1743, a younger brother of John Cartwright, the political reformer, he took out his first patent for the power-loom in 1785, and two years later established a factory at Doncaster for its use. His next invention (1789) was a wool-

combing machine, while his later ones were chiefly concerned with agricultural improvements. He died Oct. 30, 1823.

CARTWRIGHT, JOHN (1740-1824). British reformer. Born at Marnham, Nottinghamshire, Sept. 17, 1740, he entered the navy in 1758 and was for five years on the Newfoundland station. He sympathized with the American colonists, and resigned rather than fight against them. In 1775 he was appointed major in the Nottinghamshire militia. An indefatigable pamphleteer, he advocated annual parliaments, universal suffrage, the ballot, and the improvement of national defences. He died Sept. 23, 1824.

CARUS, MARCUS AURELIUS. Roman emperor A.D. 282-283. He was prefect of the praetorian guard under Probus, after whose assassination he was declared emperor by the soldiers, by whom he was later murdered.



Enrico Caruso,
Italian singer
Gerschel

CARVER, JOHN (c. 1575-1621). Chief of the Pilgrim Fathers. Born in England, he left the country in 1608 owing to religious persecution and settled in Leiden with a band of exiles. He obtained a charter from the Virginia Company of London for the foundation of a colony in America, and was the first governor of Plymouth colony. See *Pilgrim Fathers*.

CARYATIDES. Name given to the sculptured figures of women used instead of ordinary columns in ancient architecture. The name, meaning women of Caryae, a town in ancient Laconia, probably refers to the attitude of the dancers at the festival of Artemis Caryatis. See illus. p. 151.

CASABIANCA, LOUIS DE (1755-98). French naval officer. Born at Bastia, Corsica, he took part in the American war of independence, and during the Revolution sat in the national convention and assisted in organizing the navy. At the battle of the Nile, Aug. 1, 1798, he commanded the fleet on the death of Brueys, and, though badly wounded when his ship, the *Orient*, caught fire, continued to fight. His son, Giacomo Jacante, old, also remained on both were killed when the ship was blown up.



Edmund Cartwright,
British inventor
From engraving by Thomson



John Cartwright,
British reformer

CARUSO, ENRICO (1873-1921). Italian singer. Born at Naples, Feb. 25, 1873, his first great success was in *La Traviata* in 1896, and his appearance at Milan in 1898, as Marcello in *La Bohème*, established his position as a leading operatic singer. He sang at Covent Garden in 1903. He died Aug. 2, 1921.

vice connects Casa Blanca with Toulouse. The town, which has a wireless station, was built by the Portuguese in the 15th century, and occupied by the French in 1907. Pop. 106,608, of whom 34,984 are Europeans.

CASA GRANDE (Sp. large house). Name applied to several prehistoric communal dwellings in the southern United States and Mexico. One near Florence, Arizona, when first visited in 1694, was of four storeys and roofless. The walls are of huge adobe blocks, 3 ft. to 5 ft. thick: the ground floor, 59 ft. by 43 ft., has five rooms. A canal brought water from the Gila river, $\frac{1}{2}$ m. away.

CASALS, PABLO (b. 1878). Spanish musician. Born near Barcelona, he studied in the Conservatoire there and rapidly became famous as a violoncellist. In 1898 he first appeared in London. His honours include the gold medal of the Royal Philharmonic Society, 1912, and membership of the legion of honour.

CASANOVA, GIOVANNI JACOPO (1725-98). Italian adventurer. He was born in Venice, and is chiefly famous for his adventures and his writings. He went from place to place making friends and losing them, gaining money and employment, but soon from misconduct and folly, an exile without either. He was at one time director of state lotteries in Paris, at another a spy in the service of Venice. His acquaintances included Frederick



Giovanni Casanova,
Italian adventurer

the Great and other monarchs, as well as Voltaire. He died June 4, 1798. His *Mémoires* were first published in 12 vols. in 1826-38. His younger brother, Francesco (1727-1802) was a painter who gained a high reputation in Paris and in Vienna.

CASAUON, ISAAC (1559-1614). French classical scholar. Born at Geneva, Feb. 18, 1559, he succeeded Francis Portus as professor of Greek there in 1582. From 1596 to 1600 he held the Greek professorship at Montpellier, and in 1600 removed to Paris, where, in 1604, he succeeded Gosselin as librarian to the king. In 1610 Casaubon settled in England, where he was naturalised in 1611, and died July 1, 1614. His introduction to Polybius, 1609, is a valuable contribution to the history of Greek historiography.

His son, Méric Casaubon (1599-1671), was educated in England, and held livings in the Church of England. He did valuable classical work, edited numerous Latin authors, and wrote his father's life.



Isaac Casaubon,
French scholar
After von Werff

CASCA, PUBLIUS SERVILIUS. Roman noble. He belonged to the reactionary party, and was one of the conspirators against Julius Caesar. He is said to have struck the first blow, wounding Caesar in the neck. He was probably slain at Philippi (42 B.C.).

CASCADE. Term used in the description of land forms to denote a river feature characteristic of a sudden change of slope in the bed of the stream. When the slope gradually becomes steeper, rapids are formed, as in most mountain streams and in nearly all the rivers of Japan: when the slope is vertical, waterfalls result.

In physics cascade is the name of a method of performing operations in a series. It also denotes the joining up of pieces of apparatus



Louis de Casabianca,
French sailor
From portrait in Bib.
Nat. Paris

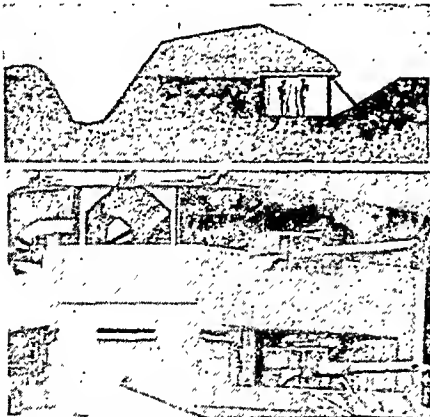
(e.g. the cells of a battery, or a number of thermionic valves) in consecutive order, so that the output of the first is led to the input of the second, and so on.

CASCARA (Sp. peel). Dried bark of *Rhamnus purshiana*, the California buckthorn. A dry extract of cascara (dose 2 to 8 grs.), a liquid extract (dose $\frac{1}{2}$ to 1 fluid dram), and an aromatic syrup (dose $\frac{1}{2}$ to 2 fluid drams) are used in medicine as purgatives.

CASCARILLA BARK. Bark of a tree (*Croton eluteria*) of the order Euphorbiaceae. It is a native of the Bahamas. It has aromatic, stomachic, and tonic properties being administered in dyspepsia, chronic diarrhoea, dysentery, and similar complaints.

CASEIN (Lat. caseus, cheese). Protein compound contained in milk, of which it forms about 3½ p.c. It exists in a suspended state and is thought to be combined with calcium in milk. On the addition of acids or rennet the casein is precipitated, and the milk is said to have curdled. The industrial uses of casein are of great importance, and its preparation is carried out on a large scale. Dried milk, which is mainly casein when it is made from skimmed milk, contains the natural sugar of the milk. Many concentrated foods are sold which have a casein salt as a basis.

A number of plastic substances used as substitutes for horn, ivory, and celluloid are made from casein, and possess the great advantage that they are non-inflammable.



Casemate. Above, trench casemate, dug-out or bomb-proof shelter. Below, casemate on H.M.S. Australia and battery of 4 in. and 12 pdr. guns viewed from aft

CASEMATE (Ital. casa, house; matta, dark). House or lodging for the garrison of a fortress constructed as part of its wall or rampart, and thus secure from shot or shell; also a similar cover for the fortress guns. In modern infantry redoubts the casemate is a trench about 6 ft. deep and 7 ft. wide, sunk close to the rear of, or underneath, the parapet, and roofed in. In warships the casemate is a shield of armour plating about 6 ins. in thickness. See Armour; Battleship.

CASEMENT, ROGER (1864-1916). Irish conspirator. Born Sept. 1, 1864, he entered the consular service. He exposed the evils in native labour conditions on the Congo and at Putumayo, and in 1911 was knighted. In 1915 he visited the Irish prisoners of war in Germany, and tried to persuade them to renounce British allegiance and form an Irish brigade in the German army. On April 20, 1916, he landed in Ireland from a German vessel and was arrested.



Roger Casement, Irish conspirator

Brought to trial in London for high treason, he was hanged at Pentonville on Aug. 3, 1916.

CASERTA. City of Italy, 21 m. by rly N.E. of Naples. It grew up round the magnificent palace of the Bourbons, built 1752-54. In Sept., 1919, the palace and grounds were presented by the king of Italy to soldiers who had fought in the Great War. Pop. 35,052.

Caserta Vecchia, 3 m. N.E., has a remarkable 12th century cathedral.

CASHEL. Urban dist. and market town of co. Tipperary, Irish Free State. It is 96 m. S.W. of Dublin on the Gt. Southern Rlys. It is the seat of a Roman Catholic archbishop and a Protestant bishop. A flat-topped limestone mass, the Rock of Cashel (300 ft.), is surmounted by the ruins of a 12th century cathedral. Cormac's chapel round tower, and ancient cross. Market days, Wed. and Sat. Pop. 2,953.



Cashew nut and leaves

at the extremity of a much larger pear-shaped fruit-stalk, and their shells contain a black caustic oil. This is extracted for use in protecting timber from termites.

Cashmere. Variant spelling of the name of the Indian native state Kashmir (q.v.).

CASHMERE. Name of various dress materials. (1) Goat hair of exceptional fineness and softness produced by the Tibetan goat, used to make native Kashmir shawls and for high-class knitted undergarments. (2) Dress stuff twilled on the surface, plain on the back, made with a weft of merino wool and generally a warp of the same. (3) Cashmere trousering, a name given by tailors to worsted and smooth-faced trouserings. (4) Cashmere twill, used in weaving coarse and other woollens, a corrupt form of Kerseymere.



Cashmere Goat. This animal is noted for its fine and useful hair

The Cashmere goat is a breed of the domesticated goat (*Capra hircus*). Beneath its long, fine hair it has a thick under-fleece of exceptionally soft wool which is combed out and spun.

CASH ON DELIVERY. In short, c.o.d. System by which a post office or public company undertakes, when delivering goods, to collect the money for them from the buyer and to transmit it to the seller. The maximum value that can be sent is £40. In addition to the usual postage and registration fees, there is a C.O.D. fee, which is 4d. for 10s. and 10d. for from £2 to £5, with an additional 2d. for every £5, or part of £5.

CASIMIR-PÉRIER, JEAN PAUL PIERRE (1847-1907). French statesman. Born in Paris, Nov. 8, 1847, he became in 1871 secretary to his father, Auguste Casimir-Périer, then minister for internal affairs. In 1876 he was deputy for the department of Aube. Conservative in outlook, yet an upholder of republican institutions, he became under-secretary for war in 1883, president of the chamber in 1893, and president



J.P.P. Casimir-Périer, French statesman

became under-secretary for war in 1883, president of the chamber in 1893, and president

of the Republic in June, 1894, after the assassination of Carnot. Within six months he resigned, saying he was not supported by his ministers. He died March 11, 1907.

CASINO. Town of New South Wales, Australia. On the Richmond river, 67 m. by rly. N. of Grafton, it is a rly. junction. The road from Darling Downs here comes down from the coast ranges to the coastal plains, where sugar cane is grown. Pop. 3,635.

CASKET. Literally, a small box or chest. The word, however, has come to be used for a receptacle of more than ordinary value, either on account of the rich material of which it is made or with which it is adorned, or of the value of its contents.

CASKET LETTERS. The letters written in French by Mary Queen of Scots to Bothwell, in 1567, were found in a silver casket, hence the name, but they disappeared about 1584, and only copies and translations exist. If genuine throughout, they prove that Mary was a party to the death of Lord Darnley. Mary's defenders, however, assert that the most damning passages are forgeries.



Caskets. Lighthouse on the highest of these rocky and dangerous islets in the English Channel

CASKETS OR CASQUETS. Group of rocky islets in the English Channel, 7½ m. W. of Alderney. They were the scene of the wrecks of the White Ship, 1120: the Victory, 1744, when all on board perished, and the Stella, 1899. On the highest is a lighthouse in lat. 49° 43' N., long. 2° 22' W. They are mentioned in Victor Hugo's *Toilers of the Sea*.

CASPIAN SEA. Inland sea between Europe and Asia. The ancient Mare Caspium or Mare Hyrcanum, this inland salt sea has an area of 170,000 sq. m., and is the largest inland body of water on the globe. It is 760 m. long from N. to S., and its width varies from 120 m. to 300 m. It is about 85 ft. below the level of the Mediterranean, has no outlet, and virtually no tides. The principal rivers draining into it are the Ural, Volga, Terek, Kur, Aras, Sefid Rud, and Atrek. It abounds with sturgeon. See Baku.

CASQUE (Fr.). Armour for the head. It was more especially a form of helmet without any covering for the face, and was worn for



Casque, Renaissance period, embossed and damascened

parade rather than for fighting or even tilting purposes. In the Renaissance period great attention was paid to casque making, and many surviving specimens are beautiful in design and workmanship. See Armour.

CASSANDRA. In Greek legend, daughter of Priam, king of Troy, and of Hecuba. Smitten by her beauty, the god Apollo conferred on her the gift of prophecy in return for her favours, but when she failed to keep her word he punished her by causing her prophecies to be always ridiculed and disbelieved. After the fall of Troy, Cassandra was slain by Clytemnestra. The name is used in modern times for one who prophesies evil without sufficient justification.

CASSATT, MARY (1845-1926). American painter. Born at Pittsburg, Pennsylvania, in 1879 she settled in Paris, where she was attracted by the Impressionist group, then seeking recognition. Her pastel, *The Young Mother*, is in the Luxembourg, and specimens of her work are in the Metropolitan Museum, New York, and the museums of Boston and Worcester, Mass. She died June 14 1926.

CASSEL, SIR ERNEST (1852-1921). Anglo-German financier. Born at Cologne, March 3, 1852, he settled in England and became a member of the circle of the prince of Wales, afterwards King Edward VII. He was notable as a racehorse owner and for his generosity to charities, especially hospitals. In 1905 he was knighted. He died Sept. 21, 1921. His daughter married W. W. Ashley (q.v.).

CASSEL, GUSTAV (b. 1866). Swedish economist. Born at Stockholm, Oct. 20, 1866, he studied mathematics and in 1904 became a professor of economics. During the war he was consulted by the German Government on financial matters and later about the stabilization of the mark. In 1920 and 1921 his Memoranda on the world's monetary problems attracted much attention. In 1922, as an expert, he attended the conference at Genoa, and he was consulted on other occasions on matters of international importance.

CASELL, JOHN (1817-65). British publisher. Born Jan. 23, 1817, the son of a Manchester innkeeper, he became a dealer in tea and coffee in London. Soon, however, he turned author and publisher, the change being due largely to his religious and philanthropic interests. From his office at 335, Strand, he issued in Jan., 1850, *The Working Man's Friend and Family Instructor*. On April 3, 1852, he started *The Popular Educator*, and in 1861 *The Quiver*.



John Casell,
British publisher

In 1859 he entered into partnership with Petter and Galpin, and that firm developed into Casell & Co. In 1926 the magazine side of the business was acquired by The Amalgamated Press Ltd. John Casell died April 2, 1965.

CASSIA. Extensive genus of leguminous shrubs and herbs, chiefly natives of the tropics. Several species yield medical substances, e.g., senna, consisting of the leaflets and seed-pods, from which purgative drinks are made. See Senna.



Cassia, American
senna plant

CASSINO (anc. Casinum). Town of Italy, 85 m. by rly. S.E. of Rome. Picturesquely placed at the foot of Monte Cassino (1,700 ft.), on which stands the famous Benedictine monastery, it was called until 1871 San Germano. It has a ruined castle, some old churches and remains of a Roman amphitheatre, etc. The monastery, founded 529, on the site of the temple of Apollo, and now a national monument, contains a large library, a picture gallery, and many valuable relics.

CASSIOBURY or **CASHIOBURY**. Former seat of the earl of Essex (q.v.), N.W. of Watford, Hertfordshire. The manor belonged to St. Albans abbey; at the dissolution of the monasteries it was given to Sir Richard Morrison, or Moryson, from whom it passed by marriage to Arthur Lord Capel, in the hands of whose descendants it remained until the 20th century. Of the park of 700 acres, 75 acres were purchased by the Watford urban district council as a public park. The mansion was demolished and the rest of the estate sold.

CASSIOPEIA. Constellation in the northern hemisphere. Cassiopeia and her chair, the lady on the throne, are easily recognizable, her five principal stars making a scrawling W. In classical mythology, Cassiopeia was the name of an Ethiopian queen, mother of Andromeda. See Constellation.



Cassiopeia. South American
birds in their pocket-like
nests

Cassiopeium. Variant name for the rare metal Itteium (q.v.).

CASSIQUES. Small group of South American birds, forming a subfamily of the trochilids. The cassiques represent the starlings in the New World, and are notable for the long pocket-like nests which they suspend from the branches of trees.

Cassiterides (Gr. Tin Islands). This is the traditional name for the places whence the Phoenicians obtained their tin.

CASSITERITE or **TINSTONE**. Ore from which tin is obtained. It is an oxide of tin, and when pure contains 78.6 of the metal. It occurs chiefly in the form of rounded grains or pebbles in the crystalline rocks, granite, gneiss, and mica slate, or in derived formations. Cassiterite is sometimes found as a white, translucent crystal of great beauty, known as tin diamond. See Tin.

CASSIUS, **GAIUS CASSIUS LONGINUS** (d. 42 B.C.). Chief conspirator against Julius Caesar. He joined Pompey on the outbreak of the civil war, but when the battle of Pharsalus (48) shattered the fortunes of the Pompeian party, Cassius was pardoned by Caesar, and made praetor for the year 44. He headed the conspiracy and took part in the murder of Caesar. He afterwards joined Brutus, and when his troops were defeated by those of Antony at Philippi (42) he ordered one of his servants to stab him to death.



Gaius Cassius,
Roman conspirator
From an ancient bust

Another of the murderers of Caesar was known as Cassius Parmensis (d. 30 B.C.), and was a poet and literary man of some note.

CASSIVELLAUNUS (c. 54 B.C.). British prince, chief of the Catuvellauni, a tribe N. of the Thames. He led the resistance to Julius Caesar's second invasion in 54 B.C., but was forced to submit.



Cassock. English
cassock and sash

CASSOCK (Ital. *casacca*). Close-fitting under-dress with tight sleeves, worn by clergy and laymen engaged in the conduct of divine service. It resembles a long coat, has a single upright collar, is confined at the waist with a sash called a cincture, and is worn beneath surplice or alb. In the English church the colour is usually black, occasionally violet, for the clergy. For sacristans and vergers it is black.

CASSOWARY. Large genus of running birds (Cassarius) akin to the ostrich and emu. The cassowaries stand about 5 ft. high and are found only in Australia, New Guinea, and certain adjacent islands. The head and upper

part of the neck are bare, the head being crowned with a kind of bony helmet. The wings are rudimentary. The plumage is black and glossy, the narrow feathers resembling coarse hair. The legs are stout and strong, enabling the bird to run fast and defend itself by kicking.



Cassowary. A kind of ostrich peculiar to Australia and New Guinea

CASTANETS (Span. *Castañeta*, chestnut). Pairs of pieces of hard wood, hollowed like small shells or chestnuts, used to emphasise the rhythm in dance music of Spanish, Moorish, or Eastern type. They are usually actuated by a special kind of finger grasp on the part of the dancer, but are also mounted on a handle which requires only to be shaken.

CASTE (Port. *casta*, race. Lat. *castus*, chaste). Social system under which every Hindu is deemed to be born into an endogamous group with a common name and traditional occupation. These ties are often conjoined with a traditional common origin and the possession of the same tutelary deity, social status, and ceremonial observances.

Modern Indian caste is the outcome of a gradual social development, one impelling force of which is the communal as opposed to the individualist element in the Indian mind. Most existing castes are occupational and many the result of economic factors. See Brahmanism; Hinduism.

CASTELNAU, MARIE JOSEPH EDOUARD DE CURIERES DE (b. 1851). French soldier. Born Dec. 24, 1851, he entered the French army in 1870. In 1871 he fought in the armies of the Loire, and also against the Paris communists. On the outbreak of the Great War Castelnau was placed in command of the French second army, Aug.-Sept., 1914, and, with General Dubail, saved Nancy. In 1915 he was given, under General Joffre, immediate direction of the French forces in France, as chief of the general staff, and in that year went to Salonica to examine the position there. In 1917 he was in command of a group of French armies at Verdun, and in 1918 he commanded an army in Lorraine. In 1919 he was elected to the Chamber of Deputies.

CASTIGLIONE, COUNT BALDASSARE (1478-1529). Italian writer. After service with several Italian rulers, he was sent as Papal nuncio to Spain. There, at Toledo, he died. He is most famous as the author of *Il Cortegiano* (The Courtier), 1528. This work gives dialogues which reveal much of what was best in the social and intellectual life of the time.

CASTIGLIONE, GIOVANNI BENEDETTO (1616-70). Italian painter and engraver.

called usually *Il Crocchetto* and *Il Benedetto*. He was born in Genoa, where are his chief works. Some of these depict rural scenes; others are the *Nativity*, *S. Mary Magdalene*, and *S. Catherine*, all in churches of his native city. His engravings are nearly all after his own drawings.



Giovanni Castiglione,
Italian painter

CASTILE. One of the kingdoms into which Spain was divided before it was united under Ferdinand and Isabella. This former kingdom occupied the centre of the country and consisted of Old and New Castile.

The counts of Castile were at first vassals of the king of Leon, but before long they were acting as independent rulers. The next step was easy. Other little Christian kingdoms had arisen around Castile and there were endless quarrels between them. In 1028 Sancho of Navarre seized the country and gave it to his son Ferdinand, who is regarded as the first king of Castile. Ferdinand secured also Leon, and regarded himself as the overlord of the other Christian kings. Descendants of Ferdinand ruled over the two kingdoms, one of them being John II, son of Henry III, who succeeded in 1406.

Several times the ruling families of Aragon and Castile had intermarried, and John himself was not far removed from the succession to Aragon. The union of the two kingdoms, however, came about through his daughter Isabella. Her brother, Henry IV, had no sons, so she secured the throne. She married her cousin Ferdinand, who became king of Aragon, and from that time the kingdom of Spain, a union of Castile and Aragon, dates. See Spain.

CASTING OR FOUNDRY. Pouring a melted metal or mixture of metals into a mould, where it is allowed to solidify. The art was practised by the ancient Egyptians, and the Chinese, Hindus, Greeks, Etruscans, Romans, and Samians attained a high degree of excellence in it. The heat required for melting the metals was for a long time furnished exclusively by the combustion of charcoal, coal, or coke. Now gas and electricity are used to a large extent. The furnaces employed range from the small gas-fired oven used by the dentist to the gigantic blast furnace. A mould is necessary in which the casting may be formed. In the case of hollow castings cores may be required. A pattern or model will represent the external form of the finished casting; the core corresponds to the internal form, or hollow part.

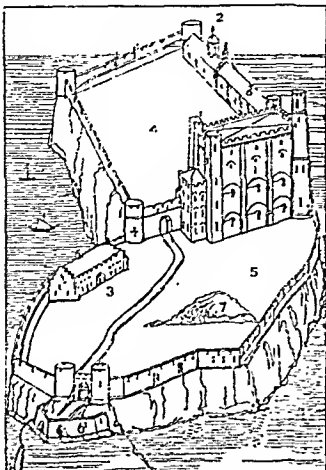
CASTING VOTE. Deciding vote given by the chairman of a meeting when the votes on either side are equal. In Britain, custom, but not law, decrees that the chairman of a public meeting has a casting vote. In the case of public companies the chairman has an ordinary vote as well as his casting one. At a parliamentary election the returning officer has a casting vote. See Chairman.

CASTLE (Lat. castellum small fortified place). Fortified building constructed for purposes of defence. The Roman castrum was a piece of ground, generally on the summit of a hill, surrounded by a ditch or earthwork sometimes with a palisade. As the use of the castrum extended to more or less permanent quarters for soldiers, timber buildings were erected within the enclosure.

In early Norman times a certain type of small castle was common in both England and France. It consisted of a donjon or keep of solid stone, castellated so as to afford facilities for the discharge of missiles, and set upon a mound surrounded by the walls of a courtyard, a ditch, and an earthwork. In its most elaborate stage of development the interior

was divided into (1) the outer ballium, also known as a bailey, courtyard, or base-court, the approach to which was guarded by a towered gateway or barbican, drawbridge, and portcullis; and within which were the stables and a justice mount. (2)

An inner ballium, also defended by a gateway and within which were the chapel and barracks. (3) The donjon or keep, of great strength, and with a well. On the first floor was the hall, approached by a movable ladder or staircase; on the second floor were the apartments of the lord; and the summit was battlemented. Among English examples of Norman work are the Tower of London, the keep of Rochester, Kent, and Canterbury, Colchester, Dover, Guildford, Heddingham, and Porchester castles.



Castle. Arrangement of a Norman castle. 1. Keep. 2. Chapel. 3. Stable. 4. Inner bailey. 5. Outer bailey. 6. Barbican. 7. Justice mount. 8. Soldiers' quarters.

CASTLE ASHBY. Seat of the marquess of Northampton in Northamptonshire. About 6 m. S.E. of Wellingborough, it dates in part from the reign of Henry VIII. It was designed in part by Inigo Jones and stands in a park of 645 acres with ornamental lakes.

CASTLEBAR. Urban dist. and market town of co. Mayo, Irish Free State. It stands on the river Castlebar, at the head of Lough Lanach or Castlebar, 11 m. N.E. of Westport by the Gt. Southern Rlys. Capital of the county, and an agricultural centre, it has a castle. Market day, Sat. Pop. 4,266.

CASTLECARY (Roman Coria). Roman fort 6 m. S.W. of Falkirk, Stirlingshire. Massive masonry ramparts, with an angle turret, enclosed 4 acres. The N. side being on the line of Antonine's Wall. A granary 89 ft. by 21 ft. was supported on piles; a ramparted annexe contained the baths. The church of All Saints has a 15th century font.

CASTLE DONINGTON. Town of Leicestershire. It is near the Trent, 11 m. S.W. of Nottingham by the L.M.S. Rly. Of its old castle, only vestiges exist. Donington Hall (q.v.) was an asylum for French refugees, including Charles X, in 1830, and was used for German officers during the Great War. Basket making is carried on. Pop. 2,736.

CASTLE DOUGLAS. Burgh and market town of Kirkcubrightshire. It is on Loch Carlingwark, 19½ m. S.W. of Dumfries by the L.M.S. Rly. Its sheep and cattle sales are among the most important in S.W. Scotland. It has tanning, agricultural implement, and mineral water industries. Down to 1765 it was called Causewayend, then Carlingwark, and in 1792 it was renamed Castle Douglas. Market day, Mon. Pop. 2,801.

CASTLEFORD. Urban dist. and market town of Yorkshire (W.R.). It is on the Aire, 10 m. by rly. S.E. of Leeds, and is served by the L.M.S. and L.N.E. Rlys. It occupies the site of a Roman camp. Market day Sat. Pop. 24,185.

CASTLEMAINE. Town of Victoria, Australia, 78 m. by rly. N.W. of Melbourne. An important rly. and road junction and a health resort for chest ailments, it has trade in wine, fruit, and stone. Pop. 7,170.

CASTLEREAGH, ROBERT STEWART. Viscount (1769-1822). British statesman. Eldest son of the first marquess of Londonderry, he was born June 18, 1769. He was instrumental in persuading the Irish parliament to pass the Act of Union, 1800. He entered

Addington's cabinet in 1802, as president of the board of control, and in 1805 became Pitt's war minister. While the Walcheren expedition of 1809 was Castlereagh's plan, its failure was due to the delays of the government. Finding his retirement had been arranged in the cabinet, he challenged Canning to a duel, 1809, with the result that both resigned office. In 1812 he returned as foreign secretary and leader of the House of Commons. He represented Britain at the congress of Vienna, 1814, and refused Napoleon's proposals for a separate peace in April, 1815. He arranged treaties with Spain in 1817, and Belgium in 1818, for the abolition of the slave trade. In 1822 his brain gave way, and he died Aug. 12, 1822. The title is still borne by the eldest son of the marquess of Londonderry. Consult Lives, Lady Londonderry, 1904: A. Hassall, 1908.



Viscount Castlereagh, British statesman

CASTLE RISING. Village of Norfolk. At one time a borough and seaport, it sent two members to parliament until 1832. In 1835 it lost its rank as a chartered town. It is famous for its castle. Built in the 12th century, it is one of the most interesting buildings of its kind in the country. The church is a beautiful example of Norman work. Near is the bede house, an almshouse, also called Trinity Hospital, founded in 1614. The village is 1½ m. from North Wootton, on the L.N.E. Rly.

CASTLETON. Village of Derbyshire. It is 17 m. S.W. of Sheffield, and is the capital of the Peak district. Its ruined castle was built by William Peveril, a natural son of William I. (See Scott's Peveril of the Peak.) Near are the cavern of the Peak and fluorspar mines, including the Blue John. Pop. 646.

CASTLETOWN (Manx, Bully Cashtel). Coast town and, until 1862, capital of the Isle of Man. It is on the W. shore of Castletown Bay, 10 m. by rly. S.W. of Douglas. Castle Rushen was built about 960, the present castle having been built probably in the 14th century. The court house dates from 1644, and the old House of Keys was the seat of the Manx parliament for two centuries. Pop. 1,880.

CASTOR AND POLLUX (Gr. Polydeukēs). In Greek mythology, two heroes generally represented as twin sons of Zeus



Castor and Pollux. Ancient classic statue of Castor and a horse. From the Capitol, Rome

(Dioscuri, Gr. Dios Kouroi) and Leda. Castor was famed as a tamer of horses, while Pollux was a great boxer. They took part in the Argonautic expedition and the Calydonian boar hunt, and invaded Athens to rescue their sister Helen.

They are supposed to have fought on the side of the Romans against the Latins at the battle of lake Regillus.

Castor and Pollux are the names given to two bright stars in the constellation of Gemini. Castor is a celebrated double star.

CASTOR OIL PLANT (Ricinus communis). Small tree of the order Euphorbiaceae,

believed to be a native of tropical Africa. North of the Alps it is grown as an ornamental annual. The green flowers, produced in a crowded spike at the ends of the branches, have no petals. The upper (female) flowers develop into large three-lobed, prickly capsules, each lobe containing a single mottled seed.



Castor Oil Plant,
Ricinus communis

The valuable medicinal oil (castor oil) is obtained from these seeds by pressure. It is a mild purgative largely used for children.

CASTRATION

(Lat. *castrare*, to geld). Removal of the testicles in the male, or of the ovaries in the female.

It is performed on horses to make them more docile, and also on certain other animals.

CASUISTRY (Lat. *casus*, a particular instance). Application of general accepted principles of right and wrong to particular and concrete cases in order to decide personal conduct. Christian casuistry, as a scientific study of the application of Christian morality to the daily duties of life, began in the 14th century with scholastic theology. The controversy in the 17th century within the Roman Catholic Church between two extreme schools of rigorists and laxists, the former largely Jansenist, the latter Jesuit, brought the whole study into disrepute. See Jesuit.

CAT. Name given to the most graceful and highly specialised members of the Carnivora. They are mainly distinguished by the possession of completely retractile claws, except in the cheetah, and by the dentition. There are three pairs of incisor teeth in each jaw, and the canines are exceptionally long. The true molars are rudimentary. The large cats include the lion, tiger, leopard, jaguar, ounce, puma, and cheetah; while among the smaller ones are the lynx, caracal, serval, clouded leopard, ocelot, the various "wild cats," and the domestic breeds. The British wild cat, *Felis catus*, is the only member of the cat family still found wild in Great Britain. It closely resembles a grey domestic cat, but is larger and heavier in build, and its tail is short and bushy.

The domestic cat is thought to be the result of crossings between the wild cat and the Egyptian cat. Of the many domestic breeds.

CAT. Nautical term. To cat the anchor is to haul it completely up. Cat head is the place where the anchor is secured; a cat block that to which the anchor is secured at the cat head; cat falls are the ropes by which the anchor is hauled inwards. A cat boat, used mostly in America, is a small boat with one sail right forward. Cat, an abbreviation of cat o' nine tails, is also used for the nine-tongued whip employed in corporal punishment for certain criminal offences.

CATACOMB (Gr. *kata*, down; *kymbē*, a hollow). Subterranean place of sepulture. The name is derived from Catacumba (late



Catacomb. Chapel in the Roman catacombs, showing burial niches

about 615 acres, these labyrinths of galleries and chambers would, if extended in one straight line, attain a length variously estimated at from 350 to 800 m., and the number of bodies interred between 6,000,000 and 7,000,000. They were excavated in the soft tufa or granular stone of the Roman Campagna, at varying depths, and they are usually four to seven storeys. The burial niches were hewn parallel with the narrow passages, forming tiers of recesses ranging from three to seven. Burial in the catacombs ceased after the sack of Rome in 410.

CATAPALQUE (Fr., Ital. *catapalco*). Temporary structure of wood used in funeral ceremonies. On it is placed the coffin at a height which makes it visible from a distance. The word also denotes an open hearse or funeral car in which the coffin is raised.

in the position in which they are placed, a peculiarity which distinguishes it from trance. It may last for hours or days, generally with intervals of freedom from the condition, and is much more frequent in women than in men.

CATALONIA (Sp. *Cataluña*). Former prov. of Spain and principality of Aragon, now represented by the provs. of Gerona, Barcelona (q.v.), Lérida, and Tarragona. It is bounded by the Pyrenees, the Mediterranean, and Aragon.

In recent years there has been unrest in Catalonia. In 1918 some Catalans petitioned the Peace Conference for independence. Others wanted something like home rule, and Primo de Rivera, when captain-general of Catalonia, favoured this idea. During his dictatorship, however, he carried out a policy of repression. See Spain.

CATALYSIS (Gr. *kata*, down; *lysis*, loosing). Name first applied by Berzelius to a class of chemical reactions which only take place in the presence of a substance—the catalyst—which itself undergoes no permanent change. Potassium chlorate when heated to about 370° C. gives off oxygen, but if the powder is mixed previously with a small proportion of manganese dioxide, the heat required to cause evolution of oxygen is much less. The manganese salt is unchanged, and can be recovered in its original state from the residue. An important industrial application of catalysis is involved in the conversion of oils into hard fats. Inferior oil such as whale oil can be converted into a white hard fat by agitating it with hydrogen in the presence of a catalyst.



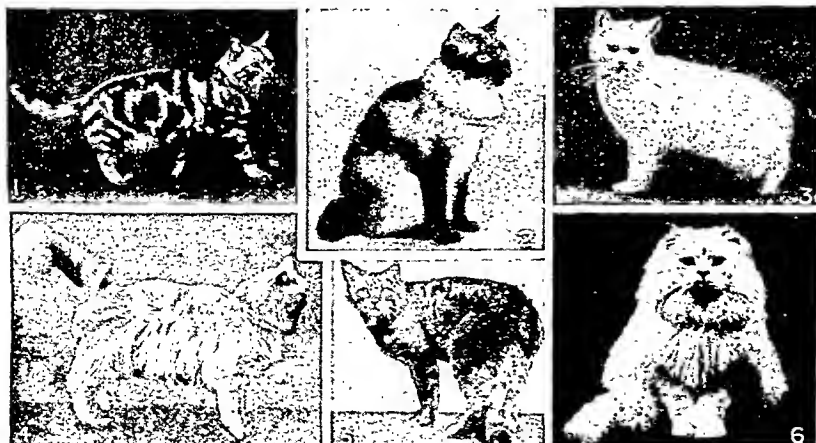
Catapult. Sir Edward Poynter's representation of a Roman catapult in action against the walls of Carthage

CATANIA. City and seaport of Sicily. Capital of the province of Catania, it lies at the base of Mt. Etna, 59 m. by railway S. of Messina. It has a cathedral, a university, a Benedictine monastery, and remains of a Roman amphitheatre, temple, baths, and aqueduct. The port is protected by a breakwater, and has facilities for dealing with coal. Catania was founded by the Greeks and was afterwards a rich Roman city. Pop. 289,644.

CATAPULT (Gr. *kata*, down; *pallein*, to poise, hurl). Ancient engine of war, said to have been invented by Dionysius of Syracuse, 399 B.C. It consisted of a heavy wooden frame supporting a large bow which was bent by means of a windlass and cord and released by a catch or trigger. It was employed to throw heavy darts, arrows, stones, etc. See Crossbow.

CATARACT (Gr. *kata*, down; *rhégynai*, to break). Opacity in the crystalline lens of the eye or its capsule. It prevents the passage of the rays of light and therefore causes partial or total blindness. See Eye.

CATARRH (Gr. *kata*, down; *rhein*, to flow). Inflammation or congestion of any mucous membrane of the body. The term, however, is most frequently applied to inflammatory conditions of the nasal mucous membrane. See Nose.



Cat: a wild specimen and types of domesticated breeds. 1. Short hair silver tabby. 2. Siamese cat. 3. Manx short hair. 4. Cream Persian. 5. Wild cat from Scotland. 6. Chinchilla Persian

the long-haired Persian and Angora varieties are the most esteemed. The tailless Manx variety may be of Japanese origin.

CATALEPSY (Gr. *katalepsis*, seizure). Abnormal condition in which the muscles become rigid and the limbs remain for a time

CATBIRD. Popular name for a species of American mocking bird (*Galeoscoptes carolinensis*), which makes a sound somewhat like the cry of a cat. The name is also given to a bright green bird of Australia (*Aeluredus viridis*) allied to the bower birds.

CATCHFLY (Silēnē). Genus of herbs of the order Caryophyllaceae. They are chiefly found in the N. temperate regions. Many species exude a sticky fluid from their stems and calyces, in which insects are trapped. See illus. below.

CATEAU CAMBRESIS. Name often given to the French town of Le Cateau (q.v.). It means the castle of Cambrai, and was given because the bishop of Cambrai built a castle here.

The Treaty of Cateau Cambresis was made between France and Spain, with whom England was allied in 1559. The terms provided for the cession of Calais to France for eight years, when it was to be restored to England, or 500,000 crowns paid for it. France and Spain each gave up their conquests.

CATECHISM (Gr. katēchein, to instruct orally). System of teaching by formal question and answer. Such methods were widely used for secular instruction in the early 19th century, but are now mainly restricted to religious instruction of the young.

Throughout the Anglican Church the catechism in the Book of Common Prayer is the standard for the instruction of the young, and is required to be learnt before confirmation. It consists of two parts, the earlier dating from the reign of Edward VI, and the later from that of James I. Among Scottish and other Presbyterians the shorter catechism of the Westminster Assembly (1647) is the standard book of doctrinal instruction.

CATECHU. Two kinds of cutch known to the pharmacopoeia as black catechu and pale catechu. The first is produced by boiling chips of the wood of *acacia catechu*, an East Indian tree. The decoction so obtained is very astringent and bitter, and is prescribed in diarrhoea, haemorrhage, and mucous discharges. Pale catechu is the product of a Malayan climbing shrub, *Uncaria gambir*. The leaves and young shoots are boiled and the liquid is evaporated to a syrup.

CATERHAM. Urban district of Surrey, 7 m. S. of Croydon, on the Southern Rly. Here are the barracks where recruits for the Guards are trained. Caterham valley is finely situated between wooded hills. Pop. 14,000.

CATERPILLAR (old Fr. chatte peluse, hairy cat). Larva of the Lepidoptera. The eggs, which are laid by the butterfly or moth in situations near the food of the future larvae, hatch out usually in from a week to a month. The larvae have long, segmented bodies, often brilliantly coloured and sometimes adorned with spiny processes or tufts of hair. The head is protected with an armour of chitin, and is provided with six eyes on either side. There are also two short antennae. The mouth is armed with powerful jaws. There are six jointed legs placed on the first three segments of the body. The pro-legs, which vary in

number, are placed farther back, and are really short tubes armed with a broken circle of hooks. On the last segment of the body is a pair of claspers, by means of which the animal holds to the plant on which it is feeding.

Along the sides of the body are spiracles, or breathing holes. The larval stage is occupied almost entirely in eating and in storing up a reserve for the pupal stage, in which no food is taken. Many species possess a spinning apparatus for producing threads of silk by which they can lower themselves to the ground and climb up again.

CATERPILLAR TRACTOR. Device adopted for moving a heavy load over soft ground where wheels sink and stick. Round the wheels passes an endless band of linked plates, which travels along as the wheels revolve and forms a track on which the vehicle is supported. The wheel base is, in effect, the whole length of the band stretched between the two wheels. The device is much used on agricultural machines, and became very prominent during the Great War in connexion with the development of the Tanks. See Tank.

CATESBY, ROBERT (1537-1605). English conspirator. Son of Sir William Catesby, and like his father, a Roman Catholic and a determined recusant, he was involved in Essex's rebellion, 1601. He became the moving spirit in the Gunpowder Plot. Warned that the plot had been discovered, he delayed his flight for a week, and then, pursued by the sheriff and his posse, reached Holbeache House, near Dudley, Staffordshire, where he was shot, Nov. 8, 1605.

CAT FISH (*Anarrhichas lupus*). One of the blennies. It differs from the other blennies in being of larger size (3 ft. to 6 ft. long), and affecting the deeper waters in the North Sea and the Atlantic. Its colour is bluish-grey marked with darker bands from the back half way down the sides. The peculiarity which has suggested the name is the possession of long curved fang-like teeth.

CATFORD. Suburb of London, in the metropolitan borough of Lewisham. It is 8 m. S.E. of Victoria Station on the Southern Rly. Here are S. Dunstan's College for boys, and the Lewisham town hall.

CATGUT. Name used for a string of great strength prepared from the intestines of various animals. The strings are used for



Caterpillar. 1. *Malacosoma neustria* (Lackey Moth). 2. *Vanessa antiopa* (Camberwell Beauty Butterfly). 3. *Phalera hucephala* (Buff Tip Moth). 4. *Biston tirtaria* (Brindled Beauty Moth)

musical instruments, for tennis and other rackets, for bows, and for surgical sewing. Mueb catgut comes from Italy.

CATHAY. European name for China in the Middle Ages, still used in poetry. It is derived from Khitai, the kingdom of N. China conquered by the Khitai tribes of Mongolia in the 10th century.

CATHCART. Parish of Scotland, mainly in Renfrewshire, but partly in Lanarkshire. It lies on the White Cart river, 2 m. S. of Glasgow, of which it is a ward, on the L.M.S. Rly. It includes the villages of New and Old Cathcart, the latter having the ruins of a castle, and Langside (q.v.).

The district of Cathcart in Cape Province, S. Africa, is suitable for sheep rearing. Its chief town is Cathcart, founded in 1876, 85 m. by rly. N.W. of East London.

CATHEDRAL (Gr. kathedra, a seat). Church of an eccles. dist. in which the cathedra, or seat of an archbishop or bishop, is permanently placed. In eccles. law authority over a cathedral is vested in a governing body called the dean and chapter. There are usually four or six canons (q.v.) attached to a cathedral, besides honorary canons or prebendaries.

Cathedrals in Great Britain were divided into (1) those which were always served by secular canons not attached to a monastery, and (2) monastic churches served by regulars, i.e. monks. At the Reformation the monastic cathedral establishments were dissolved and then reconstituted on a new basis.

The architectural planning of cathedrals does not differ in essentials from that of other important churches. The most noble of English buildings, such as York, Durham, Canterbury, and Lincoln, have three towers; Lichfield and Truro have three spires; one prominent central tower is the feature of Gloucester, Winchester, and S. Albans.

The cathedral of the Roman Catholic archbishopric of Westminster was erected 1895-1903, and is a striking building in the Byzantine style. New York possesses the two best specimens of cathedral architecture in America, S. Patrick's (R.C.) and S. John the Divine (Protestant Episcopal), both modern. The only cathedral of the Church of England built since the Reformation is the one at Liverpool, which when completed will be the largest in England. Cathedrals for the new dioceses of Sheffield and Guildford have been planned. See Apse; Basilica; S. Paul's; Westminster Abbey; also illustrations of the principal cathedrals of Britain and elsewhere under their respective names.



Catherine. Toothed wheel, on which Catherine was condemned to be tortured

CATHERINE OF ALEXANDRIA. Christian saint, virgin, and martyr of the 4th century.

According to the legend she was of noble birth and was martyred under the emperor Maximinus. The wheel on which she was to be broken was miraculously destroyed, and after she was beheaded her body was conveyed by angels to Mount Sinai. Nov. 25 is the day of her festival.

CATHERINE OF SIENA (1347-80). Christian saint. Born at Siena, at the age of 16 she took the habit of a Dominican Tertiary, i.e. third order living under the rule of S. Dominic while remaining at home. In 1378 Pope Urban VI summoned her to Rome, where she laboured until her death, April 29, 1380. She was canonized by Pius II, in 1461.

CATHERINE I (c. 1684-1727). Empress of Russia. Born in Lithuania, she was the daughter of a small landowner. When in 1702 the Russians captured Mariburg she attracted the notice of the Russian general, Sheremetieff, who subsequently sold her to Prince Menshikov. At the latter's house in Moscow she was first seen by Peter the Great. In 1711 she was publicly married to Peter, after he had divorced his wife Eudoxia. In 1722 she was proclaimed his successor, and in 1724 was crowned empress consort. On Peter's death in 1725 she became empress. She died May 17, 1727.

CATHERINE II (1729-96). Empress of Russia. A German princess, she was born at Stettin, May 2, 1729, and married Peter of Holstein, the heir-presumptive to the Russian throne, in 1745. Peter succeeded the Tsarina Elizabeth in 1761, but after a few months was deposed and murdered, and his wife was made empress. She died Nov. 17, 1796, leaving the Russian throne to her son Paul II.

CATHERINE OF ARAGON (1485-1536). First wife of Henry VIII of England.

Born at Alcalá de Henares, Dec. 15 or 16, 1485, she was the daughter of Ferdinand and Isabella of Spain. In 1501 she was married to Arthur, prince of Wales, the eldest son of Henry VII. Arthur died April 2, 1502, and the following year Catherine was betrothed to Henry, prince of Wales, but it was not until Henry's accession that the marriage was celebrated, June 11, 1509. Catherine had six children, of whom only Mary survived. In 1526 Henry began proceedings for a divorce which affected the whole history of England. On March 23, 1534, Rome at last declared the marriage of Catherine and Henry to be valid, and to the end the queen refused to acknowledge her deposition. Her last years were spent at Buckden and Kimbolton, in Huntingdonshire. She died Jan. 7, 1536.

CATHERINE OF BRAGANZA (1638-1705). Wife of Charles II of England. Born at Villa Viçosa, Portugal, Nov. 25, 1638, she was the

daughter of John, duke of Braganza, who became king of Portugal in 1640. Her dowry was Tangiers and Bombay; religious and commercial freedom for the English merchants in Portugal; and £300,000. The queen survived her husband, and remained in England until 1692. In 1703-05 she was regent for her brother Pedro. She died Dec. 31, 1705.

CATHERINE DE' MEDICI (1519-89). Queen regent of France. Born April 13, 1519, she was the daughter of Lorenzo de' Medici. She was married to Henry, the son of Francis I of France, in 1533, and became queen on his succession to the throne in 1544. On his death, in 1559, followed by that of their son, Francis II in 1560, Catherine became queen regent for their next son Charles IX. She died Jan. 5, 1589. Consult Catherine de' Medici, E. Siehel, 1905.

CATHERINE OF VALOIS (1401-37). English queen. Born in Paris, Oct. 27, 1401, she was the youngest daughter of Charles VI, the mad king of France. In 1420 she was married to Henry V of England at Troyes and in 1421 was crowned at Westminster. After Henry's death she was secretly married to Owen Tudor, and the pair were the grandparents of Henry VII. Catherine died in Bermondsey Abbey, Jan. 3, 1437.

CATHERINE WHEEL. Form of firework. It consists of a case of stout paper filled with an inflammable mixture and wound round a piece of wood, the end of it being primed.

CATHETER (Gr. kathienai, to let down into). Hollow instrument used to draw off fluid from a cavity, as, for example, urine from the bladder. They are made usually of silver or rubber.

CATHETOMETER. Instrument for measuring small vertical differences in height. It consists of a horizontal telescope mounted to slide upon a graduated vertical standard. The observer sights in succession the points under examination and then reads from the

impetus from Edward Irving in the fourth decade of the 19th century. Its liturgy was compiled from Anglican, Greek, and Roman services, and the ministry consisted of twelve 'apostles,' separated to special work of blessing and intercession, who supported themselves by tithes and practised prophecy and healing the sick by anointing. The chief church is in Gordon Square, London, W.C. See Irving, Edward.

CATHOLIC CHURCH. (Gr. katholikos, universal, general). Term with two applications. (1) In its widest sense the Catholic church is the body of believers baptized into the church of God, and it includes all members of every society and denomination which professes faith in the divinity of Jesus Christ as the Saviour of mankind and in the Holy Trinity. (2) In its more limited sense the term Catholic is applied to that body of Christians which throughout all ages has held to the faith of the Roman Catholic Church.

CATHOLIC EMANCIPATION. Name given to the movement in the United Kingdom which secured for Roman Catholics almost the same privileges as are enjoyed by Protestants. In 1778 a few of the disabilities penalising English Roman Catholics were removed by statute. This provoked the Gordon riots. In 1791 more sweeping alterations were made.

In Ireland, where the penal code was severer than in England, the first relieving act was passed in 1774. Further measures in 1778 and 1782 preceded the important one of 1790, after which Roman Catholics in Ireland could enter the professions, teach in schools, enter the army and navy, and take degrees. They could sit on corporations, and could vote at elections. They were still, however, forbidden to sit in Parliament.

An Act of 1829 substituted for the existing oath of supremacy a new one which honest Roman Catholics could take. They were admitted to both Houses of Parliament, and all civil and political offices, save only those of regent and lord chancellor. The legal and other professions were opened to them. The centenary of the grant of emancipation was celebrated in 1929.

CATILINE OR LUCIUS SERGIUS CATILINA (c. 108-62 B.C.). Roman politician and conspirator. In 66 he was an unsuccessful candidate for the consulship. This prompted him to organize (65) his first conspiracy. The plan miscarried, and Catiline set himself to organize another and more far-reaching conspiracy, collecting supporters for his plans among bankrupt nobles. In 63 the conspirators were again foiled by the consul Cicero. Catiline was accused by Cicero in the Senate on Nov. 8 in the first of his famous Catiline orations, and after a vain attempt to justify himself escaped from the city. Early in the following year the conspiracy was finally crushed. See Cicero.

CATKIN (O. Duteb, kattenken). Popular name of a form of unisexual inflorescence. It consists generally of a pendulous spike formed of a number of stalkless flowers, as on the filbert, hazel, poplar, willow, birch. The catkins bearing male are generally longer than those bearing female flowers, and the former, when they have fulfilled their function of scattering pollen, fall off. Botanically a catkin is known as an ament.

CATMINT (Nepeta cataria). Erect herb of the order Labiales. The leaves are oval, and hairy beneath, the flowers white. It is so named because its smell is attractive to cats.

CATO, MARCUS PORCIUS (234-149 B.C.). Roman statesman and writer, known as Cato the Censor. In 195 he became consul, his colleague being Valerius Flaccus. His consulship was followed by military successes in Spain and against Antiochus the Great in



S. Catherine. From a statue in the oratory in Siena



Catherine. Six famous queens of this name. 1. Catherine I, Empress of Russia. 2. Catherine II, Empress of Russia. 3. Catherine of Aragon, wife of Henry VIII. 4. Catherine of Braganza, wife of Charles II. 5. Catherine de' Medici, queen of France. 6. Catherine of Valois, wife of Henry V

seals the distance through which the telescope has moved in making the observations.

Cathode. Variant spelling of the electrical term kathode (q.v.).

CATHOLIC APOSTOLIC CHURCH. Religious community which arose in Scotland, spread to London, and received its first

Greece. A stern moralist in a corrupt age, Cato set himself to check the pernicious tendencies of the younger generation. He became



Marcus Porcius Cato, called Cato the Censor
From a statue in the
Lateran Museum, Rome

censor in 184, and his tenure of office was marked not only by legislation against luxury, but by the expulsion from the senate of many of its unworthy members. His treatise *De Re Rustica* (On Agriculture), Eng. Trans. by "F. H." in Roman Farm Management, New York, 1913, is still extant.

CATO, MARCUS PORCIUS (95-46 B.C.). Roman statesman. Great-grandson of the Censor, surnamed *Uticensis*, he served with distinction in the *Spartacist* insurrection and afterwards became one of the leaders of the

senatorial and aristocratic party. In continual opposition to Caesar, when the civil war broke



Marcus Porcius Cato, great-grandson of Cato the Censor
From a statue by Labatut

out he joined the party of Pompey. After Pompey's defeat at Pharsalus (48) he made his way to Africa and joined forces with Quintus Metellus Scipio, but suffered a crushing defeat at Thapsus (46). Finding the position hopeless at Utica, where he had taken refuge, he committed suicide. He is the subject of Addison's tragedy *Cato*, which was staged in 1713.

CAT'S EAR (*Hypochaeris radicata*). Perennial herb of the order *Compositae*. A native of Europe and N. Africa, it has a long tap-root and a rosette of long, hairy, scalloped leaves. The heads of bright yellow flowers are borne singly on a leafless stem about a foot long. It is a common weed in meadows and wastes. An annual species, the *Smooth Cat's Ear*, with smaller flower-heads and broader leaves, is found in drier soils.



Cat's Ear, leaves and flower

CAT'S EYE. Semi-precious stone, a variety of quartz of a greenish-golden hue, containing fibres of asbestos. When the stone is cut en cabochon (with a convex face) the asbestos produces in certain lights a silky flash, known as chatoyancy, resembling the phosphorescent gleam of a cat's eye.

CATSKILL. Group of mts. in New York State, U.S.A. The highest peaks attain just over 4,000 ft. To the west of the Hudson river, it is a picturesque region much visited by tourists. The scene of Washington Irving's whimsical tale *Rip Van Winkle* is partly laid in the Catskill region.

The summer resort of Catskill, a town on the Hudson, 33 m. by rly. S. of Albany, is the chief gateway to the Catskill Mts. region.

The great Catskill aqueduct, by which water is conveyed to New York, is fed by the Ashoken reservoir, created by damming the Esopus river in the Catskill mountains.

CAT'S TAIL OR TIMOTHY GRASS (*Phleum pratense*). Perennial grass, native of Europe, N. Africa, and W. Asia. It has smooth tufted stems, short, flat leaves, and a cylindrical panicle of flowers. It is a valuable fodder plant of pastures, by reason of its being early and very productive.

CATTARO (Slav. Kotor). Seaport of Yugo-Slavia, in Dalmatia. At the head of the Gulf of Cattaro, and 35 m. E. by S. of Ragusa, it is the seat of Greek Orthodox and Roman Catholic bishops, and has a cathedral and a naval school.

At an early date Cattaro was the capital of an independent state, and by the 14th century an important commercial place. It passed to Austria in 1814, by whom it was held until Oct. 30, 1918, when it became part of Yugo-Slavia. Pop. 6,040.

CATTERICK. Military camp in Yorkshire. It is 5 m. from Richmond, and is served by the L.N.E. Rly., which has a station at Catterick Bridge. In the 20th century a camp was established here, and during the Great War this was a scene of great activity. The village of Catterick, on the Swale, was once a Roman station. Races are held here.

CATTERMOLE, GEORGE (1800-63). English painter and illustrator. Born at Dickleborough, Norfolk, Aug. 8, 1800, he was drawing at the age of 16 for John Britton's *Cathedral Antiquities*. In 1822 he joined the Royal Society of Painters in Water Colours, becoming a constant contributor to its exhibitions until 1850. He illustrated many episodes from the *Waverley Novels* and other well-known works, including *Barnaby Rudge*. He died July 24, 1868.



George Cattermole,
English painter

CATTLE. Name applied loosely to all the members of the Ox genus (*Bos*), which includes

the Buffalo, Bison, and Yak, as well as the various domesticated breeds. Cattle are of chief importance to man as producers of milk, and the other food stuffs derived from it. The hides are also of great economic importance, and in fact every portion of the body of the ox is put to practical use.

The best milk-producing breeds are the Jersey, Guernsey, British Holstein, Kerry, Dexter, Shorthorn, Lincoln Red, Longhorn, Ayrshire, and Devonshire; while the Shorthorn, Lincoln Red, Devonshire, Highland, Aberdeen-Angus, Hereford and Sussex are famed for their beef-producing qualities. Jersey cattle have long held the first place as milk-producers, the yield of butter from this breed being phenomenal. See Beef; Bull; Ox; Ruminant; also illus. p. 376.

CATULLUS, GAIUS VALERIUS (c. 84-54 B.C.). Greatest Roman lyric poet. The details of his life are obscure, but it is almost certain that he was born at Verona, came to Rome at an early age, and was about thirty when he died.

His poems consist of 116 pieces, some very short, many of the most exquisite lyrics being addressed to a lady called Lesbia, who has been identified with the notorious Clodia, sister of the equally notorious Clodius. He excelled also in satire. Of the longer poems the best known are the *Lock of Berenice*, imitated from Callimachus; *Epithalamia*, or Marriage Songs; the *Wedding of Peleus and Thetis*; and the strange and exotic *Attis*, the mutilated Phrygian deity. Catullus uses a variety of metres.



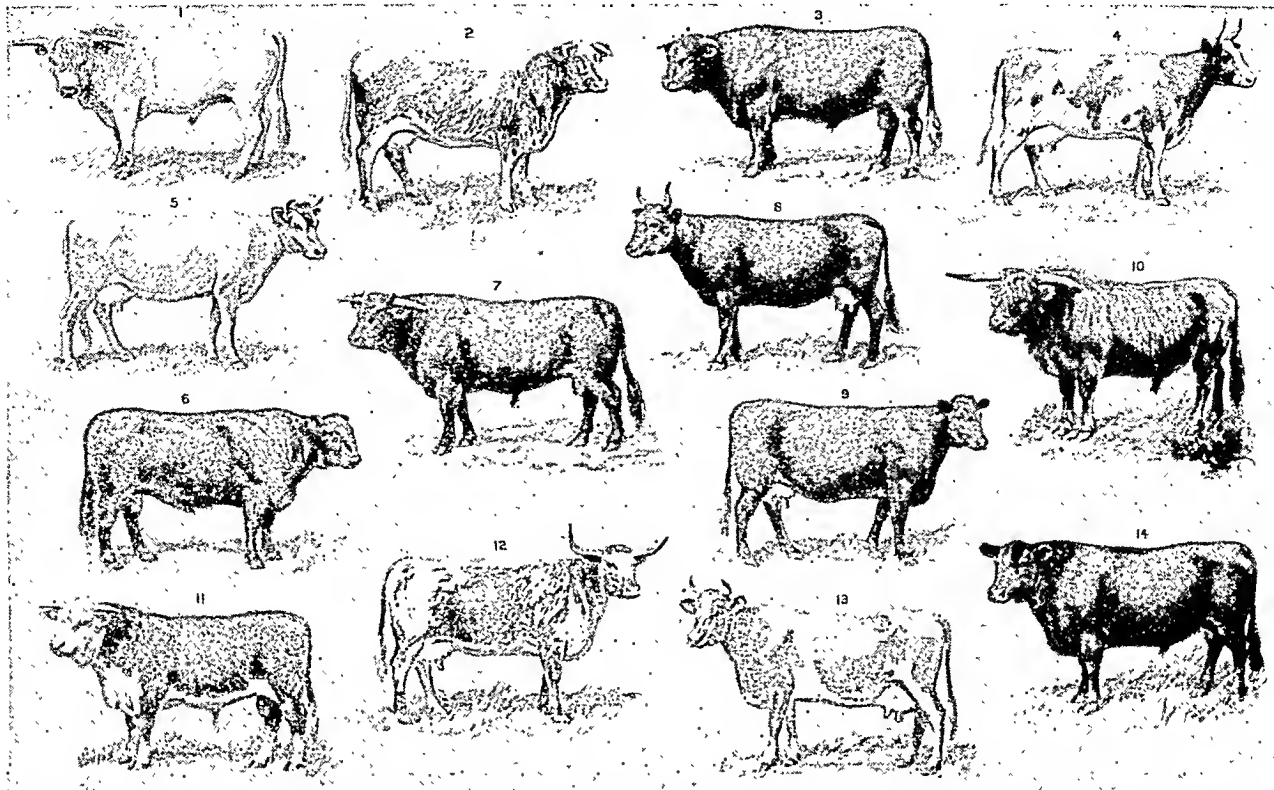
Gaius Catullus,
Roman poet
From a cameo

CAUCASIAN. Term for the white or European race of mankind. It originated in the selection in 1775 of a Georgian skull as the perfect type, a view since proved wrong. The term, however, is retained in modern ethnology, but with certain reservations. The race numbers about 725,000,000. See *Ainu*; *Ethnology*.

CAUCASUS. District, also called *Caucasia*, between the Black and Caspian Seas, with Turkey to the S.W. and Persia to the S.E. A mountainous area, it covers 180,000 sq. m.



Caucasus. Map of this mountainous country lying between the Black Sea and the Caspian Sea. Formerly part of the Russian Empire, it now consists of separate Socialist Soviet republics



Cattle. 1. British wild bull of the Chartley herd. 2. Shorthorn cow. 3. North Devon bull. 4. Ayrshire cow. 5. Jersey cow. 6. Galloway bull. 7. Welsh bull. 8. Kerry cow. 9. Red polled cow. 10. Highland bull. 11. Hereford bull. 12. Longhorn cow. 13. Guernsey cow. 14. Aberdeen-Angus bull. See article, p. 375

and is traversed by the Caucasus Mts. Before 1917 it was a territory of the Russian Empire, being divided into Ciscaucasia, the European part, and Transcaucasia, the Asiatic part. Tiflis was the capital of Transcaucasia. It is now covered by a group of Socialist Soviet republics, including Armenia, Azerbaijan and Georgia (q.v.).



Caucasus. Georgian types from this mountainous region
Major Rodd

driven them towards Erzurum. On Jan. 11, 1916, the Russians began a great attack, whose objective was Erzurum, which they took on Feb. 16. Trabzon was captured on April 18. Nothing of importance took place until, on Mar. 17, 1917, the Russians occupied Van.

After the Revolution the Bolshevik Government, by the treaty of Brest-Litovsk, surrendered some of the conquests. But the people, who had already decided on independence, formed a republic of Georgians, Armenians, and others, and carried on war with the Turks, who were supported by the Tartars.

In 1918 the Georgians opened negotiations for peace with Turkey and Germany, and at Berlin an arrangement was come to by which Batum and its district were ceded to the Turks and the rest of Georgia was constituted a separate state. Later other Soviet republics

were formed in the district. See Armenia; Azerbaijan; Batum, etc.

CAUCASUS MOUNTAINS. Range of mts. running from the Black Sea to the Caspian. The highest peak is Mt. Elbrus (Elburz), 18,540 ft. The mts. are very rich in minerals, especially oil and manganese.

CAUDEBEC. Town of France, in the dept of Seine-Inférieure. On the Seine, 27 m. N.W. of Rouen, it is famous for its 15th century church, with wonderful stained glass, lofty tower, west portal, and balustrades in the form of Gothic letters. It is called Caudebec-en-Caux, to distinguish it from Caudebec-Elbeuf, which is 14 m. S. by W. of Rouen, a suburb of Elbeuf. Pop. 2,400.

CAUL (Old Fr. cale, cap). Cap or network to enclose the head, worn by women from the 14th to the 17th centuries. In physiology, a caul is that part of the amniotic sac which sometimes envelops the head of a newly-born child. It was long associated with superstitious belief as a protection against drowning.

CAULIFLOWER (Lat. caulis, stem; flos, flower). Vegetable of the order Cruciferae, genus Brassica, similar in appearance to bro-



Cauliflower. Walcheren variety, one of the hardest kinds

coli (q.v.), for which it is often mistaken. It is, however, not so hardy as broccoli, and is obtainable only in summer and autumn. For early use seed is sown in boxes of light soil, at the end of Jan., and kept in a temperature of 60° to 70° F. They are transplanted about the middle of March and finally planted out during April or early in May. For a success-

sional crop seed is sown in the open in April, transplanted in May, and finally separated to a distance of 18 in. every way between the plants in June.

CAUSTIC (Gr. kaustikos, burning). Any substance which burns or corrodes organic tissue. Applied to certain chemicals, e.g. caustic potash or caustic soda, it implies that these substances possess corrosive properties. The chemical names of these two products are potassium and sodium hydroxide. Silver nitrate is lunar caustic, luna being the alchemical name for silver. For use in surgery the silver nitrate is fused and poured into cylindrical moulds so as to form pencils. Caustics are used to destroy superficial new growths, such as corns or warts, to reduce overgrowth of tissues, and to prevent harmful results following poisonous bites.

CAUSTIC CURVE. Term used in optics. When light is reflected from the surface of a concave mirror whose breadth is large relatively to its radius of curvature the image is spread out along a heart-shaped curve, called a caustic curve. Such a curve may be seen on the surface of a partly filled tea-cup if it is observed in a strong light.

CAUTERETS. Health resort of France, in the dept. of Hautes-Pyrénées. It lies in a valley enclosed by mts., 3,250 ft. above sea level and 41 m. S. by E. of Pau. Its mineral springs contain sulphates and silicates, and are efficacious in anaemia, rheumatism, and skin diseases. Pop. 1,200.

CAUTERY (Gr. kauterion, branding iron). Instrument or substance used for destroying new growths or disinfecting injuries by burning or destroying the tissues. The cautery usually employed consists of a point or loop of platinum heated by an electric current.

CAUTION (Lat. cautio, security). English law term. When a magistrate has heard all the evidence for the prosecution, which is

taken down in writing, and is about to commit the accused for trial, he is bound to ask the accused if he wishes to say anything, and at the same time to caution him that whatever he says will be taken down and used as evidence against him at the trial. In Scots law caution is the same as the English bail. Students at the universities and the inns of court usually deposit a sum of money on entrance as caution money. *See* Bail.

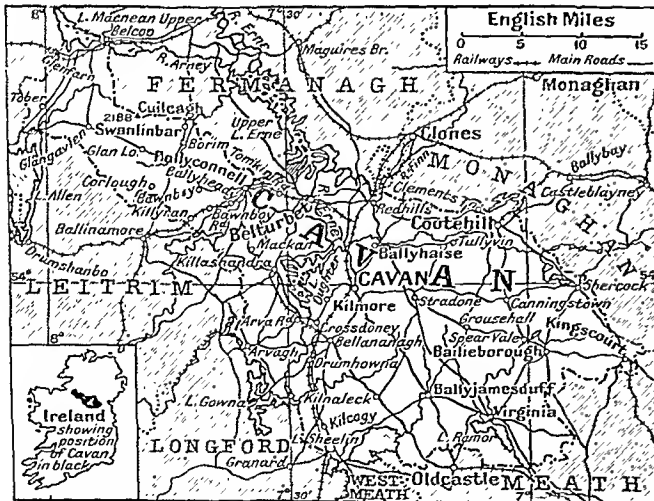
CAVALIER (Fr. *chevalier*; Lat. *caballus*, a horse). Originally meaning a horseman or knight, the term came to be applied to the adherents of Charles I during the Civil War.

CAVALRY (Span. *caballero*, a horseman). Name given to mounted troops who use their horses directly against the enemy, not, as mounted infantry do, merely for mobility.

In the Great War cavalry action varied according to the theatre of operations. In France and Flanders, during the periods of trench warfare, cavalry could only be used as infantry. In the great Allied advance of 1918 they were able to resume their proper position in pursuit of the retreating Germans. In Palestine, Allenby made great use of his cavalry, and in Mesopotamia the horsemen proved their value in open warfare. The East African and Egyptian expeditionary forces would have been equally incomplete without their mounted men.

The cavalry of the British regular army consists of the Household Cavalry (the Life Guards and the Royal Horse Guards) and cavalry of the line (lancers, hussars, etc.). There are cavalry schools at Netberavon and Saugor (India). The official organ, *The Cavalry Journal*, is published from the Royal United Institution, Whitehall, London, S.W.1. *See* Army; Hussar, etc.

CAVAN. Inland county of the Irish Free State. It is in Ulster, and has an area of 467,025 acres. It is undulating, the only considerable heights being in the N., where is Cuileagh, over 2,100 ft. The chief rivers are the Erne and the Blackwater. Cavan is the chief town; others are Cootchill, Belturbet, and Kilmore. In 1584 the district, formerly known as the Brenny, was made into a county. Pop. 82,452.



Cavan. Map of this inland county of Ulster, since 1922 in the Irish Free State

CAVAN. Urban district, county and market town of co. Cavan, Irish Free State. It is 80 m. by rly. S.W. of Belfast, and the terminus of a branch line from Clones. It has an old grammar school. Market day, Tues. Pop. 3,060.

CAVAN, FREDERICK RUDOLPH LANBART, 10TH EARL OF. (b. 1865). British soldier. Born Oct. 16, 1865, he was educated at Eton and

entered the Grenadier Guards. His first active service was in S. Africa, 1899-1902. In the Great War he took over the 4th, or Guards brigade, becoming leader of the Guards division on its formation in June, 1915. The command of the 14th corps followed, and at the head of this Cavan went to Italy in Nov., 1917. In 1918 he became head of the British forces in Italy. He succeeded to the Irish earldom in 1900, and was chief of the imperial general staff from Feb., 1922, to Feb., 1926.



10th Earl of Cavan, British soldier
Lafayette

CAVE (Lat. *cavus*, hollow). Deep hollow place in the earth produced by the work of underground water or by the action of waves along sea coasts. Caves of the first class are found in districts formed of rocks such, for example, as lime, capable of being carried away in solution by water charged with solvents.

Cave exploration as a sport has resulted in the formation of the Yorkshire Ramblers' Club, which has explored most of the important caves and pot-holes in England, while in France similar work has been done by the Société de Spéléologie de Paris. **CAVE DWELLING**. Natural caves were used as dwellings by various mammals from pliocene times. Hyæna dens were sometimes shared by palaeolithic man and others were more fully monopolised by him. Some continued in use even to medieval times. This early cave-dwelling culture still survives among the Bushmen and elsewhere; Les Roches, Loir-et-Cher, is a troglodyte village of 600 souls.



Cave Temple at Karli, India. It is entirely rock hewn, with a teak roof
F. Deauville Walker

CAVE TEMPLE. A cave temple is a rock cavity or excavation devoted to religious uses. In Egypt it developed from the rock-hewn tomb, as at Abu-Simbel (see illus. p. 9), but reached its fullest expression in early India. There are over 1,000 known examples, mostly in W. India, three-fourths of them being Buddhist. The finest, at Karli, between Bombay and Poona, of the 2nd century B.C., is 126 ft. long, 45 ft. wide, and 46 ft. high.

CAVE, GEORGE CAVE, 1ST VISCOUNT (1856-1923). British lawyer and politician. Born in London, Feb. 23, 1856, he became a barrister in 1880. In 1906 he entered Parliament as Unionist M.P. for the Kingston division. He was solicitor-general, 1915, and home secretary 1916-18, when he was made a lord of appeal and created a viscount. He was lord chancellor 1922-24, and again 1924-28. On retiring he was given an earldom, but died

Mar. 29, 1928, before he could assume the title. His wife was therefore created a countess.

CAVE, EDWARD (1691-1754). English printer and friend of Dr. Johnson. Born at Newton, near Rugby, Feb. 27, 1691, he came to London, and in Jan., 1731, opened a printing office at St John's Gate, Clerkenwell. Here he started *The Gentleman's Magazine*, for which Johnson wrote the parliamentary debates. He died Jan. 10, 1754.

CAVEAT (Lat. *let him beware*). Term employed in English law. It is addressed to the officials of a department warning them not to proceed without informing the caveator. Caveat emptor, a Latin phrase meaning, let the buyer beware, is now a maxim of English law on the sale of goods. The maxim only stands good when a buyer buys goods which are open to inspection. The seller need not point out any defect in them; though, if he is asked, he must reply truthfully.

CAVELL, EDITH LOUISA (1865-1915). British nurse. She was born Dec. 4, 1865, at Swardston, Norfolk, the daughter of the Rev. Frederick Cavell. She completed her education in Brussels, and was trained as nurse at the London Hospital. In 1900 she was appointed superintendent of the Highgate infirmary. In 1906 she returned to Brussels, where she became matron of the École Belge d'Infirmières Diplômées, later known as the École Edith Cavell. On Aug. 5, 1915, she was arrested by the Germans, charged with harbouring refugees and assisting them to escape. On Oct. 7 her trial took place; on Oct. 11 she was sentenced to death, and was shot in the Tir National, Brussels, the following morning. In May, 1919, her body was brought to England and buried in the precincts of Norwich Cathedral.



Edith Cavell, British nurse
From a portrait by Kyte

In Britain memorials to her, such as homes for nurses, etc., were established. A monument to her was erected in St. Martin's Place, London, a short distance to the N. of Trafalgar Square.

CAVENDISH. Surname of an English family whose head is the duke of Devonshire. The name is taken from Cavendish, a village in Suffolk, where the family is first heard of in the 15th century. Sir William Cavendish (c. 1505-57) was the real founder of the family's greatness. At the dissolution of the monasteries he obtained enormous grants of church lands, these territories being further increased by his marriage with Bess of Hardwick. From this marriage are descended the earls and dukes of Devonshire (q.v.).

Lord Frederick Cavendish (1836-82), second son of the 7th duke of Devonshire, was chief secretary for Ireland, and was murdered with Thomas Henry Burke, the under-secretary, in Phoenix Park, Dublin, May 6, 1882.

The Cavendish Club was founded in 1912. Its headquarters are at 119, Piccadilly, London, W.



Lord F. Cavendish, British politician
London Stereoscopic



Viscount Cave, British lawyer

CAVENDISH, HENRY (1731–1810). English physicist. The eldest son of Lord Charles Cavendish, brother of the 3rd duke of Devonshire, he was born at Nice, Oct. 10, 1731. His chief work, which was of sufficient importance to procure him a European reputation, was in the chemistry of gases, but his theorems on the nature of electricity and of heat were remarkable. His last investigation, known as the Cavendish Experiment, was the series of experiments



Henry Cavendish,
English scientist
From an old print

framed to determine directly the density of the earth by observing the degree of attraction which suspended leaden balls exercised on one another. He died at Clapham Common, March 10, 1810.

CAVENDISH, THOMAS (c. 1555–92). British sailor. He was born in Suffolk, and commanded a ship of his own in Sir Richard Grenville's Virginia expedition in 1585. In June, 1586, he set out from Plymouth with three small ships on what was in effect a piratical expedition: sailing to S. America, he discovered Port Desire, Patagonia, passed through the Magellan Straits, went on westward, and returned by the Cape, being the second Englishman to sail round the world. He discovered for the English the island of St. Helena. Cavendish died at sea off the island of Ascension in 1592.

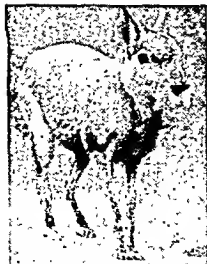
CAVIARE (Fr. caviar, of Tartar origin). Roe of the sturgeon treated by beating, straining, and salting. The best kind of caviare, which comes from Russia, is only made in winter, and one of the causes of its high price is the great difficulty in preserving it. Shakespeare's phrase "caviare to the general" is used of something which the ordinary man is incapable of appreciating.

CAVOUR, COUNT CAMILLO BENSO DI (1810–61). Italian statesman. He was born at Turin, Aug. 10, 1810, when Piedmont formed part of the Sardinian kingdom. He entered Parliament in 1848 as an advocate of a united Italy, and as a member of the Piedmontese ministry worked energetically at financial and administrative reforms: in 1852 he became first minister, and his shrewd move of joining with France and England in the Crimean War gave Sardinia a new status among the European powers. He encouraged the efforts of Garibaldi, and when Cavour died, June 6, 1861, the objects for which he had striven were in nearly all respects attained.



Count Cavour,
Italian statesman

CAVY. Genus of small rodents common in S. America, best known in the domesticated species, called the guinea pig (q.v.). In the wild state these animals are all of uniform greyish or blackish brown colour. The restless cavy (*Cavia porcellus*) is found in Brazil and Uruguay, usually in small herds. It inhabits marshy districts and lives in burrows among the dense vegetation. The rock cavy of the same countries lives in cracks and crevices in the hills.



Cavy. Patagonian cavy,
Dolichotis patagonica

CAWDOR. Village of Nairnshire. It is 5 m. S.W. of Nairn, and 3 m. by the L.M.S. Rly. from Gollanfield. According to Shakespeare, it was in the castle here that Macbeth slew King Duncan in 1040. The present building does not date farther back than 1454.

From it is derived the British title borne since 1827 by the family of Campbell. Frederick, 3rd Earl Cawdor, was chairman of the Gt Western Rly. 1895–1905 and first lord of the Admiralty in 1905. He died Feb. 8, 1911, and was succeeded by a son and then by a grandson. The earl's eldest son is called Viscount Emlyn and his seat is Golden Grove near Carmarthen.

CAWNPORE. City of the United Provinces, India, capital of Cawnpore district. It is on the right bank of the Ganges, 45 m. S.W. of Lucknow.



Cawnpore. Memorial statue to
the victims of the massacre

the scene of the massacre of the Europeans who had surrendered to Nana Sahib. A memorial church, statue, and well perpetuate their memory. Pop. 216,436.

CAXTON, WILLIAM (c. 1422–91). The first English printer and publisher. Born near Hadlow, Kent, and apprenticed to a London mercer, Caxton left England in 1441 for Bruges, became in 1463 governor of the guild of merchant adventurers in that city, and later entered the service of the duchess of Burgundy, who encouraged him to complete his translation of Raoul le Fevre's romance, *Le Recueil des Histoires de Troye*. Having studied printing at Cologne, he, with the help of Colard Mansion, printed this work in 1474, probably at Bruges, this being the first book printed in England.

Returning to England in 1476, Caxton set up, at the Sign of the Red Pale, a press in the Abbey Almonry (on a site now covered by the Wesleyan Central Hall), and thence, on Nov. 18, 1477, issued Earl Rivers's translation of the *Dictes and Sayings of the Philosophers*, a folio of 76 leaves and the first dated book printed in England. Of the ninety-nine works printed by Caxton, he translated twenty-five.

CAYENNE. Town of French Guiana. The capital of the colony, it lies at the mouth of the Arapa river, on the island of Cayenne. It is a penal settlement. Pop. 13,936.

CAYENNE PEPPER. Pod-like fruit, dried and pounded, of various species of capsicum. Capsicum is cultivated mostly in the East Indies, but is also grown in England and in other parts of the world, both for the fruit and for ornament. Cayenne has a pungent flavour, and owing to its digestive properties is useful in medicine. Used externally in an ointment, it is a good counter-irritant.

CAYMAN. Group of three islands in the British West Indies. They lie about 200 m.

W.N.W. of Jamaica, and are administered by the government of that island. The largest is 17 m. by from 4 to 7 m., capital Georgetown. Cayman Brac is 11 m. by 1 m., and Little Cayman 9 m. by 1½ m. They are of coral formation. Pop. of the group, 5,650.

CEANOTHUS (Gr. thistle). Genus of shrubs of the order Rhamnaceae. Natives of N. America, they have erect branches, alternate leaves, and small white or blue flowers in terminal clusters. *Ceanothus americanus* is known as New Jersey tea, from its use during the American War of Independence as a substitute for the British-exported China tea.



Ceanothus americanus, or New
Jersey tea plant

CEBUS (Gr. kebēs, long-tailed monkey). Group of S. American monkeys. The Capuchin is a well-known species of this group, which includes the Howling (*Mycetes*) and Spider monkeys (*Ateles*). The long prehensile tail and a body covering of short thick hair are characteristic. See Capuchin Monkey.

CECIL. Name of a historic English family. Its known ancestry begins about 1500 with David Cecil, whose name is variously spelled. A freeman of Stamford, he became M.P. for that place, and later held a position at the court of Henry VIII. Richard Cecil, his son, also a courtier, was the father of William Cecil, Lord Burghley (q.v.), the founder of the family's greatness. His eldest son, Thomas, was made earl of Exeter in 1605, and the 10th earl was made a marquess in 1801. The younger branch is represented by the marquess of Salisbury. See Salisbury, Marquess of: Exeter, Marquess of.

CECIL, ROBERT (b. 1864). 1st Viscount (b. 1864). British politician. Third son of Lord Salisbury, he was born Sept. 14, 1864. In 1906 he entered Parliament as Conservative M.P. for E. Marylebone. He lost his seat in 1910, but in 1912 and 1918 was returned for the Hitchin division of Hertfordshire. In 1915 Lord Cecil joined the Coalition ministry as under-secretary for foreign affairs. He was also minister of blockade in 1916 with a seat in the Cabinet, but resigned office in Nov., 1918, rather than consent to Welsh disestablishment. In 1924 he was created a peer as Viscount Cecil of Chelwood, and was chancellor of the duchy, 1924–27, when he resigned because he disagreed with the disarmament policy of the Government. Lord Cecil is best known for his continuous advocacy of the League of Nations.



Viscount Cecil,
British politician
Swaine

CECIL, LORD HUGH (b. 1869). British politician. The youngest son of the 3rd marquess of Salisbury, he was born Oct. 14, 1869.

He entered Parliament in 1895 as Conservative M.P. for Greenwich. In the House of Commons his oratorical gifts gave him a prominent place: ecclesiastical questions interested him predominantly. He opposed Chamberlain's fiscal proposals, and in 1906 as a free trader he lost his seat, but from 1910 sat as one of the members for Oxford University. Lord Hugh Cecil was made a privy councillor in Jan., 1918.



Lord Hugh Cecil,
British politician
Russell

CECILIA (c. 200). Roman saint, virgin, and martyr, and the patron saint of music. She figures largely in legends of the 5th and 6th centuries, is represented in many paintings, and celebrated in many poems, of which Dryden's Ode for St. Cecilia's Day is one of the most notable. Her festival is on Nov. 22.

CECROPS. Legendary founder of Athens and first king of Attica. During his reign the famous contest for the guardianship of Athens took place between Poseidon and Athena. Cecrops is said to have introduced the benefits of civilization into Attica, and to have divided the inhabitants of the district, the citadel of which became known as Cecropia, into twelve communities. He was represented as half man, half serpent.

CEDAR (Gr. Kedros). Ornamental evergreen trees of the order Coniferae and genus Cedrus, natives of Africa and India, first introduced into England in 1676. Cedars are of lofty and spreading habit. The cedar, sacred to the Hindus, is the Himalayan Cedrus deodara. The cedar of Lebanon is known botanically as Cedrus libani. It is indigenous from Palestine to the Himalayas.

Cedar is a name for the timber from three distinct genera of trees. Properly the name belongs to the produce of the cedar of Lebanon and the cedar, but the cedar wood in common use for making cigar-boxes is from Cedrela odorata, and cedar pencils are made from species of Juniperus.

Cedar gum is the gum resin yielded by the Capo cedar, Widdringtonia juniperoides. It resembles olihanum in properties, and is employed as a component in incense, in medicinal plasters, and for varnish.

CEDRON (Simaba cedron). Small tree of the order Simarubaceae. A native of New Grenada, it has leaves divided into about 20 narrow leaflets and sprays of flowers 3 ft. or 4 ft. in length. These are succeeded by plum-like fruits of the size of a swan's egg, containing a single seed like a large almond. In great repute as a febrifuge, it is an antidote to snake-bite.

CEILING (Lat. cacum, sky, canopy). The upper interior surface of a room. Until the 16th century the open timber roof prevailed in domestic buildings, but by that time the plasterer's art had begun to develop, and the end of the century saw the plaster ceiling established in the more important English houses. The pattern of these early ceilings is often extremely rich in design, the ornament being either floral, geometric, or heraldic. In 18th century ceilings the constructional beams were no longer hidden, but utilised to break up the surface into a series of recessed divisions or bays. Ornament was concentrated on or near these beams. A later style, perfected by the brothers Adam (q.v.), showed a reversion to the flatter surface decorated in low relief of classic design.

The painted ceiling of the late 17th century was virtually confined to public buildings

and great mansions. Interest in ceiling design disappeared in the 19th century with the introduction of stock mouldings.

CELANDINE, GREAT (Chelidonium majus). Perennial herb of the order Papaveraceae. It is a native of N. Europe and W. Asia. It has erect, branching, brittle stems, and its large, handsome leaves are deeply divided, the lobes being again deeply cut. The flowers, an inch or less across, are yellow, with two sepals and four petals. The fruit is a long pod which separates from the base into two valves.

The lesser celandine (Ranunculus ficaria) is a dwarf perennial herb of the order Ranunculaceae. A native of Europe, N. Africa, and W. Asia, its fibrous, swollen roots resemble in miniature the dahlia's bunch of tuberous roots. In early spring the blotched heart-shaped leaves appear, and soon after the shining golden, widely opened flowers.

CELEBES. Island of the Dutch East Indies. It lies E. of Borneo, from which it is separated by Macassar Strait, and covers an area of 48,061 sq. m., or with dependent islands 72,679. From the main portion stretch four long peninsulas to the N.E., E., S.E., and S., forming the gulfs of Tomini, Tolo, and Boni. Near the E. extremity of the northernmost peninsula are several active volcanoes. The longest river is the Sandang, and there are many lakes.

The climate is tropical, but tempered by the sea breezes. Macassar, on the S.W. coast, is the chief port and the principal trading centre of the archipelago; it has a wireless station. Next in importance is Menado on the N. coast. Celebes was discovered by the Portuguese in 1512, and annexed by the Dutch about 1750. Pop. 3,438,000.

The Celebes Sea is a division of the Pacific, between Celebes, Borneo, and Mindanao, in the Philippine Islands; its deepest sounding is 16,770 ft.

CELERIAC. Vegetable of the order Umbelliferae and genus Apium. It is more popular in France than in England, and is known also as the turnip-rooted celery.

CELERY (Gr. selinon, parsley). Biennial vegetable of the order Umbelliferae and genus Apium, usually treated as an annual. Seedlings are raised in heat in February, and later transplanted into frames. In May the celery is planted out in richly manured trenches. When the plants are about a foot in height they are tied round with bast like lettuces and earthed up.

The process of earthing up ensures a pure white heart and stems crisp to the palate. The chief pest is the celery fly (Tephritis oenopion) which infects the leaves.

The wild celery (Apium graveolens) is found in wet places and near the sea. It is strong in flavour and uneatable.

CELESTINE. Natural sulphate of strontium. It crystallises in orthorhombic crystals similar to those of barytes. In Britain it occurs at many localities in Scotland, but most abundantly at Yate, in Gloucestershire.

CELESTINE. Name of five popes, of whom two are notable. Celestine I (d. 432) was a Roman who succeeded Boniface I in 422. Canonised, his feast is kept on April 6. Celestine V (1215-1296) was born at Molise in Naples, his name being Pietro di Morrone. About 1232 he formed an order called after him, the Coelestini, or Celestines. When nearly eighty he was summoned to the papal throne, and was crowned on Aug. 29, 1294, abdicating the same year. He died May 19, 1296, and was canonised in 1313. His feast is kept May 19.

CELIBACY (Lat. coelebs, unmarried). Term commonly used to define the state of the unmarried, but especially applied to the renunciation of marriage for the observance of chastity. Decrees of the first Lateran Council, 1123, and still more definitely the fourth, 1215, pronounced marriage illegal for all clerics who were ordained sub-deacons, and this rule, confirmed by the council of Trent, 1563, prevails to-day in the Roman Catholic Church. The Protestant churches do not favour celibacy for their ministers.

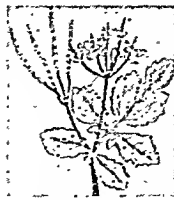
CELL. In biology, the material unit of all living things. It is a tiny mass of protoplasm, usually possessing a wall, the contents of the cell being known as the cytoplasm. Within the cytoplasm there is usually a minute structure termed the nucleus, and within this again a further substance called chromatin. Before cell division, or multiplication, takes place, the chromatin forms itself into distinct masses or chromosomes. These are definite in number for each living species.

The nature of the organism which is to develop from the cell depends, apparently, upon the nucleus. This contains that special form of protoplasm termed the germ-plasm, the material basis of hereditary characters or tendencies. Variation is thought to be due to factors of character, called genes, regarded as being inherent in the chromosomes.

The investigation of the fundamental problems of biology—reproduction, growth and heredity—is bound up with that of the intimate structure of cells. See Biology; Protoplasm.

CELL. Element of a voltaic (primary) battery, or of a storage (secondary) battery. A voltaic cell is that which produces electricity by chemical action. Two plates of dissimilar metal, such as copper and zinc, or a plate of carbon and a plate of zinc, are insulated from each other and immersed in a vessel containing a conductive and decomposable solution. The plates are termed electrodes and the solution the electrolyte. A number of cells suitably connected form a battery.

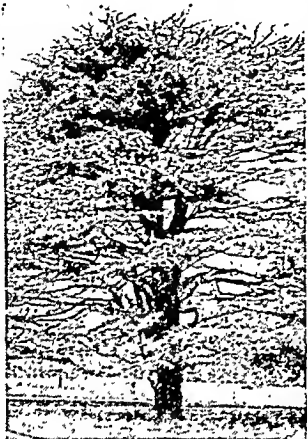
The external circuit is from the terminal of one plate, through the lamp, bell, or whatever the cell operates, and back to the other. The terminal from which the current flows to the external circuit is known as the positive (+) pole, and that by which it returns to the cell as the negative (−) pole. The current leaves the electrolyte by the + pole and enters it by the − pole. The first is distinguished as the kathode, and the second as the anode



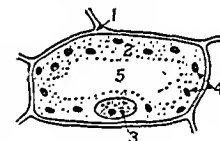
Celandine, Chelidonium majus



Celandine, Lesser celandine flowers and leaves



Cedar. Stately specimen of the Cedar of Lebanon



Cell. Plant cell highly magnified, showing (1) cell wall, (2) protoplasm, (3) nucleus, (4) chloroplasts, and (5) vacuole with cell-sap



Celery. The process of earthing up this vegetable

For providing current required at regular intervals, as in the case of electric bells, the simplest cell is the Leclanché. In this a zinc rod and a porous pot, containing a slab of carbon packed round with a mixture of crushed carbon and black manganese oxide, is immersed in a solution of sal-ammoniac.

What are termed dry cells are nearly always upon the Leclanché principle. The outer vessel is of zinc and forms the negative pole. The annular space between the central carbon rod, with its surrounding mass of manganese and carbon, and the zinc container is packed with some absorbent material saturated with a solution of sal-ammoniac and chloride of zinc.

A storage cell consists of two or more grids of lead coated with lead oxide and immersed in a dilute solution of sulphuric acid. When current from an outside source is passed through the cell electrical energy is converted into chemical energy; the plates are polarised, metallic lead being deposited on the negative plate and lead peroxide on the positive plate. After being charged with electricity such a cell will give out current until the plates become inactive. It may then be recharged.

CELLIER, ALFRED

(1844-1891). British composer and conductor. Born in London, Dec. 1, 1844, from 1862-79 he was director of the Ulster Hall concerts in Belfast; musical director in Manchester and London; and joint conductor with Sir A. Sullivan at the Covent Garden promenade concerts. His most popular light opera was *Dorothy*. He died Dec. 28, 1891.



Alfred Cellier,
British composer
London Stereoscopic

produced in 1886.

CELLINI, BENVENUTO (1500-71) Italian metal worker and sculptor. Born in Florence, Nov. 3, 1500, he was apprenticed to a goldsmith. He is as remarkable for his own personal characteristics, revealed in his autobiography, as for his artistic work.

No piece of gold work can be attributed to him with absolute certainty except the great salt-cellar now in the imperial treasury at Vienna, which he made for Francis I of France. Of the medals and coins for which he was responsible many remain, and of his groups of bronze and in marble his famous figure of Perseus with the head of Medusa in Florence, his great crucifix at the Escorial, and his *Nymph of Fontainebleau* in the Louvre, attest his amazing skill and dexterity. He died Feb. 13, 1571. Pronounced Tchell-lee-nee.

'Cello. Colloquial abbreviation of violoncello (q.v.). Pronounced chello.

CELLULOSE. Hard, semi-transparent substance insoluble in water and readily

inflammable, made by uniting nitrocellulose and camphor. The uses of celluloid are numerous, and are based upon the desire to employ cheaper substances than ivory and tortoiseshell for billiard balls, combs, piano keys, knife handles, and ornaments. Celluloid decomposes at a comparatively low temperature. Ignition or decomposition may result from exposure to temperatures which are not specially dangerous in the case of ordinary combustible materials, and which may sometimes be attained in storage and use. The Celluloid and Cinematograph Act, 1922, deals with the storage of celluloid and cinematograph film. Buildings in which these are stored must be registered.

CELLULOSE (Lat.

cellula, little cell). Framework or cellular-tissue of plants and the characteristic product of the vegetable kingdom. It is familiar in the form of cotton, linen, and paper, but silk and wool are not composed of cellulose. Various products of cotton are obtained from it by the action of chemical reagents. Strong sulphuric acid converts cellulose into a substance called amyloid. Nitric acid converts cellulose into nitrocellulose, one form of which is gun cotton. Another kind (pyroxylin) is soluble in a mixture of ether and alcohol, making a viscous solution known as collodion. Artificial silk is made from cellulose in solution or in the plastic form by forcing it through very fine orifices or by drawing it into threads. Various compound celluloses are known. Jute fibre, for example, consists of 75 p.c. of cellulose and 25 p.c. of lignin. Raw flax fibre and esparto are pectocelluloses, and another variety, mucocellulose, is decomposed by water, forming solutions known as mucilages. See Artificial Silk.

CELSIUS, ANDERS (1701-1744). Swedish astronomer. Born Nov. 27, 1701, at Upsala, he became professor of astronomy there in 1730, and, in 1740, director of the observatory. Here he occupied himself with the measurement of the intensity of light, with researches concerning the Northern Lights, and with the theory of the satellites of Jupiter. He died April 25, 1744.

CELT. Name used by classical writers to describe the tall, fair-haired, blue or grey-eyed peoples living north of the Alps.

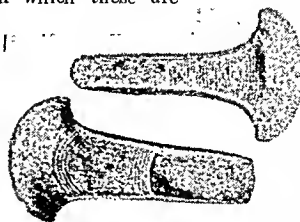
The original European habitat of the Celts embraced both banks of the upper Danube, whence they invaded Italy, founding important settlements. About 300 B.C. the subjugated Teutonic tribes inhabiting the German lands taken by early Celtic conquest rose against their oppressors and drove them westward. At the same time the Celts invaded Macedonia and later founded the province of Galatia, in Asia Minor. Their fortunes then waned; they lost Spain, which they had taken from the Iberians, and were driven from the N. of Italy by the Romans, who then, under Julius Caesar, invaded and subdued Gaul, which was at that time the principal seat of the Celtic power.

It is probable that there were Celts in Britain before the end of the Bronze Age. The invading hordes subdued the original inhabi-

tants, who were not of the Aryan race, and established their own civilization. In England this was superseded to some extent by those of the Romans and the Anglo-Saxons, but in Scotland, Wales, and Ireland it became the main factor in the country's cultural life. At the Anglo-Saxon invasion the Celts were driven from England.

They were responsible for the dissemination of the early Iron-age culture, out of which there developed in Ireland, during centuries of comparative isolation, a native art of singular beauty. See Ardagh; Kells, Book of; Ireland; Wales.

CELT. Prehistoric and primitive implement with a chisel-shaped edge. The word has no reference to the people named Celts. It includes forms used as axes, chisels, adzes, and hoes. They were made of flint in Denmark; basalt, porphyry, and felsite in Scotland and Ireland; jade, nephrite, and bone in Switzerland. See illus. p. 98.



Celt. Examples of bronze celts found in England and Ireland

CEMENT (Lat. camentum, rough stone).

Any glutinous adhesive substance that serves to unite bodies is termed a cement. The word is specifically applied to those mixtures of chalk and clay which, after burning and crushing, acquire adhesive properties, when water has been added to them, that adapt them for use in connecting brickwork and masonry, or in the formation of concrete. Cement concrete, used by the Romans, is a mixture of lime and a siliceous material. It resists the action of water, and is accordingly termed "hydraulic." The so-called Roman cement is made by heating and crushing nodules containing carbonate of lime and clay, which are dredged up in the Thames estuary. Keene's cement is made by burning gypsum. Parian, which is made from gypsum and borax, baked together, is mainly used for mouldings in plastering work.

Portland cement, for which, as a primitive mixture of lime and clay treated in an old-fashioned bottle-shaped kiln, Joseph Aspdin took out a patent in 1824, is now manufactured in vast quantities by highly-developed processes. Estuary mud from the Thames and grey chalk are the materials which are chiefly used in England.

For use, cement is mixed with sufficient water to bring it to a plastic paste. Setting occurs within a few hours, but the subsequent hardening may go on for more than a year. Its property of hardening under water renders Portland cement invaluable for harbour, dock, and reservoir construction. See Concrete.

CEMETERY (Gr. koimeterion, sleeping place; Lat. coemeterium). Ground, other than a churchyard, set apart for the burial of the dead. In ancient times the burial places of the Jews, Greeks, and Romans were outside the walls of their cities and towns, and, prompted by dictates of public health, modern custom is a return to ancient practice. In Britain most cemeteries are public property, as local authorities have power to provide them. Permanent graves in them can be purchased. Every person has a right to be buried in the burial ground of his or her parish. See Burial; Catacomb; Churchyard; Cremation; Funeral.

CENCI, BEATRICE (1577-99). Central figure in an Italian tragedy of the 16th century. Daughter of Francesco Cenci, a rich and vicious Roman noble, she conspired with her brother and stepmother to have him assassinated. The three were beheaded Sept. 10, 1599. It was long but erroneously believed that she was impelled to the crime by her father's incestuous advances.



Benvenuto Cellini,
Italian metal worker
From an old portrait

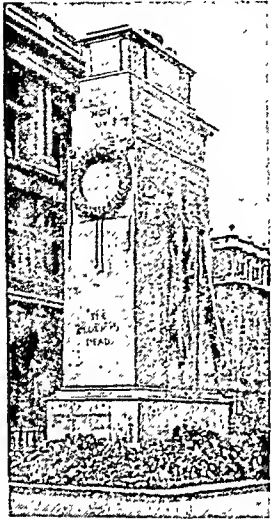


Celtic bronze shield with
enamelled studs
British Museum

CENIS, MONT. Mt. and pass between France and Italy. The carriage road in the pass was built between 1803-11 by Napoleon's engineers. To the S.W. of the pass is the Little Mont Cenis, a mule path leading from a hospice on the Italian side to Etache in Savoy. It is higher (7,164 ft.) than the main pass, which rises to 6,893 ft. Probably used by Hannibal, it was one of the chief routes over the Alps to Italy.

The Mont Cenis tunnel, on the rly. from Lyons to Turin, pierces the Col de Fréjus, 17 m. to the W. of the pass. It $7\frac{1}{2}$ m. long, 26 ft. wide, 19 ft. high, and at its summit reaches a height of 4,245 ft. It was begun in 1857, opened in 1871, and cost £3,000,000.

CENOTAPH (Gr. kenos, empty; taphos, tomb). Name for an empty or honorary tomb. The term is applied generally to a monument in memory of a person or persons whose remains are irrecoverable or hurried elsewhere, and sometimes to a tomb during a person's lifetime. A notable modern example is that designed by Sir Edwin Lutyens and erected in Whitehall, London, in 1920, to commemorate those who fell in the Great War.



Cenotaph in Whitehall which commemorates Britain's "Glorious Dead" in the Great War

two in number, were first appointed in 413 B.C. Their chief duty was to take a census of the persons and property of the inhabitants. They also had the power of disfranchising a citizen or reducing his status. They issued regulations to check extravagance, to suppress practices contrary to morality, and were charged with the maintenance of temples and other public buildings, and with the administration of the finances. A censorship notable for its severity was that of the elder Cato (q.v.) in 184 B.C.

CENSORSHIP. Control by ecclesiastical or state authority of the publication and dissemination of opinions and news and the exhibition of plays or pictures. Books regarded as heretical were subjected to censorship by the early Church, and the practice is exerted in the Roman Catholic Church through the medium of the Index Librorum Prohibitorum et Expurgandorum.

Apart from the restrictions placed to-day on libellous, treasonable, or obscene matter, the press in Great Britain is free. In 1928 the Irish Free State established a board of censors. They have power to refuse to allow the circulation of books and newspapers that are considered immoral.

STAGE CENSORSHIP. The censorship of stage plays is traceable back to the 16th century. Players as well as plays had to be licensed; to-day, while actors and actresses require no licence, plays have to be approved by the lord chamberlain's department, in connexion with which there are two officials known as examiners of plays.

Films are censored by a board appointed by the trade. In 1929 Edward Shortt succeeded T. P. O'Connor as chairman.

In time of war there is a censorship over everything written about naval and military operations. See Press.

CENSUS (Lat. censo, I estimate). Official inquiry into the number and condition of the inhabitants of a country. In the early books of the Bible there is abundant evidence that the tribes of the Israelites were numbered from time to time; one book is called Numbers. This form of inquiry was a feature of the life of ancient Rome.

In the United Kingdom a census has hitherto been taken every ten years, although the Census Act (1920) provided for its being taken every five years. In 1921, in the United Kingdom, the particulars required were the name, sex, age, occupation, marital condition, birthplace, and nationality of every person residing in a house on the night of June 19. With other details the results of the census are published in a series of blue books. See Birth Rate; Population.

CENSUS OF PRODUCTION. This is an inquiry into the amount of wealth produced by a country. The Board of Trade took the first in 1903, the figures being for the previous year, and the returns were published in ten volumes between 1909-12.

The results of the census of 1924 were published in 1927-28. They showed that 7,612,800 persons were employed in the industries surveyed. Altogether, it was stated that 20,000,000 persons were gainfully employed in Great Britain, this being an increase of 13.9 per cent on the figures for 1907. The proportion of female workers had increased, but, save in clerical occupations, only to a slight extent. The number of boys under 18 years old employed showed a considerable fall, but more girls under 18 were at work than in 1907.

The value of the output showed an enormous increase over 1907, due in the main to higher prices. The gross output was valued at £3,353,000,000, against £1,698,000,000 in 1907. The cost of materials, etc., was £2,155,500,000, leaving the value of the net output £1,697,500,000. In 1907 it was £689,000,000.

CENT (Lat. centum, a hundred). Bronze or copper coin, value about $\frac{1}{4}$ d. It is the hundredth part of a dollar in the U.S.A., Canada, and other countries where dollars are current. In Holland it is $\frac{1}{100}$ of a guilder.

CENTAL. Modern measure of weight, equal to 100 lb. avoirdupois. Introduced in Liverpool in 1859, it was adopted by the U.S.A. in 1878, and legalised in Britain, Feb. 4, 1879. It is used in the Canadian corn trade.

CENTAUR. In Greek mythology, monster half man and half horse. In Homer, the Centaurs are a wild race dwelling on the mountains of Thessaly, whose fondness for riding probably gave rise to the idea of their forming part of their horses. They are chiefly remembered for their fight with the Lapithae, which may be said to represent the conflict between barbarism and civilization. The most famous Centaur was Chiron (q.v.).

CENTAURUS. Constellation in the southern hemisphere, one of those named by Ptolemy. It is remarkable for comprising Alpha Centauri, the nearest star to the solar system, and Omega Centauri, the finest globular cluster in the sky. See Constellation.



Centaur contending with a Lapith, relief from a frieze in the Parthenon

CENTAVO. Small copper coin of Argentina, Bolivia, Chile, Mexico, Venezuela, and, since 1911, of Portugal. It is the $\frac{1}{100}$ th part of the respective monetary units of those countries. In Latin America its value varies from one to three centimes; in Portugal the centavo equals nearly six, i.e. almost a halfpenny.

CENTIGRADE (Lat. centum, hundred; gradus, degree). Term denoting the thermometer scale of Celsius, in which the lower fixed point, 0° C, is taken to be the melting point of ice, and the upper fixed point, 100° C, the temperature of steam given off from water boiling under the pressure of the standard atmosphere. This scale is divided into one hundred degrees. See Thermometer.

CENTIPEDE (Lat. centum, hundred; pes, foot). Order of the Myriopoda. The body consists of fifteen to twenty-four flattened segments; each segment except the last two bears a pair of legs. There are several British species, all of small size, which may be found in damp places beneath stones. They prey on various small animals, which they catch by night, but are harmless to man. Many of the large tropical species are, however, able to inflict dangerous wounds.

CENTRAL AMERICA. Isthmus connecting the continents of N. and S. America. Bounded on the N. by Mexico, on the S. by Colombia, and lying between the Pacific Ocean and the Caribbean Sea, it includes the republics of Guatemala, Honduras, Salvador, Nicaragua, Costa Rica, and Panama, and the colony of British Honduras. (See map, p. 382.) Its general direction is from N.W. to S.E.: it is approximately 1,000 m. in length, with a width varying from over 500 m. in the N. to less than 50 m. in the S. It contains a mountainous core, which with the W. Indian Islands forms the remainder of a continent, most of which is now beneath the sea.

HISTORY. Discovered by Columbus in 1502, Central America was under Spanish rule until 1821. It was known as Guatemala, and its five departments corresponded to the five republics that existed before Panama was called into existence in 1903. In and after 1821 Spain's authority was overthrown, and in 1823 a republic, the United States of Central America, was formed. This did not last long, while its successor had a still briefer life, from 1842 to 1845 only.

During the next 50 years there were further attempts at union, but none had any result save to add to the prevailing disorder. In 1895 a republic, with a constitution and a diet, was formed of three of the states, but this came to an end in 1898. In 1907 there was a conference ending in a treaty, and in 1920 an agreement for a union was signed, but nothing came of it. In 1923 a general treaty of peace and friendship was signed by five republics, one clause providing for the establishment of an international tribunal. In these later developments the United States took a leading part, and the conferences were held in Washington. See Costa Rica; Guatemala; Honduras; Honduras, British; Nicaragua; Panama; Salvador; also map p. 382.

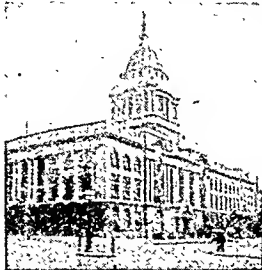
CENTRAL AUSTRALIA. Name given to one of the two territories into which the Northern Territory has been divided. The territory to the N. is called North Australia. The capital is Alice Springs, and the area is 236,393 sq. m. See Alice Springs; Australia.

CENTRAL CRIMINAL COURT. Court established in 1834 for trying criminals in the London area, i.e. a district about 420 sq. m.



Common British Centipede

in extent, comprising the counties of London and Middlesex, and one or two smaller districts. Its sittings correspond to the assizes held throughout the rest of the country, and it serves as quarter sessions for the City of London. The sittings are held ten or twelve times a year at the Old Bailey, and the judges are one or two of the High Court, the recorder and common serjeant of the city, and the judges of the City of London court; also the lord mayor.



Central Criminal Court, London, usually known as the Old Bailey

CENTRAL PROVINCES AND BERAR. Province in India, S. of the Central India Agency and United Provinces. The Central Provinces contain alternating tracts of upland and plain country. The chief rivers are the Nerbada, Godavari, and Mahanadi. Nagpur, the capital, is an important cotton-spinning centre. The prov. is administered by a governor. Its area is 131,052 sq. m. and the pop. 15,979,660. See India.

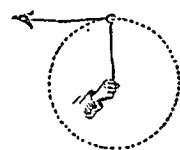
CENTRE OF GRAVITY. Point, fixed relatively to a body, through which its weight must always act, in whatever position the body may be placed. This definition applies strictly only to solid bodies which are not deformable (rigid bodies); such a body will balance if its weight is supported at any point either vertically below or vertically above its centre of gravity. The centre of gravity of a body coincides with its centre of mass (centre of inertia); the centre of mass is found by averaging out the masses and positions of all the particles of which a body may be regarded as composed. The centre of mass is a more general conception than the centre of gravity.

CENTURION. Officer in the ancient Roman army and originally a commander of 100 men. In republican times there were 60 centurions to the legion, under the empire 69. His badge of authority was a staff made of a vine branch (vitis).

CEPHALONIA. Largest of the Ionian Islands. In the Ionian Sea, a part of the Mediterranean, and giving its name to a department of Greece, it is mountainous, reaching an alt. of 5,320 ft. in Mt. Ainos. It produces currants, wine, oranges, lemons, and figs. The chief town is Argostoli. Area, 260 sq. m.

CEPHALOPODA (Gr. *kephalē*, head; *pous*, foot). Important class of the Mollusca. It consists of the cuttlefishes and their kindred, all of which have the head surrounded by tentacles. The most highly developed and specialised of all the molluscs, they are the most active. The nautilus, octopus, and squid are familiar examples. Cephalopods are common in all the temperate and tropical seas, and about twenty species occur around the British coasts. In size they vary from very small creatures to giants with tentacles 30 ft. long and thick in proportion. Fossil cephalopods abound in palaeozoic and mesozoic rocks. The two chief groups are the ammonites and nautilus. See Ammonite; Fossil.

CERAM or **SIRANG.** Island of the Dutch East Indies, the second largest of the Molucca group, between Buru and New Guinea. It is traversed by several mountain ranges, and is densely vegetated, chiefly by cocoanut and sago palms; but cultivation is restricted to the coastal tracts. Its area is 6,625 sq. m. Pop. about 67,000.



Centrifugal force. Simple example shown by whirling of weight at end of a string

CERASTES (Gr. *keras*, horn). Horned viper. It is found in two species, *C. cornutus* and *C. vipera*, in N. Africa, Arabia, and Syria, and is characterised by horn-like processes above the eyes in the male.

CERATODUS (Gr. *keras*, horn; *odus*, tooth). Mud fish of Queensland, locally known as the Barramunda. It has the power of breathing air directly, as well as of extracting it from the water by gills. It is said to attain a length of

CERBERUS. In Greek mythology, the dog that guarded the entrance to Hades, generally represented with two or three heads. When Aeneas visited the underworld, according to Virgil, the Sibyl who accompanied him gave a sop steeped in honey to the guardian of the gate—hence the saying giving a sop to Cerberus, in the sense of appeasing.

CEREAL (Lat. *Ceres*, goddess of corn). Name given to cultivated grasses that constitute grain and corn crops. The familiar cereals of temperate climates are wheat, barley, oats, and rye, while maize (Indian corn), rice, durra, millet, and other less-known forms flourish in warmer parts of the globe.

CEREBRO-SPINAL FEVER. Infectious and contagious disease due to a micro-organism. It is most prevalent in winter and in spring, and the majority of cases occur in children below the ages of 15.

The meningococcus responsible for the disease probably obtains access to the body in all cases through the nose. The patient complains of shivering, which is rapidly followed by intense headache, and a few hours later by vomiting. The temperature may rise to 104° F. or 105° F. Pain and stiffness in the muscles of the neck are often early symptoms. A rash may appear on the skin, hence the name "spotted fever" sometimes given to the disease. More than half the cases die within a few days.

The symptoms are mainly due to inflammation of the meninges or membranes covering the brain. In 1905, Abraham Flexner, an American physician, prepared a serum, the injection of which has proved of considerable value in treatment.

The cerebro-spinal fluid is a watery fluid containing salts and traces of protein material and sugar. It fills a cavity in the centre of the brain and spinal cord, and bathes the external surface of the brain, communicating with it through an aperture in the pia mater or inmost covering of the brain.

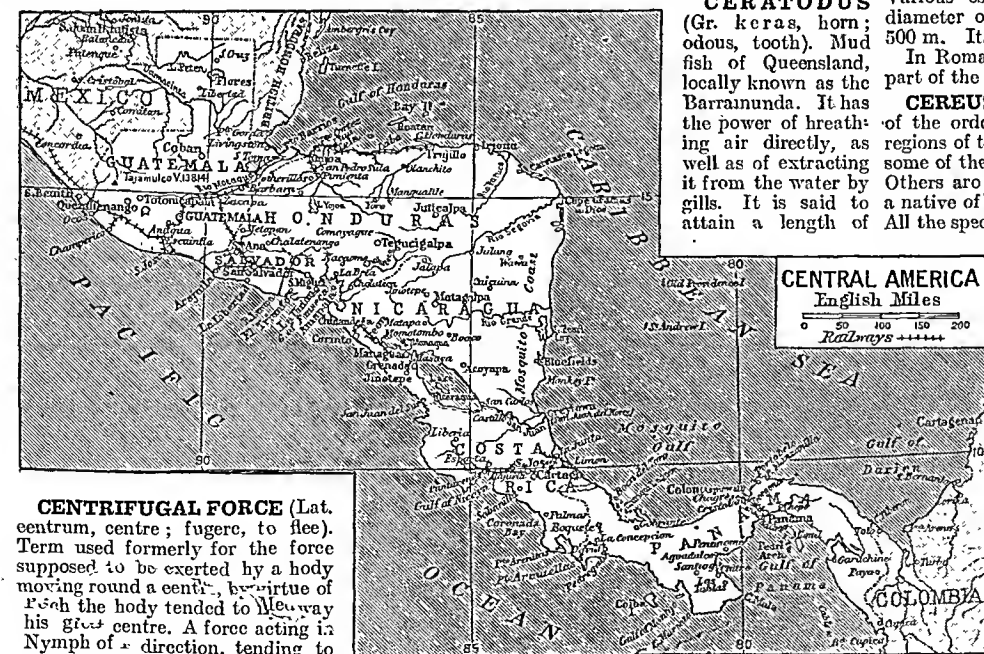
CERES. The largest of the asteroids or minor planets, and the first to be discovered. Various estimates have been given of the diameter of Ceres, which is probably nearly 500 m. Its orbit is distinctly eccentric.

In Roman mythology Ceres is the counterpart of the Greek Demeter (q.v.).

CEREUS. Large genus of succulent plants of the order Cactaceae. Natives of the arid regions of tropical America and the W. Indies, some of the species are only a few inches high. Others are tall, one known as the suwarrow, a native of Mexico, attaining a height of 60 ft. All the species are soft and fleshy when young,

but may become hard and even woody as they grow old. Their stems are angular or cylindrical, the latter ribbed and fluted in their length. Some creep along the ground or up trees, rooting as they go; others are erect.

CERIUM. Metal of ceria, one of the rare earths. Its chemical symbol is Ce, atomic weight 140.25, atomic number 58, and melting point 623° C.; in hardness it compares with tin and silver; in colour and lustre with iron. It is malleable and ductile, and may be drawn into fine wire. Cerium never occurs native, but is found in combination with fluorine, lime, yttria, lanthanum, thorium, silica, and manganese and some other elements in various minerals. It is obtained chiefly as a by-product in the extraction of thorium from monazite sands. An alloy with metallic iron, ferrocerium, is largely used in the manufacture of mechanical igniters.



Central America. Map of the states occupying the isthmus between the continents of North and South America. See p. 381

CENTRIFUGAL FORCE (Lat. *centrum*, centre; *fugere*, to flee). Term used formerly for the force supposed to be exerted by a body moving round a centre, by virtue of which the body tended to leave his given centre. A force acting in the direction of a line, tending to his amazing to the centre, was Feb. 13, 1571. See force. Centrifugal force.

CELLO. Colloquial name for force cello (q.v.). Pronounced keep a body moving

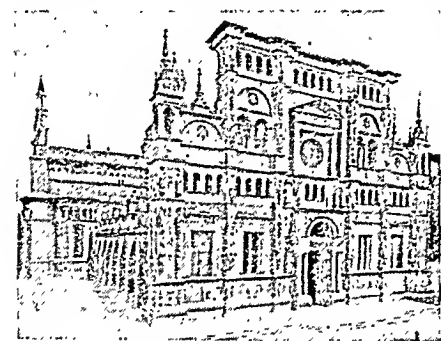
CELLULOSE. Hard, of a normal substance insoluble in water.

about 6 ft. and a weight of 20 lb.; usually it is about half this size. The scales are large and the fins resemble fringed paddles.

Ores of cerium are complex minerals of widespread occurrence, yielding the so-called rare earths. They are classified according to their relative richness in the earths or metallic oxides of the cerium and yttrium groups respectively. The most important commercially is monazite, with 40-70 p.c. The ores are worked primarily for the thorium which is used in gas mantles.

CERNAVODA, CHERNAVODA, or TSENAVODA. Town of Rumania. On the E. side of the Danube, in the Rumanian Dobruja, it gives its name to the great bridge across the river also known as the Carol Bridge. During the Great War the town was occupied by Germans and Bulgarians on Oct. 25, 1916, and the bridge, which had previously been partly destroyed by gunfire, shortly afterwards was lost to the Rumanians. This success gave the Germans control of the important Cernavoda-Constanza railway. Pop. 5,863.

CERTOSA. Carthusian monastery of Italy, the finest of its kind in the world. It is situated 5 m. by rly. N. of Pavia. Begun in 1396 by Galeazzo Visconti in the Gothic style, it was finished in early Renaissance about

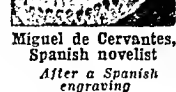


Certosa. Façade of the Carthusian monastery, near Pavia, Italy, which was completed about 1465

1465, although decorative additions were made later. It contains valuable works of art. The monastery was suppressed in 1866, and the building became a national monument in 1891.

CERUSSITE (Lat. cerussa, white lead). Important ore of lead, known also as white lead ore. Chemically it is a carbonate of the metal. In colour it is white or greyish, it is brittle, and its specific gravity is about 6.47. Usually associated with galena, it occurs in Cornwall, the S. of Scotland, and in many parts of Europe. The Mississippi valley, in the U.S.A., has yielded large quantities of lead from this ore. See Lead.

CERVANTES SAAVEDRA, MIGUEL DE (1547-1616). Spanish writer. Born in October, 1547, the son of an apothecary surgeon, in 1569 Cervantes entered the service of Cardinal Julio de Acquaviva, who had been sent as papal legate to Spain. In 1570 he enlisted as a private soldier, fought at the battle of Lepanto, at the battle off Navarino, and was at the capture of Tunis in 1573.



Miguel de Cervantes, Spanish novelist After a Spanish engraving

While filling positions as title collector and purveyor to the army, in the course of which he suffered severe losses and was twice imprisoned for monetary deficiencies, Cervantes produced much poetry and between twenty and thirty plays, but without achieving any substantial success. He then conceived the idea of his immortal book, which he wrote in inns and prisons, and published the first part in 1605. It met with instant success. In

the last period of his life, besides the second part of *Don Quixote*, published in 1615, Cervantes wrote his *Novelas Ejemplares*, 1613. He died April 23, 1616.

CESAREWITCH. Name borne until 1917 by the eldest son of the tsar of Russia. It is also the name of a horse race run at Newmarket on the Wednesday of the second October meeting. The course is 2½ miles, the landmark known as the Bushes being about ¼ m. from the winning-post. Established in 1839, it was named after the Cesarevitch Alexander, afterwards Alexander II.

CESENA (ancient Caesena). City of Italy. It is at the base of the Apennines, 19 m. by rly. N.W. of Rimini. Formerly a Roman station and fortress, it has a medieval citadel, a cathedral, the Capuchin church, noted for its fine painting by Guercino, and the Malatesta library. It has been noted from classic times for its wine. It was the birthplace of Popes Pius VI and Pius VII, and the scene of Murat's defeat of the Austrians on March 30, 1815. The place is mentioned in Dante's *Inferno* (xxvii, 52). Pop. 50,868.

CESS. Name for a tax, an abbreviation of *cessus*. It is used in Scotland for the land tax, and in Ireland was formerly employed instead of the word rate. It is also used in India.

CESSION (Lat. *cedere*, to yield). In international law the giving up of territory by agreement between one state and another. It is voluntary, as distinguished from annexation, which is forcible. Cession may be by purchase, as when during the Great War the U.S.A. bought the Danish West India Islands.

Cessio bonorum is a term used in Scots law. Derived from Roman law, it means that by making a full surrender of all his property, a debtor is protected from punishment, either by imprisonment or otherwise, for his debts. It does not, however, like bankruptcy in England, carry with it a complete discharge of such debts. See Bankruptcy.

CESSNOCK. Town in Northumberland co., New South Wales, Australia. It is the terminus of a branch railway, 17 m. from Maitland (q.v.), and is on the edge of the Newcastle coalfield. Pop. 14,340.

Cestodes or *CESTODA*. Order of flat worms parasitic in animals. See Tapeworm.

CESTUS (Lat. *caedere*, to cut, kill). Piece of stout leather, often weighted with metal, worn by Greek and Roman boxers on the hands or forearms to give force and bruising power to the blow. The Latin word is more correctly spelt *caestus*, *cestus* being the latinised form of Greek *kestos*, a girdle.



Cestus. Ancient boxing glove British Museum

skull very small, and the teeth adapted to vegetable diet. See Dinosaur.

CETINJE. Town of Yugo-Slavia, formerly capital of Montenegro. On an elevated plateau surrounded by mts., the chief of which is Mt. Lovtchen, it was taken by the Turks in their efforts to conquer the Montenegrins in 1683, 1714, and 1785. During the Great War it was captured by the Austrians on Jan. 13, 1916, after the fall of Mt. Lovtchen. In the course of the recovery of Serbia it was occupied by the Serbians on Nov. 4, 1918. Pop. 5,300.

CETTE, or **SÈTE**. Seaport of France, in the dept. of Hérault. It is on the Mediterranean, 18 m. S.W. of Montpellier. The old town is on the hill, Mont St. Clair, at the foot of which

are the canals, including the Canal du Midi, which link up with the interior of France. Cette has a large trade in wine, brandy, chemicals, coal, etc. It is also a fishing centre and exports sardines, which are prepared here. The port was created in 1666 as the terminus of the Canal du Midi, and in the 19th century it became second only to Marseilles among the seaports on the south coast. Pop. 36,505.

CETUS (Gr. *kētos*, whale). Constellation spreading over a vast expanse of sky, with a length of 50° and an average breadth of 25°. It is named after the legendary sea monster from which Perseus rescued Andromeda. Mira Ceti is one of the most famous variable stars in the sky. See Constellation.

CETUYAYO, CETEWAYO, or KETSHWYO (c. 1836-84). King of Zululand. He revolted against his father, King Panda, in 1856, and usurped the throne. The Natal government agreed to recognize him on condition that he disbanded his warriors and ruled his people more humanely. After the annexation of the Transvaal, 1877, it became necessary to enforce these conditions, and Cetuyayo was captured and taken to England, but was restored to his kingship in 1883. Shortly after his return to Zululand he sought an asylum from his former enemies on British territory, and died at Eshowe, Feb. 8, 1884.



Cetuyayo, last King of Zululand

CEUTA. Town and harbour on the coast of Morocco, opposite Gibraltar. It belongs to Spain, and occupies the site of the Roman settlement *Septem Fratres*, named from the seven hills, one of which, *Abyla*, formed one of the Pillars of Hercules. Gibraltar being the other. It is a free port, a wireless station, and is connected with the European telephone system. A rly. runs between Ceuta and Tefuan. Pop. 39,078.

CÉVENNES. Range of mts. in southern France, on the S. and E. edge of the central plateau. The Cévennes proper are the S. part of the range, in the depts. of Lozère and Gard, while the name sometimes embraces also the adjacent ranges, such as the mts. of Charolais and Beaujolais, and the *Boutières*, *Carrigues*, and *Vivaraïs* groups. The highest peak is the *Mont de Lozère* (5,650 ft.).

CEYLON. Island in the Indian Ocean, off the S. end of India. It is separated from India by Palk Strait, which is almost cut in two by a line of coral reefs and sandbanks known as Adam's Bridge. The island is 271 m

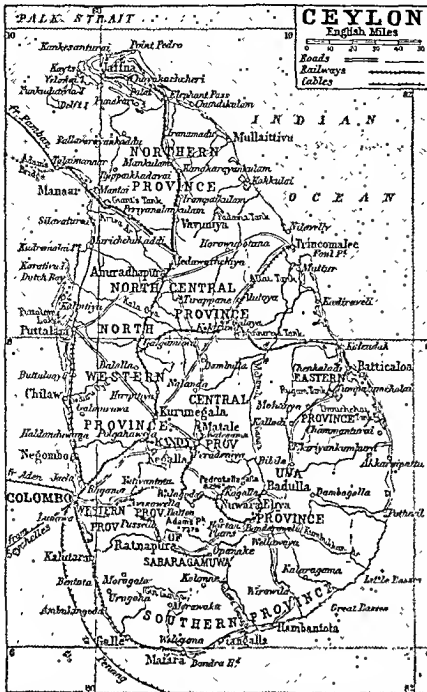


Ceylon. Left, Sinhalese girl. Right, a Kandyen chief, one of the race dominant in the interior

from N. to S., 139 m. from E. to W., and has an area of 25,332 sq. m. Pop. 5,228,792, the most important element being the Sinhalese. Other races include Tamils and Veddahs.

The ground slopes upwards from the coast to a central massif, the highest point being 8,296 feet above sea-level. Adam's Peak, containing an impression resembling a huge human foot, is 7,353 ft. high. The climate is

tropical, but varies with the altitude. The rainfall is heavy. Rice is the principal grain grown for home consumption. Tea is the staple



Ceylon. Map of the island, which is connected with the mainland of India by Adam's Bridge, a chain of sand islands, over thirty miles long, which offer a serious obstruction to navigation

product, others including rubber, coconut products, cinnamon, and cocoa. The forests yield ebony. Plumbago is mined, and cats' eyes, rubies, sapphires and other gem stones are found. There are valuable pearl fisheries. The chief towns are Colombo, the capital; Kandy, the old capital; Jaffna, and Trincomalee.

The Portuguese landed in Ceylon in 1505. Their settlements were seized by the Dutch about the middle of the 17th century, and in 1796 were annexed by the British to the Presidency of Madras. In 1802 the island was separated administratively from India and formed into a crown colony. It is administered by a governor, assisted by an executive council of nine members and a legislative council of 49.

In 1928 a commission went out to Ceylon to report upon a new constitution, and in 1929 its proposals were accepted. These include the election of members of the legislative council by universal suffrage and the control of the administration by committees of its members. In 1930 it was decided to build a university at Colombo, at a cost of £750,000.

CÉZANNE, PAUL (1839-1906). French painter. Born at Aix in Provence, Jan. 19, 1839, he formed original and pronounced views of art which provoked a long and bitter boycott by the Salon. His best works are his landscapes and his pictures of flowers and fruit, examples being in the Louvre. He died Oct. 23, 1906.

Chablis. Town of France, in the dept. of Yonne. On the Serein, 14 m. E. of Auxerre, it is known for its white wine. Pop. 1,846.

CHACO, EL. Territory of Argentina. It lies S. of the Bermejo river, and touches the Paraná on the E. In the S.E. corner is Resistencia, the capital. Much of the territory is unexplored. There are many lakes and swamps. The area is 52,741 sq. m.

The territory forms part of the region known as El Gran Chaco, which also embraces S.E. Bolivia and N.W. Paraguay. The N. Chaco, an area of about 100,000 sq. m. between the river Pilcomayo and the Paraguay,

has been long in dispute between Paraguay and Bolivia. Friction arose in Dec., 1928, and the matter was eventually referred to the Pan-American Conference. See Paraguay

CHAD, TCHAD, OR TSAD. Lake in the Central Sudan. It has an estimated area of over 10,000 sq. m. in the dry season, but double that figure in the wet season. Its shores are partly British and partly French.

CHAD or CEADDA (d. 672). English saint. Born probably in Northumbria, he was consecrated bishop of York in 664. About 668 S. Chad, who had been deprived of his bishopric, was invited to Mercia. He became bishop of the Mercians and made Lichfield his seat. His shrine was subsequently in Lichfield Cathedral, which was dedicated to his memory. His festival is kept on March 2.

Chadwell Heath. District of Essex. It is 10 m. N.E. of London, on the L.N.E.R.

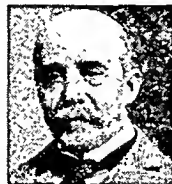
CHAFFINCH (Fringilla coelebs). Common British bird, of the finch tribe. It is found in most parts of Europe, and is migratory from the colder regions to N. Africa in winter, though the male birds usually remain behind. In length it is not more than 6 ins., and its note is clear and loud. The chaffinch feeds on insects, being useful in destroying the garden pest aphid.



Chaffinch. A common bird of the British hedgerows

CHAFING DISH (Fr. chauffer, to warm). Vessel for cooking food on the table. Its earlier form was a small oblong box on four feet with a grating in front, filled with live coal, the food being cooked in a metal dish over this. It is now more generally a metal dish with cover, on a stand, and heated by a spirit lamp or electricity.

CHAILLU, PAUL BELLONI DU (1835-1903). French explorer and author. Born at New Orleans, July 31, 1835, in 1855 he went on a four years' expedition to the interior of W. Africa, chiefly for botanical and zoological specimens. The record of his travels set forth in *Explorations and Adventures in Equatorial Africa*, 1861, provoked much discussion, the accounts of pygmies and gorillas being widely discredited. Other journeys followed, after which he explored in the Arctic regions. He died in St. Petersburg (Leningrad), April 29, 1903.



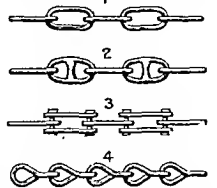
Paul du Chaillu, French explorer

CHAIN (Fr. chaîne, Lat. catena). Series of links or rings passing through one another. Chains are chiefly of two classes, the open, short, or close link chain, and the stud link chain. In the former the link is simply a ring, round or oval, flat or twisted; in the latter a distance piece or stud is introduced in the middle of the long way of the link, the object being to support the long sides of the link, and prevent them from collapsing under a load. Other kinds are the pin and bar link, the loop link, and the hook.

Derivatively, the word is applied to a measuring-line of 100 links, totalling 22 yds., used in land-surveying. A projectile invented about 1665, and used principally for naval ordnance to destroy the rigging of ships, was known as chain shot. Usually two round shot were linked together by a strong chain about 9 ins. long, though one shot cut through was sometimes used.

ORNAMENTAL CHAINS. Gold or silver chains are used for the attachment of a watch or pendant, or as a necklace. Such chains were

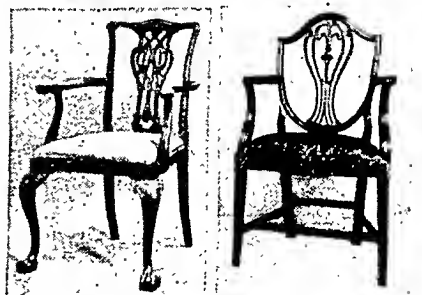
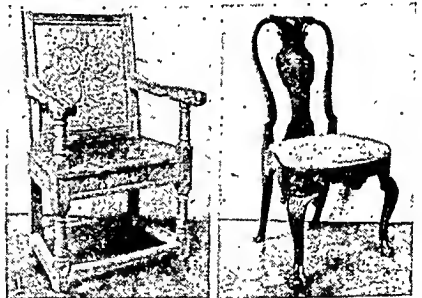
used by the Phoenicians as ornaments; and ear-rings, formed partly of fine gold chains, attributed to the 8th century B.C., were found in Rhodes. Gold chains made by Indians are as fine and flexible as a thread of silk. A gold chain was part of the insignia of a knight, and the use of the mayors' chains in England as a symbol of their office dates from the time of Richard II.



Chain. 1. Short or open link. 2. Stud link. 3. Pin and bar link. 4. Loop or hook link

CHAIR (Lat. cathedra). Seat for one person, usually movable. Chairs of a throne-like character were known to the Egyptians, Assyrians, and most ancient peoples, who also used folding chairs and stools. Chairs were rare in the Middle Ages, the common seats being stools and benches. Throne chairs were architectural in character. S. Peter's chair, in the Vatican, Rome, is of early Byzantine workmanship, while the British coronation chair in Westminster Abbey is of the Gothic architectural type.

Most modern chairs are made of wood, and in the majority the back and back legs are continuous, the seat being notched into them and screwed; but in others the back legs fit into the under surface of the seat and the back is separate and fitted above. The seat may be a solid piece of wood, but more frequently it is framed together with an open middle space, which is filled in by upholstering, or sometimes cane or plywood.



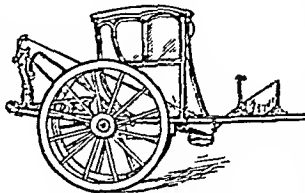
Chair. 1. English 17th century carved oak armchair. 2. Walnut chair, early 18th century. 3. Mahogany chair in Chippendale style. 4. Hepplewhite armchair in walnut, late 18th century

1. 2 and 4, Victoria and Albert Museum, S. Kensington; 3, courtesy of Waring & Gillow

CHAIRMAN. One who presides over a public meeting. To-day an elaborate code of rules, derived largely from the procedure of the House of Commons, regulates the duties and powers of a chairman. His chief duty is to maintain order and keep speakers to the

business in hand. He can decide who shall speak, he puts resolutions to the vote and announces their result, having usually a casting vote, and can declare the meeting at an end. According to English company law, every limited company must have a chairman for its board of directors. In the House of Commons the Chairman of Committee is an official second in importance to the Speaker.

CHAISE (Fr. chair). Light two or four-wheeled travelling vehicle drawn by one horse or more, but without a driver's seat. An outcome of the Sedan chair, it had no shafts, and was driven by postillions. It was the chief vehicle for posting, but later degenerated into a low, four-wheeled carriage.



Chaise. Light travelling vehicle of the eighteenth century

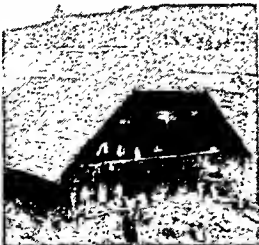
CHALCEDON OR **CALCHEDON**. Town of ancient Bithynia (Asia Minor), on the E. shore of the Sea of Marmora. Founded by Greek colonists from Megara, 684 B.C., it became a Roman free city under the empire. It was captured by the Persians under Chosroes, A.D., 616. The fourth oecumenical Church Council dealing with Monophysite and Nestorian heresies, was held there in 451. Excavations, at Kadiköi, the modern town on the site, have revealed interesting remains, including some that were perhaps part of the church of S. Euphemia, in which the council was held. Chalcedon is the seat of a Roman Catholic archbishop. Pron. Kal-sē-don.

CHALCEDONY. Variety of quartz composed of an amorphous and a crystalline form of silica. Included in the species are a number of semi-precious stones used in jewelry and for ornament—agates (cornelian, jasper, onyx, sard), bloodstones, cats' eyes, tigers' eyes, etc. It is so named from Chalcedon, where it was found in great quantities.

CHALDEA. Biblical name for a region in the Euphrates-Tigris plain. It is the Greek form of the cuneiform *Kaldu* denoting a people who for several centuries after 1000 B.C. occupied the marshy sea-land S.E. of Babylon to the head of the Persian Gulf. The capital was Bit Yakin, and one of the kings, Merodach-baladan II, captured Babylon about 721, holding it for twelve years until driven out by Sargon II. A still earlier *Kaldu* settlement in this region is indicated in the phrase *Ur of the Chaldees* (Gen. 11). Under the new Babylonian or Chaldean empire, founded by Nabopolassar about 625, the name *Chaldea* was applied to the whole alluvial plain of N. and S. Babylonia, together with some bordering uplands. See *Babylonia*; *Ur*.

The Chaldeans acquired the direction of the astro-theological learning, becoming finally the Babylonian priestly caste (Dan. 1). The name was also used by Daniel to mean astrologer.

CHÂLET (Fr., late Lat. castellum, little castle). Species of wooden dwelling house specially identified with the Swiss mountains. The exterior indicates the interior by showing the division into storeys, and the eaves of the roof, some-



Châlet. Example of this type of peasant house
Courtesy of Swiss Federal Rly.

times extending as much as 10 ft beyond the walls. are supported by brackets of proportional size

CHALFONT ST. GILES. Village of Buckinghamshire, 3 m. S.E. of Amersham. William Penn is buried in the Quakers' burial-ground attached to Jordans Meeting House, 2 m. to the S.W. Milton (q.v.) retired here during the Great Plague, 1665, to a cottage hired for him by his friend, Thomas Elwood, the Quaker, and in it he is said to have finished *Paradise Lost*. His cottage is national property. Adjoining is the parish and village of Chalfont St. Peter. Its church contains some fine brasses.



Chalfont St. Giles. Cottage in which John Milton lived in 1665

CHALGROVE. Village of Oxfordshire, 6 m. N.E. of Wallingford. It is memorable for an engagement between Prince Rupert and the parliamentarians on June 18, 1643, in which John Hampden was mortally wounded.

CHALIAPINE, THEODORE IVANOVITCH (b. 1873). Russian bass singer. Born at Kazan of peasant stock, in 1890 he became a member of an opera company, working at the same time as a railway porter. After singing in Tiflis in 1892, he appeared in St. Petersburg, 1894, and at the private opera house, Moscow, 1896. In 1913 he appeared in London as a member of the Beecham Opera Company at Drury Lane, and in 1914, under the same auspices, he confirmed his reputation with superb performances in *Boris Godunov*, *Ivan the Terrible*, and *Prince Igor*. In 1927 he published *Pages from My Life*.



Theodore Chaliapine, Russian singer

CHALICE (Gr. *kylix*, cup). Sacred vessel used in the Christian Church at Holy Communion. It is referred to in the N.T. Early chalices were of glass, ivory, horn, wood, and base metals, but as the goldsmiths' and silversmiths' art developed, and church funds increased, chalices of gold and silver, often ornamented with jewels, became the rule, except in the poorer churches. See *Communion*; also *illus.* p. 119.

CHALK (Lat. *ealx*, limestone). White, calcareous, fine-grained rock, consisting almost entirely of the shells of minute marine organisms. Originally deposited on a sea-floor under water, chalk is remarkably free from solid matter derived from the land. As a geological formation it succeeds the Upper Greensand, and is followed by the Tertiary deposits. It is divided into three main divisions, lower, middle, and upper. Chalk marl is a marly deposit forming the lowest portion of the lower chalk. Chalk rock is a thin bed of hard yellowish chalk occurring at the base of the upper chalk of the central region of England.

Chalk is mixed with Medway mud or other clays in the production of Portland cement. It furnishes quicklime, mortar, and plaster, and is used as a dressing on clayey soils. Whiting, Paris white, or Spanish white—the fine sediment deposited when ground chalk is mixed with water—is the basis of putty and of many paints.

CHALK FARM. District of London, to the N.W. of Primrose Hill. A large portion of it is occupied by rly. goods yards. The name is

a corruption of Chalcot Farm, the site of Upper Chalcot manor house being in England's Lane, Haverstock Hill.

CHALLENGER EXPEDITION. Scientific expedition sent out under the auspices of the British Government to investigate the physical and biological conditions of the Atlantic, Pacific, and Antarctic oceans. The voyage was made 1872-76 in H.M.S. *Challenger*, under the command of Captain Nares, with Wyville Thomson as head of its scientific staff, charged with the study of the conditions of life in the deep seas. The official report was not completed until 1895.

CHALMERS, JAMES (1841-1901). Scottish missionary and traveller. Born at Ardristra, Argyllshire, he worked in 1861 in the Glasgow city mission. Ordained as a Congregationalist minister in 1865, in 1866 he was sent by the London Missionary Society to the island of Raratonga in the Hervey's. Ten years later he removed to New Guinea, over which he helped to establish the British protectorate, and won the respect of the native chiefs. On April 7, 1901, he and a small band of followers were murdered by cannibals.

CHALMERS, THOMAS (1780-1847). Scottish divine and writer. Born at Anstruther, Fife, March 17, 1780, he was ordained and became minister of a church in Glasgow. In 1823 he was appointed to the chair of Moral Philosophy at St. Andrews, and five years later became professor of theology at Edinburgh. In 1843 he led the movement that resulted in the formation of the Free Church of Scotland, and became the first principal of the Free Church College in Edinburgh. By his scheme of one penny a week from every member the financial basis of the Free Church was laid securely. He died May 30, 1847.



Thomas Chalmers, Scottish divine

CHÂLONS - SUR - MARNE. City of France, capital of the dept. of Marne. It is built on both sides of the Marne, 107 m. by rly. N.E. of Paris. The cathedral dates from the 13th century. Secular buildings include the hôtel de ville, with library and museum, and the prefecture. Châlons, in ancient times the chief town of the Catalauni, became the seat of a bishop and one of the chief places in Champagne. The camp of Châlons, established north of the town by Napoleon III, is still used for military purposes. Châlons has large barracks. Pop. 31,194.

The battle of Châlons is the name given to the defeat of Attila by the Roman general Aëtius and Theodoric, king of the Visigoths, A.D. 451. The Catalaunian Fields, the scene of the battle, are not now located at Châlons but near Troyes.

CHALON-SUR-SAÔNE. Town of France, in the dept. of Saône-et-Loire. It is on the right bank of the Saône, 80 m. by rly. N. of Lyons. In Roman times a great road centre. from the 3rd century to the Revolution it was the see of a bishop. The cathedral is now the church of S. Vincent. The old church of S. Pierre, and the episcopal palace, with remains of the old town walls, still stand. Chalon is a river port and the terminus of the Canal du Centre. It ships wine, corn, timber, etc. Pop. 31,609.

CHALYBEATE WATERS (Gr. *chalyps*, steel). Mineral waters which contain iron salts. The iron exists chiefly as the carbonate or sulphate, very occasionally as the chloride. The amount of iron is usually small, but it is claimed that, taken as naturally occurring in mineral water, iron is more easily absorbed by

the system. The chief British natural mineral waters containing iron are those of Flitwick, Harrogate, and Leamington.

CHAM (1819-79). Pseudonym of Amédée de Noé, French caricaturist. Born in Paris, Jan. 26, 1819, he developed an aptitude for caricature. His designs are said to have numbered 40,000. He died Sept. 6, 1879. Pron. Kam.

CHAMBER (Lat. camera, a room). Word originally used for any room, it came to refer principally to one in which meetings of importance were held.

The Chamber of Deputies is the lower chamber of the parliament or national assembly of the French republic. It is elected by manhood suffrage for a period of four years. In 1930 it was composed of 597 Deputies.

In most towns there is a chamber of commerce, which exists to further the interests of traders. There is in London a general association of these chambers.

CHAMBERLAIN (Lat. camera, chamber). Attendant in a chamber or household. The title was early applied in Europe to an officer in charge of the royal household. The lord chamberlain (q.v.) is a member of the government. The lord great chamberlain (q.v.) is an hereditary office, concerned with ceremonial. In London the city chamberlain is treasurer of the corporation; he is elected annually by the liverymen, admits to the freedom of the city, and has judicial functions.

CHAMBERLAIN, ARTHUR NEVILLE (b. 1869). British politician. The younger son of Joseph Chamberlain, he was born March 18, 1869. In Dec., 1916, he became director-general of national service. He entered Parliament in 1918 for a Birmingham division, and became postmaster-general in 1922. He was minister of health and then chancellor of the exchequer in 1923-24, and again minister of health in the Unionist Government of 1924-29, when he was responsible for the important reform of derating.

CHAMBERLAIN, JOSEPH (1836-1914). British statesman. Born in Camberwell, July 8, 1836, in 1873 he was elected mayor of Birmingham, and carried through a series of reforms and improvements.

When Chamberlain entered the House of Commons in 1876 as John Bright's colleague in the representation of Birmingham, he was already known as an extreme radical. In 1880 he became president of the board of trade, and in the campaign for an extended franchise in 1884 he was Gladstone's most active lieutenant. In 1885 Chamberlain was returned as a Liberal for West Birmingham and held the seat till his death.

When Home Rule was introduced Chamberlain broke away from Gladstone, and his speeches helped materially to defeat the measure. He became a leader of the Liberal Unionists, but it was not until 1895 that he definitely threw in his lot with the main Unionist party and joined Lord Salisbury's government as secretary for the colonies. In Jan., 1896, he was called upon to deal with the

difficulties caused by Dr. Jameson's raid. Prolonged friction with President Kruger and the Boer oligarchy followed, culminating in the South African War of 1899. In Nov., 1902, he went to South Africa, and on his return advocated an imperial preferential tariff. This led to a fierce controversy between the tariff reformers and the free traders and to serious dissensions in the Unionist party. In Sept., 1903, Chamberlain resigned office in order to be free to advocate his cause, and this he did until his health broke down in 1906. He died July 2, 1914. He is commemorated in several ways in Birmingham, especially, perhaps, in the university, which he helped to found, and of which he was the first chancellor.

CHAMBERLAIN, SIR JOSEPH AUSTEN (b. 1863). British politician. Elder son of Joseph Chamberlain, he was born Oct. 16, 1863, and educated at Rugby and Trinity College, Cambridge. Elected Liberal Unionist M.P. for E. Worcestershire in 1892, he took office in 1895 as civil lord of the Admiralty. In 1900 he was made financial secretary to the treasury, in 1902 postmaster-general, and in 1903 chancellor of the exchequer.



Sir A. Chamberlain,
British politician

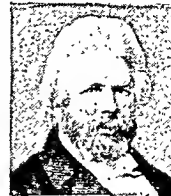
He left office with the Unionists in 1905, not returning thereto until 1915, when he became secretary for India in the Coalition ministry. In 1917 he resigned in consequence of the censure passed on the conduct of the Mesopotamian expedition, but in 1918 he was again a member of the Cabinet. He succeeded Bonar Law as chancellor of the exchequer in 1919 and as leader of the Unionist party in 1921, but he resigned with Lloyd George in Oct., 1922, and was not included in the Unionist ministry of 1923-24. From 1924-29, however, he was foreign secretary in the Baldwin ministry, and as such directed Britain's policy through five most eventful years. He was M.P. for E. Worcestershire until 1914, when he succeeded his father as M.P. for West Birmingham. In 1925 Chamberlain received the K.G.

CHAMBERS, CHARLES HADDON (1860-1921). British playwright. Born at Sydney, at the age of 22 he settled in England, took up journalism and playwriting, and made his mark as a dramatist with Captain Swift, produced at the Haymarket, June 20, 1888. It was followed by The Idler, John-a-Dreams, The Tyranny of Tears, and other plays. He died Mar. 20, 1921.

CHAMBERS, EPHRAIM (c. 1680-1740). English encyclopedist. Born at Kendal, Westmorland, in 1728 he brought out his Cyclopaedia: or, an Universal Dictionary of Arts and Sciences. The fifth edition of this, 1746, formed the basis of Abraham Rees's Cyclopaedia, 1819, and inspired the great French Encyclopédie of Diderot and d'Alembert, which appeared 1751-65. Chambers died May 17, 1740.

CHAMBERS, WILLIAM (1800-83). Scottish publisher. Born at Peebles, April 16, 1800, he started in business as a bookseller in 1818. After his brother Robert joined him, in 1832, they collaborated in writing The Gazetteer of

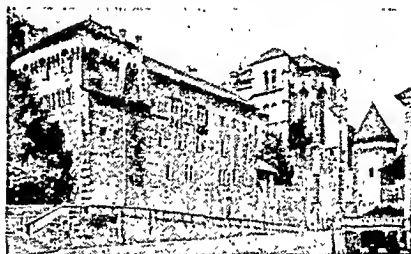
Scotland and in founding Chambers's Edinburgh Journal, which in 1854 became Chambers's Journal; other publications were Chambers's Information for the People, 1833; and Chambers's Encyclopaedia, 1859-68. William, who died May 29, 1883, was twice lord provost of Edinburgh.



Robert Chambers,
Scottish publisher

His brother Robert (1802-71) was the author of more than twenty historical works, including histories of Rebellions in Scotland and a Life of James I. Among his later works was the Book of Days. He died at St. Andrews, March 17, 1871.

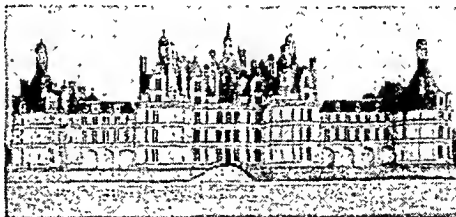
CHAMBERY. Town of France, capital of the dept. of Savoie. It stands on the rivers Lysse and Albane, 80 m. by rly. S.W. of Geneva. The chief buildings are the cathedral of the 14th and 15th centuries and the château, which incorporates some parts of the castle,



Chambéry, France. The château which was formerly the residence of the dukes of Savoy

once the residence of the dukes of Savoy. Others are the palais de justice and the hôtel de ville. Chambéry is the seat of an archbishop. Once the capital of the duchy of Savoy, it was definitely secured by France in 1860. Near are Léman, with its church, Les Charmettes, once the residence of Rousseau; and Challes les Eaux, known for its medicinal waters. Pop. 20,617.

CHAMBORD. Town of France, in the dept. of Loir-et-Cher. On the Cosson, a tributary of the Loire, 10 m. E. of Blois, it is famous for its 16th century château, said



Chambord, France. Northern façade of the magnificent Renaissance château, once the home of the French kings

to be one of the finest Renaissance houses in existence. The estate, after belonging to the counts of Blois, passed to the kings of France. Francis I began to build the present château, where Louis XIV and other kings lived at times. Chambord was given by Napoleon to Marshal Berthier, from whose widow it was purchased for the grandson of Charles X, who left it to the Parma family.

CHAMBORD, HENRI, COMTE DE (1820-83). French prince. Born posthumously in Paris, Sept. 29, 1820, he was a son of the duke of Berry and a grandson of Charles X, who, on his abdication in 1830, tried to secure the succession of his grandson, called Henry V. It was useless and the two left the country, Henry becoming head of the Bourbon family on the ex-king's death in 1836. Known now as the comte de Chambord, Henry lived mainly at Frohsdorf, near Vienna, quietly maintaining the rôle of the rightful king of France. He died Aug. 24, 1883, leaving Don Carlos, duke of Madrid, as head of the House of Bourbon, and therefore in virtue of the Salic law rightful king of France. See Bourbon



William Chambers,
Scottish publisher



Joseph Chamberlain,
British statesman



Neville Chamberlain,
British politician

CHAMELEON (Gr. chamai, on the ground : leôn, lion). Genus of lizards found chiefly in Africa and Madagascar, and distinguished by the possession of a long tongue which is used for capturing insects. The eyes are large and covered with a lid having a minute hole in the centre, the two eyes working independently. The toes are divided into two opposable groups, so that they can grasp forcibly the stems of plants. The tail also is prehensile. The chameleon is able to alter its colour—usually green or brown—so that the hue approximates to that of the animal's surroundings.

The name chameleon is given to a constellation of the southern hemisphere. It was so named by Bayer. See Constellation.

CHAMOIS (*Rupicapra tragus*). Ruminant animal found in the mountain regions of S. Europe and W. Asia. Placed between the goat and the antelope, it is more akin to the latter. It can leap wide ravines and scramble up and down precipices. The chamois stands about 2 ft. high: has fur of a warm brown on the back and lighter below: and a pair of short hooked horns. The skin is valuable as leather.



Chamois. An agile mountain ruminant.
W. S. Berridge, F.Z.S.

for about 12 m.

The village of Chamonix, 3,416 ft. high, is a noted tourist resort, the chief starting point for the ascent of Mont Blanc. A Benedictine priory was founded here in 1091 from which Chamonix derives its variant name of Le Prieuré. Pop., commune, 3,094.

CHAMPAGNE (Lat. campus, plain). Formerly a province of France. It covered the east central part, through which the Marne and Seine flow before they unite near Paris. Within it are the towns of Troyes, Reims, Châlons, Brienne, and Soissons. Since the Revolution it has been divided up between the departments of Marne, Aube, etc.

Champagne was famous in the Middle Ages for its fairs, and has always been noted for its wines, more especially a white, sparkling wine produced in the Marne dept. The best is made from small black grapes, grown either on the slopes of chalk hills or the alluvial plain of the river Marne.

During the Great War heavy fighting took place between the French and Germans in the Champagne district. The great offensive launched by the French on Sept. 25, 1915, was the equivalent to the British battle of Loos, both operations being intended to relieve the hard-pressed Russian armies. The losses of both armies were heavy, and the result achieved was negligible.

CHAMPAIGNE OR **CHAMPAGNE**, PHILIPPE DE (1602-74). French painter. Born in Brussels, May 26, 1602, he studied in Paris from 1621, and succeeded Duchesne as court painter, 1627. His trinity of portraits of

Cardinal Richelieu in one picture (a full face and profiles to right and left) is in the National Gallery, London, and his portrait of Fénelon is in the Wallace Collection. He is well represented in the Louvre. He died in Paris, Aug. 12, 1674.



Chameleon. A lizard whose colour changes to tone with its surroundings.

CHAMP DE MARS (Lat. campus Martius, field of Mars or of March). Originally a place of assembly for political and military purposes. The Franks held annual meetings in March, the month named after Mars, to which they came armed. These assemblies continued as long as the Frankish Empire held together, the date being afterwards changed to May. and the meeting-place called Champ de Mai.

Champ de Mars is the name of a square in Paris, long used for military displays, between the Seine and the École Militaire. Here the exhibitions of 1867, 1878, and 1889 were held.

CHAMPFLEURY (1821-89). Pen-name of Jules Fleury-Husson, French novelist. Born at Laon, Sept. 10, 1821, his first literary success was *Chien-Caillois*, 1847. He lived with Murger, whom he induced to forsake verse for prose. In addition to a large number of novels and short stories, he wrote much on art. His *Histoire des faïences patriotiques sous la révolution*, 1866, procured him a post at the museum at Sèvres. He died Dec. 5, 1889.

CHAMPION. Term applied generally to one who fights for or strenuously supports a person or cause; also to one who has proved himself pre-eminent in some branch of sport. The Seven Champions of Christendom were the seven national saints.

The king's champion, champion of the realm, or champion of England, challenged to single combat any person who should gainsay the sovereign's title to the crown at his coronation. The Dymoke family now hold the hereditary office of king's champion.

CHAMPLAIN. Lake of U.S.A., a natural and historic highway between the States and Canada. Named after its discoverer, Samuel de Champlain, it lies between the states of Vermont and New York, the former containing about two-thirds of its area of 750 sq. m. Drained N. by the Richelieu river into the St. Lawrence, it penetrates for a few miles into Canada, is 120 m. long, and from 1 m. to 15 m. broad, 95 ft. above sea level, and reaches a greatest depth of 300 ft.

CHAMPLAIN, SAMUEL DE (1567-1635). French explorer of Canada. In 1603 he sailed up the St. Lawrence beyond Montreal, and in 1608 was again in Canada. He founded a settlement at Quebec, discovered Lake Champlain, and remained in the country as governor for the French king. Taken prisoner by the English, 1629, he was restored to his former post, 1633. He died at Quebec, Dec. 25, 1635.



S. de Champlain, French explorer

CHAMPNEYS, BASIL (h. 1842). British architect. Born at Lichfield, son of Dean W. W. Champneys, he began to practise in 1867. Among his more important buildings are Newnham College, Cambridge, Somerville and Mansfield Colleges, Oxford, quincenary buildings at Winchester College, the Butler Museum at Harrow, and the new buildings of Bedford College, Regent's Park.

CHAMPOLLION, JEAN FRANÇOIS (1790-1832). French Egyptologist. Born at Figeac, Lot, Dec. 23, 1790, he studied under his brother Jean Jacques Champollion-Figeac. In his

Précis du système hiéroglyphique, 1824, he perceived hieroglyphs to be partly alphabetic, and subsequently deduced an alphabet of 25 letters, entitling him to rank as the founder of Egyptology, a professorship of which was created for him in Paris. He died March 4, 1832. His elder brother, Jean Jacques Champollion-Figeac (1778-1867), a distinguished archaeologist, was professor of Greek at Grenoble, and librarian at Fontainebleau.

CHANAK. Chief town of the sanjak of Bigha, Asia Minor. Known also as Kale Sultanieh and Dardanelles, it stands on the Dardanelles, at its narrowest part, opposite Kilid-Bahr. During the Great War it was unsuccessfully attacked by the Allied Fleet, March, 1915. Pop. 8,000. See Dardanelles.

CHANCELLOR (Lat. cancellarius). Name given to a high official who, in western Europe, assisted emperors and kings in affairs of state. In England the chancellor soon became important. His duties included the keeping of the great seal which he affixed to the royal documents. Through him passed the petitions to the king, and when these increased in number and variety he was given wide powers of dealing with them, thus originating the court named after him, the chancery court. He was soon known as the lord high chancellor. When a further division of labour became necessary the chancellor was relieved of many administrative duties and was confined more to his legal functions. He remained the president of the House of Lords.

Meanwhile other chancellors had come into existence. There was a chancellor of the exchequer, a chancellor of the duchy of Lancaster, and others. Bishops had and have their chancellors, who discharge the legal duties of the various dioceses. The orders of knighthood have each their chancellor. The official head of each university in the United Kingdom is known as the chancellor.

The chancellor of the exchequer is an English office which originated in the reign of Henry III. Its present importance dates from the early 19th century. The chancellor is now a leading member of the Cabinet. He presents the annual Budget to the House of Commons, and is responsible for the collection and expenditure of the revenue. See Exchequer.

CHANCELLOR, CHANCELOR OR CHANCELOUR, RICHARD (d. 1556). English navigator. In 1553 he accompanied Sir Hugh Willoughby's expedition to discover a north-east passage to India. Leaving his vessel at the mouth of the Drina, he travelled down to Moscow, where he was received by the Russian tsar, who promised complete freedom of trade to British ships. During his return from a second voyage to Moscow, in 1555, his vessel was wrecked off the Aberdeenshire coast, Nov. 10, 1556, and he and most of his companions were lost. From his voyages dated the lucrative trade between Russia and Britain.

CHANCELLORSVILLE. Farmhouse on the old plank road leading from Fredericksburg to Orange Court House, in Virginia, U.S.A., 70 m. N.W. of Richmond. It has given its name to one of the battles in the American Civil War, fought in the Wilderness region, May 1-4, 1863. Here the Federal armies under Hooker were defeated by the Confederates under Lee and Jackson.

CHANCERY. Literally, the place in which a chancellor transacts his business, i.e. his office. It is now used chiefly for a court of law—and the whole system which has developed around it: but in diplomacy it is used for something like a foreign office.

The court of chancery administers not common law, but equity, and is so called because this branch of justice was early put into the hands of the chancellor. In England the court of chancery grew around the person of

the chancery and it became, after the privy council and the House of Lords, the chief court of the land. Its rules were very complicated and its procedure usually dilatory. In 1873, when the judicial system was reformed, the court of chancery was made one of the three divisions of the High Court. It is manned by six judges, and there are masters attached to them. The head is the lord chancellor, but the acting president is the master of the rolls. There is an appeal to the court of appeal. See Appeal; Lord Chancellor.

Chancery Lane, which has a long association with the law, is a narrow street running from Holborn to Fleet Street.

CHANCRE (Fr.). Medical term for two forms of ulcerous sore. A hard chancre is a sore with a firm base due to infection by the organism of syphilis, and usually appearing three or four weeks after exposure to contagion. A soft chancre is due to infection by a different organism, and appears usually within a few days after infection. Treatment consists in keeping the sore clean by bathing it with mild antiseptics such as boracic acid. See Syphilis.

CHANCTONBURY RING.

Prehistoric earthwork on the Sussex downs, 2½ m. N.W. of Steyning. The tree-topped hill, 814 ft. high, was defended by an oval rampart 500 ft. by 400 ft., with outworks 380 yds. distant in two directions. Excavations in 1909 revealed Roman coins and other remains.

CHANDOS. Name of an English family which in the 13th century, claimed descent from a companion of William the Conqueror from Chandos, in Normandy.

The 9th baron Chandos, James Brydges (1673-1744), was created duke of Chandos in 1719. Known as the princely Chandos, he built the mansion at Canons (q.v.). In 1789 the dukedom and barony lapsed with the 3rd duke.

CHANDRAGUPTA (d. c. 295 B.C.). Indian ruler and founder of the Maurya dynasty. He was related to the king of Magadha, by whom he was exiled. During his exile he made the acquaintance of Alex-

CHANGE OF LIFE, CLIMACTERIC, OR MENOPAUSE. Change occurring in women, usually between the ages of 45 and 50, when the reproductive organs become functionless and the capacity to bear children ceases. Physiologically, the change is indicated by shrinking of the uterus and ovaries and cessation of menstruation. Some women pass through the period without disturbance, but others suffer from headaches, nervousness, and depression of spirits. Care should be taken to protect the general health and avoid excessive fatigue, worry, and exposure to cold.

CHANG TSO-LIN (1875-1928). Chinese soldier. By birth a Manchurian, after the revolution of 1911-12 he became governor of Fengtien, and in 1919 he obtained control of two other provinces in Manchuria. In 1925 he marched on Peking, which he occupied, and from then until 1928 he was dictator of Northern China. He did much to check

by the Acts of the British Parliament unless this is specially stated therein.

In 932 the group was acquired by the duke of Normandy, and subsequently came under the rule of the English kings. See Alderney; Guernsey; Jersey etc.

CHANNEL TUNNEL. Term applied in Great Britain to an undersea tunnel between England and France. The first proposal for such a tunnel was made at the beginning of the 19th century. In 1876, after negotiations between the two Governments, a protocol was signed; a company was formed in France and another in England, and an Act passed in each country authorising preliminary operations.

On each side an experimental tunnel was bored for a distance of over 2,000 yds., that on the English side from a shaft sunk near the Shakespeare Cliff, Dover; that on the French side from Sangatte, near Calais; but in 1882 work was stopped by order of the Board of



Channel Tunnel. Sectional diagram showing a plan for the construction of a tube railway beneath the English Channel. P.P., pumping stations. Based upon details supplied by Sir Arthur Fell.

Bolshevist advances in China, but the nationalist movement from Nanking resulted in the Southerners obtaining control of Peking in May, 1928. Chang withdrew to Manchuria, and on June 4 he was wounded by a bomb. His death was announced on June 21, 1928.

CHANNEL. Sheet of water between two larger areas. An example is the English Channel, called by the French simply the channel (La Manche). The Straits of Dover, its narrowest point, have been swum several times. See Dover.

CHANNEL ISLANDS. Group of islands in the English Channel, consisting of Jersey, Guernsey, Alderney, and Sark, and a number of smaller islands and rocks—Herm, the Casquets (q.v.) or Casquets, Ortac, Breechou, Burhou, Jéthou, Minquiers, Chauseys, etc. With the exception of the Chauseys, which are French, the islands belong to Great Britain, but geographically they are attached to France, lying from 4 m. to 40 m. W. of the Cotentin peninsula. The passages between the islands have been the scene of numerous wrecks, as have the jagged Casquet rocks. They are reached by boat from Southampton and Weymouth. The total area is 75 sq. m. Pop. 90,230.

Trade. In 1914 the proposal was under the consideration of the Committee of Imperial Defence, but owing to the outbreak of the Great War it was again shelved. In May, 1929, a special committee opened an inquiry into the economic aspects of the proposed tunnel. Its report, issued March, 1930, favoured the construction of a tunnel.

CHANNING, WILLIAM ELLERY (1780-1842). American divine and author. Born at Newport, Rhode Island, April 7, 1780, he was ordained in 1803 to the Congregationalist ministry at Boston. From Calvinism he passed to Unitarianism, but remained minister of the same church all his life. Famous as a preacher and as a social reformer, he advocated temperance and opposed slavery. Channing died Oct. 2, 1842.

CHANT, LAURA ORNISTON (1848-1923). British social reformer. Born at Cheston, her maiden name was Dibbin. She studied at Apothecaries' Hall, was a nurse at the London Hospital, and in 1876 married Thomas Chant, M.R.C.S. As an ardent advocate of temperance, women's suffrage, and social purity, she became a well-known speaker in Great Britain and the U.S.A. She died Feb. 16, 1923.

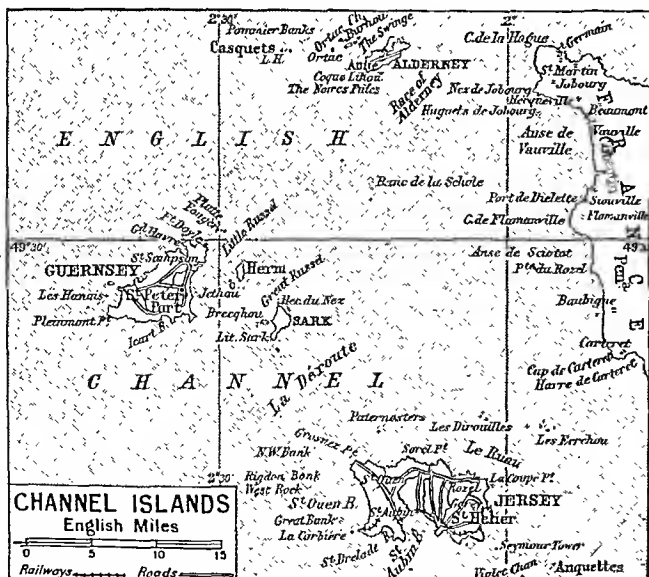


Chantarelle, an edible fungus

CHANTARELLE (Cantharellus cibarius). Edible fungus of the family Agaricaceae. It is a woodland species, of uniform rich egg-yellow colour, from 3 ins. to 4 ins. across the top, which is cup-shaped. The exterior is ribbed. It grows either in groups or rings.

CHANTILLY. Town of France, in the dept. of Oise. It is on the Nonette, 25 m. by rly. N.E. of Paris. Chiefly famous as a pleasure resort, it has a racecourse and large racing establishments. There was a castle here in the 10th century or earlier. The Grand Condé rebuilt the house, making it one of the most magnificent in France. This Grand Château was pulled down at the Revolution.

The present Grand Château was built in 1876-82 by Henri, duke of Aumale, fourth son of Louis Philippe, who inherited the Condé estates. Adjoining is the châtelet or

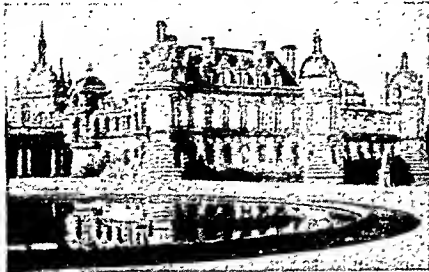


Channel Islands. Maps of the group of islands in the English Channel, and the four chief islands, Jersey, Guernsey, Alderney, and Sark

under the Great, organized an army, and conquered the Punjab. He then captured Magadha, 321 B.C. and established his dynasty. His name in Greek is Sandracottus.

Alderney, and Sark are under a single lieutenant-governor. Guernsey and Alderney have a government of their own, and Sark is a dependency of Guernsey. The islands are not bound

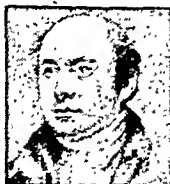
petit château, a Renaissance building erected in the 16th century, which served as a model for the new Grand Château. The château



Chantilly, near Paris. The Grand Château built by Henri, duc d'Aumale, and bequeathed to the nation

d'Enghien was built in the 18th century as a guest house. The duc d'Aumale left his pictures, statuary, furniture, and other art treasures to the nation. This Musée Condé, as it is called, and the park containing the châteaux, are now open to the public. Near the town is the forest of Chantilly, much used for exercising race-horses. Pop. 5,539.

CHANTREY, SIR FRANCIS LEGATT (1781-1841). British sculptor. Born at Jordanthorpe, Derbyshire, April 7, 1781, he became a portrait painter in London, but before long he abandoned painting and confined himself to sculpture. The bust of Sir Walter Scott, executed in 1820 and now at Abbotsford, is a good specimen of his work. Elected R.A. in 1818 and knighted in 1835, he died in London, Nov. 25, 1841, having amassed a large fortune, the bulk of which constituted the Chantrey Bequest.



Sir Francis Chantrey, R.A., British sculptor

This was a fund to be devoted to "the encouragement of British fine art in painting and sculpture only." It became operative in 1875, when the capital yielded an annual income of £2,100. The president and council of the Royal Academy, who were vested with full powers of purchase and administration, began to buy pictures and sculptures in 1877. These pieces have been exhibited in the National Gallery of British Art (the Tate Gallery) since 1897.

CHANTRY (old Fr. chanterie, singing, place of singing). That part of a church where masses are chanted for the benefit of founders or patrons. It is usually a space screened off from the body of the church, and in the Middle Ages generally contained the tomb of the founder. The finest chantry in London is the Islip Chapel, Westminster Abbey, the screen being a splendid example of 14th century Gothic.

CHANTY OR **CHANTEY**. Song formerly sung by sailors of the navy and the mercantile marine when engaged together in heavy work such as weighing the anchor. Different varieties of chanty are the capstan, the halliard, and the sheet, tack, and bowline chanty. The chanty-man sings the solo lines, others join in the chorus. Pron. Shan't-y.

CHAPBOOK (A.S. ceap, trade, barter). Small book or pamphlet of a popular character circulated by chapmen or pedlars. Common in the 17th and 18th centuries in England, Scotland, and Ireland, they contained tales such as Valentine and Orson, lives such as that of Dick Whittington, histories, ballads, etc., and usually had crude illustrations on the front page. They are now seldom seen. A monthly periodical devoted to contemporary poetry was started in London in 1919 entitled *The Monthly Chapbook*.

CHAPEL (late Lat. capella). A building or part of a building set apart for Christian worship. The chapels in cathedrals and churches are generally additions screened off from the body of the structure. In Great Britain the term is commonly applied to a building for Nonconformist worship. Ecclesiastical law classifies chapels as Royal, Collegiate, Free, of Ease, and Private. Chapels Royal are those of the Savoy and St. James's, London, and St. George's at Windsor. Collegiate chapels are attached to colleges, either religious or secular. Free chapels generally belonged to the monastic orders, while a chapel of ease is an offshoot of a parish church to accommodate remote parishioners. Private chapels are those attached to a royal or episcopal palace or a mansion.

The term chapel is used for a companionship of workmen, especially compositors, in a printing office. The meetings, also called chapels, are held to settle disputes, decide on common action, consider grants from the common fund, and to admit members.

CHAPEL-EN-LE-FRITH. Market town of Derbyshire. It is 20 m. by the L.M.S. Rly. S.E. of Manchester. It has iron works, and there are coal and lead mines and lime works in the neighbourhood. Market days, 1st and 3rd Thursdays. Pop., parish, 5,283.

CHAPELTOWN. Market town of Yorkshire (W.R.). It is 8 m. N. of Sheffield, on the L.M.S. and L.N.E. Rlys. The industries include coal and iron mining and the manufacture of bricks. Market day, Fri. Pop. 9,077.

CHAPLAIN (Lat. capellanus). Name first applied to the priest who accompanied the French armies in the field. It is now used of a priest in charge of a private chapel, or a minister who officiates in college and school chapels, public institutions, and religious communities, or is attached to military and naval establishments.

Chaplains of the British army are under the War Office, are drawn from all denominations, and are given honorary military rank. During the Great War the chaplain's department expanded from a personnel of 54, who accompanied the B.E.F. to France in 1914, to a total of 3,480. In 1919 the prefix royal was given to the Army Chaplains' Department. In the navy a chaplain has no special rank, the chief chaplain being called the Chaplain of the Fleet. There is also a Chaplain-in-Chief of the Royal Air Force.

Examining chaplains are clergymen appointed by the bishops to examine candidates for holy orders. The English College of Chaplains consists of the 36 chaplains and honorary chaplains of the royal household, with the Clerk of the Closet at their head, and is composed exclusively of Church of England clergymen. In Scotland the royal chaplains are recruited from the Church of Scotland alone. Chaplains to the House of Commons must belong to the established church.

The chaplain-general is head of the Church of England commissioned chaplains in the British Army. His office is at 15, Albemarle Street, London, W.

CHAPLIN, CHARLES SPENCER (b. 1889.) Anglo-American cinema actor, commonly known as Charlie Chaplin. Born April 16, 1889, at Camberwell, London, at the age of 7 he was engaged in music-hall work, and in 1914 in the U.S.A. made his first appearance on the cinema



Chaplain. Badge of British army chaplain



Charles Chaplin, cinema actor

stage. In this he achieved world-wide success. In 1917 he was established in California as a producer of films in which he performed, notably *The Kid*, *The Gold Rush*, *The Circus*, and *City Lights*.

CHAPLIN, HENRY CHAPLIN, 1ST VISCOUNT (1841-1923). British politician and sportsman. Born Dec. 22, 1841, he won the Derby in 1867 with *Hermit*, and was regarded as one of the leading sportsmen of his day. From



1st Viscount Chaplin, British politician
Elliott & Fry

1868-1905 he was Conservative M.P. for the mid or Sleaford division of Lincolnshire, and from 1907-16 for Wimbledon. In 1885-6 he was chancellor of the duchy of Lancaster; in 1889 the first president of the Board of Agriculture, and from 1895-1900 president of the Local Government Board. In 1885 he was made a privy councillor, and in 1916 a viscount. He died May 29, 1923.

CHAPMAN, ARTHUR PERCY F. (b. 1900). English cricketer. Born Dec. 3, 1900, he was educated at Uppingham and Cambridge and played cricket for his university. In 1920 he played for the Gentlemen, and then for Buckinghamshire and Kent, for which county he qualified in 1925. In 1926 he captained the English team in the last test match, and in 1928-29 he led the team that won four test matches in Australia. He had previously toured Australia in 1922-23 and 1924-25.



A. P. F. Chapman, English cricketer
Lenore

CHAPTER (Lat. capitulum, little head). Term derived from the monastic custom of assembling every morning to hear a chapter of the rule read. The word was applied to the meeting-place, hence chapter house, and to the meeting itself. To-day, outside monastic communities, the name is used for an assembly of the canons and prebendaries of a cathedral or collegiate church under the presidency of the dean or provost. The term is also used of an assembly of members of an order of knighthood. The chapter house commonly joined the church by a cloister, and had a seat of stone round the wall, with a raised seat for the president. See *Cathedral*; *Canon*; *Dean*.



Chapter House in York Minster

CHARCOAL. Amorphous form of carbon, prepared by charring wood or bones. To prepare wood charcoal the old method is to build large conical heaps of wood logs covered with turf or clay and having channels for the ingress of air, and the escape of the products of combustion. Modern processes involve the use of iron cylindrical retorts. Good charcoal contains about 93 p.c. of carbon and 3 p.c. of ash, the other constituents being oxygen and hydrogen. Wood charcoal is used as a source of heat, and, when powdered, for decolorising purposes, purifying alcohol, filtering water, etc.

In Great Britain immense forests were destroyed for the production of charcoal for the early iron industry, e.g. in Sussex.

Charcoal is also used by artists to "block in" their paintings or statuary; in other words, to sketch in outline the general plan of the work. It consists of a charred vine twig, but is also made from the sawdust of the willow, poplar, or lime, pressed in a mould and charred in a retort.

CHARCOT, JEAN BAPTISTE ETIENNE AUGUSTE (b. 1867). French explorer. He was born at Neuilly-sur-Seine, and in 1903-05, on board the *Frangais*, and 1908-10, on the *Pourquoi Pas?*, he commanded two expeditions which carried out important work in mapping, sounding, etc., in S. Polar regions along the coasts of Graham Land, Alexander Land, Deception Island, etc. Consult his *Autour du Pôle Sud*, 1912.

Charcot Land, which lies to the S. of Graham Land, was named after the explorer. In 1929 Sir Hubert Wilkins found it to be an island.

CHARCOT, JEAN MARTIN (1825-93). French physician. Born in Paris, Nov. 29, 1825, in 1862 he was appointed medical attendant at the Salpêtrière, an institution for insane and otherwise afflicted women. A member of the Institut de France, he held the professorship of pathological anatomy at Paris, 1873-82, and from 1882 until his death that of nervous diseases, specially founded for him. He was one of the first physicians to employ hypnosis as a curative agent in mental disorders. He died Aug. 16, 1893.

Charcot's disease, discovered by and named after him, consists of a change in the joints occurring in the course of locomotor ataxia. Little can be done in the way of treatment.

CHARD. Borough and market town of Somerset. It is 15 m. by rly. S.E. of Taunton, on the G.W. and Southern Rlys., and has manufactures of lace, linen, iron goods, and brassware. Roman villas have been discovered in the vicinity. In 1928 Chard School was refounded by Mr. W. Wyndham of Orehard Wyndham. It dates from 1671 when the building was given by William Symes, or earlier Market day. Thurs. Pop. 4,372.



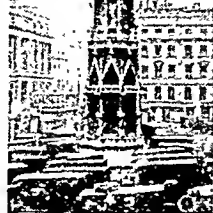
Jean Chardin,
French painter

CHARDIN, JEAN BAPTISTE SIMÉON (1699-1779). French painter. Born in Paris, Nov. 2, 1699, he became the most noted French painter of genre and still life in the 18th century. He died Dec. 6, 1779. His most characteristic pictures include *The Teetotum*, *The Young Fiddler*, and *The Blessing*. The last named and several others are in the Louvre.

CHARGÉ d'AFFAIRES (Fr.). Diplomatic representative of the fourth class. He is accredited by his own foreign minister to the foreign minister of the country to which he is sent, and sometimes acts temporarily for a representative of a higher class.

CHARING CROSS. Open space and thoroughfare, S. of Trafalgar Square and the W. end of the Strand, London, from which radiate Whitehall, Cockspur Street, Northumberland Avenue, and other thoroughfares. It derived its name from the former village of Chering or Charing, which stood here, and the stone cross, one of a series of twelve set up by Edward I (1291-94) to commemorate his queen, Eleanor. The cross was removed in 1647, but a copy, erected in 1865—doubtful in detail—stands in the courtyard of Charing Cross Station (Southern Railway). Charing Cross is the official centre of London for the measurement of taximeter motor cab distances.

In 1930 it was decided to proceed with the new bridge at Charing Cross as advised by the Royal Commission on cross-river traffic in London. The station will be removed to the other side of the river, and the bridge, both a road and a railway bridge, will pass over the Strand and the river, and come to earth near Waterloo Station.



Charing Cross. Copy of the original Eleanor cross

is a medical school of the university of London.

CHARIOT. Two-wheeled vehicle for conveying persons especially in ancient times. Used at first in hunting and warfare, it was afterwards adapted to private life, racing, and public processions. The body was of carpentry, wicker, or bentwood, with metal or leather mountings, and usually open at the back. Springless and usually seatless, it was sometimes floored with interlaced thongs or ropes. It was drawn by two or more horses.

A warrior was sometimes buried with his chariot, sometimes with his horses and charioteer as well. Examples have been unearthed in Yorkshire and elsewhere.

CHARITES. Three deities of grace and beauty in Greek mythology, the Roman Gratiae (Graces). They were the children of Zeus, and their names were Euphrosyne, Aglaia, and Thalia. Their home was with the Muses on Mt. Olympus. Pron. Karri-tez.

CHARITY. One of the seven Christian virtues. In its fullest sense, it is a disposition of the mind to love God for Himself alone and mankind for its own sake. Both reason and revelation urge the habit and practice of charity, the former because all men are of one human family, possessing qualities in common and capable of enjoying greater happiness by mutual aid than by mutual hate.

ORDERS OF CHARITY. These are religious orders of men and women who are devoted to the service of the poor and afflicted. Apart from the regular monastic orders the first modern community to be called brothers of charity was founded in Belgium by Canon Triest in 1809. It subsequently established houses in England, Ireland, and Canada. The first sisters of charity in the Roman Catholic Church were founded by S. Vincent de Paul in Paris in 1633, and this order is now established in many parts of the world. Sisterhoods of charity were also formed in the Anglican communion in the 19th century.

CHARITY COMMISSION. Body of commissioners appointed in 1853 by Parliament to look after charitable trusts. In 1874 the commissioners acquired similar powers in connexion with the endowments of schools, but in 1899 this authority was transferred to the Board of Education. The offices are in Ryder Street, St. James's, London, S.W., and the funds under its control are £70,000,000.

CHARLEMAGNE OR CHARLES THE GREAT (742-814). Roman emperor and Frankish king. He was elder son of Pepin the Short, a

Frankish king, and his wife Bertrada; but little is known of his early days. In 768, on Pepin's death, he and his brother Carloman became kings of the Franks, but the death of Carloman in 771 left Charles king of the whole realm. He had a long reign, most of it full of action. He conquered the Lombard kingdom in Italy and brought much of that country under his rule; he passed over the Pyrenees and drove the Moors back behind the Ebro; he brought the Bavarians within his empire, as he did the Avars, living still farther east. The longest of his wars was that against the Saxons, and this, too, ended in success. Several times he went to Italy, and in 800 he visited Rome in answer to an appeal from the pope and was there crowned emperor. In this way, on Christmas Day, 800, was founded the Holy Roman Empire, that lasted a thousand years, or until 1806.

Charles was for the rest of his reign the greatest figure in Europe. He was a lawgiver, a notable administrator, a builder, and, above all, took the keenest interest in supervising the work of the Church and seeking to spread the Christian faith. Education was another of his interests. He died Jan. 28, 814, and was buried at the church at Aix, where his remains were afterwards placed in a magnificent shrine.

CHARLEROI. Town of Belgium, in the prov. of Hainaut. It stands on the canalised Sambre, 22 m. by rly. E. of Mons, coaxed by waterways with the great canal system of N.E. France and Belgium. On a coalfield, with chemical, glass, and pottery works, it is situated in one of the most densely populated areas in Belgium. The chief buildings are the church of S. Anthony, the hôtel de ville, and the palais de justice. Originally named Charnoy, in 1666 the village was renamed Charleroi, in honour of Charles II of Spain. It was in German occupation throughout the Great War. Pop. 27,394.

BATTLE OF CHARLEROI. The battle fought between the French and Germans, Aug. 21-24, 1914, was the most important of the Great War up to the first battle of the Marne, and was remarkable for the escape of a French army from envelopment.

The heaviest fighting took place on Aug. 21, when the Germans forced the passage of the Sambre at Tamines and Jemeppe, driving back detachments of the French 10th and 3rd corps, and on the 22nd, when four German corps attacked on the Sambre and penetrated into Charleroi. A French counter-attack S. of Châtelet inflicted heavy loss on the Prussian Guard. Elsewhere, French defeats at Virton and Morhange left a wide gap between Lanrezac's troops and the 4th French army, on his right, while on his left the falling back of French cavalry opened a serious gap between the 5th French army and the British. This led to the French retirement. See Mons.



Charlemagne, founder of the Holy Roman Empire. Painting by Albert Dürer, 1500, in the Nat. Mus., Nuremberg



Chariot. Assyrian chariot from a relief on the great gates of Nineveh

CHARLES I (1600-49). King of Great Britain and Ireland. Son of James I of England, he was born at Dunfermline, Nov. 19, 1600. On the death of his elder brother, Henry, 1612, he became his father's heir, and in 1616 he was made prince of Wales. He succeeded to the throne in 1625, when he married Henrietta Maria of France. From 1625-29 Charles was engaged in a ceaseless contest with his parliaments. He dissolved parliament in 1629, and ruled without one for 11 years, raising money by every possible device. In 1639 an attempt, at the instigation of Archbishop Laud, to impose an Anglican liturgy upon Scotland united the Scots in armed opposition. The king's financial resources were exhausted, so in 1640, advised by his chief supporter, Strafford, he summoned the Short Parliament, which refused supplies and was dissolved. In the same year he summoned the Long Parliament, by which Strafford was arrested and executed, and Charles was forced to consent to various reforms. Following an attempt to arrest five members, Charles left London in Jan., 1642, and civil war began in August.



Charles I, King of England
Portrait by Van Dyck

In the first two campaigns success lay with the Royalists, but in 1644 the Parliamentary army defeated them at Marston Moor, and in 1645 the cause of Charles received its deathblow at Naseby. Charles surrendered to the Scots, who handed him over to the English Parliament. He was finally tried for treason and beheaded on Jan. 30, 1649. Of a large family six children survived. These were the future kings Charles II and James II, Henry duke of Gloucester and three daughters: Mary, the wife of William of Orange, Henrietta, duchess of Orleans, and Elizabeth. See Buckingham; Civil War; Cromwell; Pym; Strafford.

CHARLES II (1630-85). King of Great Britain and Ireland. Son of Charles I, he was born at St. James's Palace, London, May 29, 1630. After Naseby he retired to France, but gaining the support of the Covenanting party in Scotland, he returned and was crowned at Secone in 1650. In spite of Cromwell's victory at Dunbar he invaded England in 1651; his army was shattered at Worcester, and he himself after hairbreadth escapes reached France again. Recalled to England in 1660, he entered London amid popular acclamation. He favored religious toleration, but nevertheless allowed the Cavalier parliament to persecute the Covenanters. He dismissed Clarendon in order to appease popular anger over the Dutch War of 1665-67, and during the subsequent Cabal ministry made the secret Treaty of Dover with Louis XIV, the result being the second Dutch War. By this treaty Charles had engaged England to the service of France at the price of a pension from Louis, his plan being to make himself independent of parliament and to control a small standing army with which to maintain this independence. This he achieved when he dissolved parliament in 1681 and ruled without one for the next four years. He died Feb. 6, 1685. His marriage with Catherine of Braganza was childless, but he had many children by his various mistresses, among them the boys who became dukes of Monmouth, Southampton, Grafton, Richmond, and St. Athans.

CHARLES (1887-1922). Emperor of Austria-Hungary, 1916-18. Born Aug. 17, 1887, he was a son of the archduke Otto and a grand-nephew of the emperor Francis Joseph. On the murder of Francis Ferdinand in June, 1914, he became heir to the aged emperor Francis Joseph, whom he succeeded, Nov. 21, 1916. Charles abdicated in Austria on Nov. 12, 1918, and in Hungary on the 16th. Twice during 1921 he tried, but in vain, to recover the throne of Hungary. He died at Finchéal, Madeira, April 1, 1922. By his wife Zita, a princess of Bourbon-Parma, he had eight children, the eldest being Francis Joseph Otto (b. 1912).

CHARLES. Name of seven rulers of the Holy Roman Empire. The first is generally known as Charlemagne (q.v.). The second was his grandson Charles, called the Bald. A son of the emperor Louis I, he was recognized as king of the western Franks in 843, and in 875 was crowned emperor in Rome. He died Oct. 6, 877. Charles III, called the Fat, also a descendant of Charlemagne, was crowned in 882 and ruled over both the east and the west Franks. He was deposed in 887 and died Jan. 10, 888.

CHARLES IV. Roman emperor and German king from 1346 to 1378. The son of John, king of Bohemia, he was born at Prague, May 14, 1316, and succeeded his father, who was killed at Crécy, in 1346. He is known as the author of the Golden Bull and the founder of Prague university. He died Nov. 29, 1378.

CHARLES V (1500-58). Roman emperor and king of Germany and Spain. Born Feb. 24, 1500, at Ghent, he was the elder son of Philip, archduke of Austria and duke of Burgundy, and Joanna, daughter of Ferdinand and Isabella of Spain.

On the death of his father in 1506 he succeeded to Burgundy and the lands in the Netherlands which had come down from Charles the Bold through his daughter Mary to Philip. In 1518 he was recognized as king of Castile and Aragon. Finally, in 1519, through the death of his paternal grandfather, the emperor Maximilian, he obtained the lands of the Hapsburgs. On this followed his election as emperor, and he was crowned Oct. 23, 1520.



Charles V, Holy Roman Emperor
Portrait by Holbein

Charles plunged into hostilities with Francis I of France. His success in the Italian campaigns of the war set the pope against him with the result that Rome was sacked and Pope Clement VII was taken prisoner (1527), thereby becoming almost a puppet of Charles. By the peace of Cambrai of 1529, Charles received Lombardy from Francis I. In Spain and in the Netherlands he established his supremacy but in Germany he met with a serious reverse and was obliged to make terms with the Protestants at Passau in 1552. In 1556 Charles abdicated in favour of Philip as king of Spain and of his brother Ferdinand as emperor. He then retired to a monastery in Estremadura, and died Sept. 21, 1558.

CHARLES VI (1685-1740). Roman emperor and king of Hungary and Bohemia. Born in Vienna, Oct. 1, 1685, the second son of the emperor Leopold I, he became the nominee of the Hapsburgs for the throne of Spain, against the Bourbon Philip of France. He proceeded to Spain in 1703, where he remained during the greater part of the War of the Spanish Succession. In April, 1711, Charles succeeded his brother, the emperor Joseph I. He was crowned emperor, and in 1714 agreed to the peace of Utrecht, which gave Spain to his rival. Having no sons, he endeavoured to secure the succession to his daughter, Maria Theresa, by means of the Pragmatic Sanction, but at his death, Oct. 20, 1740, this was ignored.

Charles (1697-1745), who was elector of Bavaria, was chosen emperor in opposition to Francis, the husband of Maria Theresa. He is called the emperor Charles VII.

CHARLES. Name of ten kings of France. Charlemagne (q.v.) ranks as the first and the emperor Charles the Fat as the second. Charles III was king from 893 to 922, when he was deposed. He died Oct. 7, 929. Charles IV (1294-1328), called the Fair, a son of king Philip IV, reigned from 1322 to 1328. Charles V (1337-80), called the Wise, was a son of John II, who was taken prisoner at Poitiers (1356). He ruled France as regent until his father's death in 1364 and as king until his own death, Sept. 16, 1380. During his reign war was incessant, and the misery of the people led to a rising of the peasants.

Charles VI (1368-1422), a son of Charles V, was called the Well-beloved and sometimes the Mad, as he lost his reason. His land was conquered by Henry V of England, who married the daughter of Charles and was crowned king of France. Charles's son, Charles VII (1403-61), made his capital at Bourges, claimed the throne and, after the victories of Joan of Arc, was crowned king at Reims, in July, 1429. Before he died, July 22, 1461, he had driven out the English, except from Calais. Charles VIII (1470-98) by marriage united Brittany

Charles VI, King of France
Engraving by Pannier

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Charles VIII, King of France
Bibliothèque Nationale, Paris



Charles II, King of England
Portrait by Lely

shattered at Worcester, and he himself after hairbreadth escapes reached France again.

Recalled to England in 1660, he entered London amid popular acclamation. He favored

with France, and his invasion of Italy in 1494 is regarded as an historical landmark, being one of the events that mark the beginning of the modern world.

Charles IX (1550-74), a son of Henry II and Catherine de' Medici, was the second of three brothers who occupied the throne. He reigned from 1560 until his death, May 30, 1574, and consented to the massacre of St. Bartholomew.

Charles X (1757-1836) was a son of Louis XV and the younger brother of Louis XVI. He lived mainly in Scotland, 1789-1814. Ten years later he succeeded his brother as king. In 1830 he abdicated, and he died at Gorizia, Aug. 2, 1836.

CHARLES OR CAROL (1839-1914). King of Rumania. Born April 20, 1839, he was the son of Charles Antony of Hohenzollern-Sigmaringen, this being a Roman Catholic branch of the family until 1918 ruling in Germany. He was chosen prince in 1866, and became king when in 1881 Rumania was recognized as an independent state. Charles married Princess Elizabeth of Wied, better known as Carmen Sylva. They had no sons and his nephew Ferdinand became king when he died, Oct. 11, 1914.

CHARLES. Name of four kings of Spain, the emperor Charles V being the first. Charles II, a son of Philip IV, reigned from 1665 to 1700. He left his vast inheritance to Philip, a grandson of Louis XIV, and so brought about the War of the Spanish Succession. Charles III, a son of Philip V, was king from 1759 to 1788, his son, Charles IV, from 1788 to 1808, when he abdicated. He died Jan. 20, 1819.

CHARLES IX (1550-1611). King of Sweden. Born Oct. 4, 1550, he was the youngest son of Gustavus Vasa. On the death of his brother John III, 1592, Charles was the recognized leader of the Protestant party in the country. Sigismund, king of Poland,



Charles X (Gustavus),
King of Sweden.
Portrait by Bourdon

John's son, and a Catholic, succeeded, but Charles was made regent, 1595. Civil war ensued, and the defeat of Sigismund at Staungebro, Sept. 25, 1598, left Charles the real ruler of Sweden. He was crowned king in 1607, and reigned until his death, at Nykoping, Oct. 30, 1611.

His grandson, Charles X (1622-60) succeeded to the throne on the abdication of Christina, in 1654. He declared war against Poland, entered Warsaw, and took



Charles XI,
King of Sweden

Danes in 1676-78. In 1676 his forces were defeated by the elector of Brandenburg. One of Sweden's wisest kings, he died April 15, 1697.

CHARLES XII (1682-1718) King of Sweden. The only son of Charles XI, he was born June 17, 1682, and became king when only 15 years old. Peter the Great of Russia saw his opportunity for despoiling Sweden with the aid of Denmark and Poland, and a league was formed in 1699. But in 1700 Charles flung himself upon the Danes, and dictated his own terms to them at the peace of Travendal, Aug. 18. He then sprang at Russia, and with 8,000 men utterly routed Peter's army of 60,000 at Narva, Nov. 30, 1700.

In 1704 he ejected Augustus of Saxony from the throne, replacing him by his own nominee, Stanislaus Leszczynski. In 1708, with over 40,000 men, he crossed the Vistula. But in the heart of Russia his forces were enveloped and annihilated at Poltava, July 8, 1709, and he himself barely succeeded in escaping over the Turkish frontier. In 1714 he rushed north to save Sweden, but found it impossible to do more than patch up a peace with his enemies. On Dec. 11, 1718, he was killed by a bullet at the siege of Frederikshald.

CHARLES XIII (1748-1818). King of Sweden. Born Oct. 7, 1748, he was the son of Adolphus Frederick and brother of Gustavus III. He became king on the deposition of Gustavus IV in 1809. He was forced to make an immediate peace with Russia which lost Finland to Sweden. The union of 1814 made him the first king of Sweden and Norway. He died Feb. 5, 1818.

CHARLES XIV (1763-1844). King of Sweden and Norway. A Frenchman, named Jean Baptiste Jules Bernadotte, he was born at Pau, Jan. 26, 1763, the son of a lawyer.

In 1780 he entered the French army and won speedy promotion, being, in 1801, in command of the army in the war of La Vendée. In 1810 he was appointed to the command in the Netherlands, and in the same year, as Charles John, was formally elected crown prince of Sweden. He soon became the real ruler of the country. In 1814 Norway was ceded to Sweden by Denmark, and in 1818 Charles formally succeeded to the throne. He proved an excellent ruler of the two kingdoms until his death, March 4, 1844.

His grandson Charles XV (1826-72) reigned from 1859 to 1872.

CHARLES (1433-77). **DUKE OF BURGUNDY**, called the Bold. Born at Dijon, Nov. 10, 1433, he was the son of Philip the Good and Isabella of Portugal. In June, 1467, he became, by his father's death, duke of Burgundy. The ten years of Charles's reign were passed almost entirely in warfare with France. His ruin, however, came from his challenge to the Swiss, by whom his forces were routed at



Charles XII,
King of Sweden

Granson in March, 1476, at Morat in June, and at Nancy, where, on June 5, 1477, he himself was killed. His only child, Mary, became the wife of the emperor Maximilian.

CHARLES, JACQUES ALEXANDRE CÉSAR (1746-1823). French aeronaut. He was born at Beaugency, Loiret, and became a student of physics. He joined with a friend, M. Robert, in balloon experiments, and on Aug. 27, 1783, they sent up the first hydrogen-filled balloon. On Dec. 1, 1783, he and Robert made the first ascent in such a balloon, reaching a height of 2,000 ft., remaining in the air for two hours and travelling 27 m. See Aeronautics.

CHARLES EDWARD (1720-1788). Stuart prince known as the Young Pretender, and to his friends as King Charles III. The son of James Edward and the grandson of James II, he was born at Rome, Dec. 31, 1720. In 1745 he made a desperate effort to recover the throne of his fathers. With a few companions he sailed from France on June 22, and landed in Moidart on the west coast of Scotland, July 2. He soon had a following of Highlanders, and on Sept. 21 shattered the government troops under Sir John Cope at Prestonpans.

Invading England, he reached Derby on Dec. 5, but was compelled to retreat by lack of troops. At Culloden, on April 17, 1746, Charles met with an overwhelming defeat. He became a fugitive, and only after many hairbreadth escapes, due to the fidelity of the clansmen and the loyalty of Flora Macdonald, was he able to escape to France. After the death of his father, in 1766, he lived chiefly in Florence and Rome, where he died, Jan. 31, 1788. See Jacobites: Stewart.

CHARLESTON. City of South Carolina, U.S.A., county seat of Charleston county and the largest city in the state. A port of entry, it is 7 m. from the Atlantic on a low peninsula formed by the confluence of the Ashley and Cooper rivers, 82 m. N.E. of Savannah, and is served by the Atlantic Coast Line and other rlys. The city has a fine land-locked harbour and a wireless station.

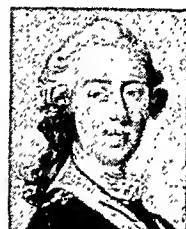
It was the bombardment of Fort Sumter here in 1861 that heralded the opening of the civil war, the fort being captured by the Confederates, who retained it till 1865. In 1886 great havoc was caused by earthquake, three-fifths of the town being destroyed. Charleston was the state capital, 1783-90. Pop. 67,957.

Charleston, capital of West Virginia, U.S.A., is 365 m. from Richmond on the Chesapeake and Ohio and other rlys. Pop. 39,608.

The Charleston was a dance very popular in the United States and Great Britain in 1925-26. Negroid in origin, its strenuous steps made it different from the prevailing dances.

CHARLEVILLE. Town of France, in the dept. of Ardennes. It stands on the Meuse, opposite Mézières, 150 m. N.E. of Paris. The most interesting buildings are the houses on the dual square and a Romanesque church. Charleville became prominent in the early stages of the Great War, and was the headquarters of the German General Staff, Aug., 1914, to the end of 1916. The French retook it in Nov., 1918. Pop. 21,711.

CHARLEVILLE. Town of Queensland, Australia. On the river Warrego, 480 m. W. of Brisbane, it is watered by an artesian bore, and forms the commercial centre of rich pastoral plains. Its mineral products include opal. There is a weekly return air service between Charleville and Camooweal. Pop. 1,934.



Charles Edward Stuart,
the Young Pretender
Painting by Le Tocque



Charles XIV,
King of Sweden



Charles the Bold,
Duke of Burgundy
After R. van der Weyden

CHARLOCK (*Brassica arvensis*). Cornfield weed of the order Cruciferae. A native of Europe, N. Africa, N. and W. Asia, it is an annual about 2 ft. in height, with bristly stems and leaves and four-petalled yellow flowers.

CHARLOTTE (1744-1818). Queen of George III. The daughter of Charles Louis, a prince of Mecklenburg-Strelitz, she became engaged to the king in 1761. The two had never met, but the union, which dated from Sept. 8, 1761, was one of great happiness. The queen took no part in public affairs, being entirely occupied with her large family, for she had fifteen children, and her routine duties. She died at Kew, Nov. 17, 1818.

CHARLOTTE (1796-1817). British princess. The only child of George, prince of Wales, afterwards George IV, by Caroline of Brunswick. She was born in London, Jan. 7, 1796, and in 1816 married Prince Leopold of Saxe-Coburg, who became later king of the Belgians. She died Nov. 5, 1817.

CHARLOTTE DUNDAS. Name given to the first practical steam-driven vessel. A steam tug, built by William Symington in 1801, she plied on the Forth and Clyde canal. Two years later a larger vessel of the same name was built, but the directors of the canal, fearing for the safety of the banks, would not allow her to be used. See *illus.* below.

CHARLOTTENBURG. Town of Germany, a suburb of Berlin. It stands on the Spree to the W. of the metropolis. The most notable buildings are the palace, the technical school, the Kaiser Wilhelm memorial church, and the modern Rathaus. The industries include the making of porcelain, glass, chemicals, leather, dyes and electrical apparatus, and ironworking. Pop. 322,766.

CHARLOTTETOWN. Capital of Prince Edward Island, Canada. On the S. coast, it stands on the Hillsborough estuary and has steamer communication with several Canadian ports. Its buildings include the government offices, Roman Catholic cathedral, city hall, court house, and colleges. There is a Dominion experimental station. It was named after Charlotte, the consort of George III. Pop. 12,347.

CHARLTON. District of London. In the borough of Greenwich, it stands on the S. bank of the Thames, $7\frac{1}{2}$ m. S.E. of Charing Cross station on the Southern Rly. In 1925 the Greenwich borough council bought Charlton House, one of the finest examples of Jacobean domestic architecture in the country, built from designs by Inigo Jones.

CHARMOUTH. Village of Dorset, at the mouth of the Char, 6 m. from Axminster. The church of S. Andrew was rebuilt in the 19th century. The house in which Charles II slept after his defeat at Worcester still stands. Charmouth was a Roman station. Pop. 668.

Named after Charmouth, where it is typically developed, a stage of the Lias, in the Jurassic system of stratified rocks, is termed

the Charmouthian. It consists of clays, lime-stones, and marlstone, the fossils including many ammonite species.

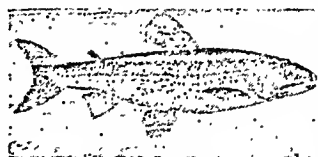
CHARWOOD FOREST. Barren district of Leicestershire. About 5 m. S.W. of Loughborough, it is hilly, 20 sq. m. in area, and rises to 912 ft. in Bardon Hill. On account of its geological interest it was made an enclosed area by act of parliament in 1812.

In Charmwood forest occur the Charmian series of rocks of the Archean or Pre-Cambrian age. Of volcanic origin, and composed to a large extent of volcanic agglomerates and tuffs, the rock-masses peep out as hills partly covered by a mantle of Triassic marls.

CHARON. In Greek mythology, the ferryman, son of Erebus and Nox, who rowed the dead across the Styx to Hades. An obol (1 $\frac{1}{2}$ d.) was placed in the mouth of his passengers as payment of their fare.

CHARPENTIER, GUSTAVE (b. 1860). French composer. Born at Dieuze, in Lorraine, June 24, 1860, his best known work, for which he wrote both music and libretto, is the opera *Louise*, produced at the Paris Opéra Comique, 1900. As director of the conservatoire of Mimi-Pinson, he was active in the service of the wounded in the Great War.

CHARR or **CHAR** (Gaelic *ceara*, red), *Salmo salvelinus*. Fresh-water fish of the Salmon family, native of Europe and N. Asia, with allied species in N. America. Its preference for isolated deep-water lakes in the mountain districts has led to the evolution of a number of local races or varieties. The charr of Scotland is similar in form to the brown trout, with differences in the situation of certain teeth. The flesh is red.



Charr. A fresh-water fish of the salmon family

CHARRINGTON, FREDERICK NICHOLAS (b. 1850). British temperance worker. Son of a wealthy brewer, he was born at Bow. Feb. 4, 1850, and gave up succession to a fortune estimated at £1,250,000 to devote himself to temperance work. He founded the Tower Hamlets Mission, and made the Great Assembly Hall in the Mile End Road, built by his efforts, a centre of Christian work in E. London. He was member of the L.C.C., 1889-95.

CHART (Lat. *charta*, paper). Map used by navigators. The British Admiralty has issued charts for use in every sea, and in many cases the Admiralty charts are the only existing accurate maps of certain islands or comparatively unfrequented shores.

CHARTER (Lat. *charta*, a writing). Word used for a document, more especially one conveying a grant of land or privileges by a king or lord. The most important, historically, is *Magna Carta*; charters were also granted to London and various English towns by the kings in early days. To-day towns are still incorporated by royal charter: societies obtain charters in order to carry on their work; by a royal charter a college becomes a university. Charters are not given usually to associations working for profit.

Chartered companies originated after the discovery of America, when a sovereign gave or sold to a subject or subjects the sole right of trading with a certain country. A second class of chartered companies consisted of those founded to exploit a certain part of the sovereign's own dominions. Such was the Virginia Company of Elizabeth's days.

CHARTERHOUSE, THE (Fr. *Chartreuse*). Architectural relic of old London. Situated in Clerkenwell, and immortalised in Thackeray's



Charterhouse, London. The great hall, in which are preserved parts of the old monastic buildings
W. S. Campbell

The Newcombes, it is named after a Carthusian monastery founded here in 1371 by Sir Walter de Manny and Bishop Northburgh. The monastic buildings, in which Sir Thomas More lived for four years, were bought in 1611 by Thomas Sutton, who used them to found a hospital for 80 poor and aged gentlemen, a school for 40 poor boys, and a chapel.

The school, which developed into a great public school, was removed to Godalming in 1872, when that of the Merchant Taylors Company found a home here. The chapel contains the tomb of Sutton and other notable monuments: parts of the old monastic buildings are preserved in the Great Hall, renovated in 1571, and in Wash-house Court. See *Carthusians*.

CHARTERS TOWERS. Town of Queensland, Australia. On Towers Mt., 80 m. by rly S.W. of Townsville, it is the centre of a gold-mining district. Pop. 9,009.

CHARTIER, ALAIN (c. 1386-1440). French lyric and prose writer. Born at Bayeux, he became secretary to Charles VI and Charles VII, and was one of a group of poets, including Villon and Charles d'Orléans, who specialised in the ballade and rondeau. Chartier wrote also moral and political treatises in prose.

CHARTISM. Political movement in England, so called from its charter of reforms. In 1838 the London Working Men's Association formulated six demands in what was called the People's Charter. In 1839 the Chartist convention assembled, and a great Chartist petition signed by over 1,000,000 persons was ignored by the House of Commons. A serious riot followed at Newport, Monmouthshire, involving loss of life.

In spite of riots in 1842, the agitation weakened, but in 1848 a monster petition was prepared and a monster meeting was called to assemble on Kennington Common and then to march to the House of Commons to present it. But the Chartists were overawed by troops under the Duke of Wellington and the procession was abandoned. Chartism, rent by internal disputes and the rivalries of its leaders, steadily declined, and by 1854 no longer had political significance.

CHARTLEY HOLME. Parish of Staffordshire, 5 m. N.E. of Stafford, on the L.N.E. Rly. Chartley Hall stands in a park long celebrated for its breed of white cattle. There are ruins of a 13th century castle.

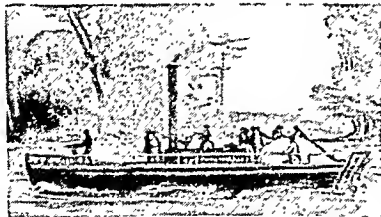
CHARTRES. City of France, in the dept. of Eure-et-Loir. It is on the Eure, 55 m. S.W. of Paris. The Gothic cathedral of Notre Dame, one of the finest in the world, was built



Charlotte, Queen of George III
After a painting by Gainsborough



Charlotte, British Princess
After A. E. Chalon



Charlotte Dundas, first steam-driven vessel.
She plied on the Forth and Clyde. See above

in the 13th century. Its chief features are the western towers, the stained glass, the choir screen, and the sculptures. Other churches are those of S. Pierre, of the 12th century, S. Aignan, and S. Martin. Secular buildings include the hôtel de ville and the episcopal palace.

Chartres has a gateway and other remains of its fortifications, and a 14th century bridge. It was the Roman Autrium, and later Civitas Carnutum. Pop. 23,349.



Chartres. The 13th cent. cathedral, showing the S.W. tower and spire
Courtesy of Office Français du Tourisme

CHARTREUSE. French form of the word Carthusian, and applied to the houses of that order of monks, especially to the Grande Chartreuse near Grenoble, the first and greatest house of the order. The Italian equivalent is Certosa. The Grande Chartreuse is in the dept. of Isère, 12 m. from Grenoble. The order was founded by S. Bruno before 1100, at Cartusia, where a house was built.

Chartreuse is the name of a liqueur originally made at this monastery. The particular herbs used and the process of manufacture are the secret of the Carthusian monks, who still produce it at their new home at Tarragona in Spain. See Carthusians; Certosa.

CHARYBDIS. In classical mythology, a famous whirlpool in the Straits of Messina opposite the cave of the sea monster Scylla. See Scylla.

CHASING (Fr. chässe, frame). Art of ornamenting objects in gold, silver, or other metal by means of appropriate tools. The raised portions of the design are shaped by hammering from the reverse side of the metal, and finished on the right side by a chasing tool. Chasing also describes the method of engraving designs with a burin or graver.

CHASTELARD, PIERRE DE BOSCOBEL DE (c. 1540-63). French poet. Born in Dauphiné, it was as page to the Marquess Damville that he was in the escort of Mary Queen of Scots, in 1561. Becoming infatuated with the queen, who accepted his love songs, he concealed himself beneath her bed. Discovered and forgiven, he repeated the offence at Armentisland and was hanged at St. André.

CHASUBLE (Fr. chasuble, casula, little house). Vestment worn by a priest over the alb and stole when celebrating the Eucharist. Oval in shape, sleeveless, and with an aperture in the centre to admit the head of the wearer, it is made of linen or silk, and usually embroidered with a Y-shaped cross. Originally a kind of outdoor cloak, like the Roman paenula and the Spanish manta, and the poncho of Latin America, it was adopted in modified form by the clergy in the 6th century, and since then has changed in form considerably.

CHAT (Saxieola). Name given to several species of birds belonging to the thrush family, including the whin-chat and stone-chat. They feed on insects, and are found in Europe, N. Africa, and W. Asia.

CHATALJA. Village near Constantinople (Istanbul). It gave its name to the Turkish fortified entrenchments, known as the Chatalja Lines, stretching from Derkos, on Lake Derkos, to the head of the Bay of Chekmeje, about 20 m. W. of Constantinople, which held up the Bulgars during the first and second Balkan Wars (q.v.).

CHATEAUBRIAND, FRANÇOIS RENÉ, VICOMTE DE (1768-1848). French author and politician. Born at St. Malo, Sept. 4, 1768, in April, 1791, he set out for America, but returned on hearing of the arrest of Louis XVI, landing in France, Jan. 2, 1792. He then joined the emigrés, was wounded at the siege of Thionville, and escaped to England. In 1797 Chateaubriand published his *Essai sur les Révolutions Anciennes et Modernes*, and in 1800 the love story of *Atala*, which established his literary reputation. In his *Génie du Christianisme*, 1802, he recanted his earlier sceptical opinions, and vindicated Roman Catholicism. In 1811 he began his *Mémoires d'Outre-Tombe*, intended for posthumous publication. In 1814 he supported the Bourbon régime, and from 1822-24 was ambassador to Great Britain. He died July 4, 1848.



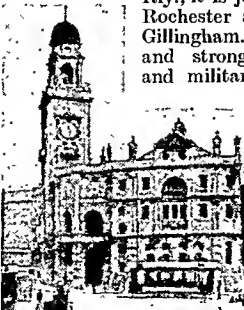
Chateaubriand, French author

CHÂTEAU GAILLARD (Fr. saucy castle). Fortress of France on the Seine near Les Andelys. It was built in 1197 by Richard I to protect his duchy of Normandy from the king of France. It stood on a promontory jutting into the Seine, and was approached landwards by a narrow strip. After a long siege it was taken by Philip Augustus in March, 1204, and fell into decay. See Castle.

CHÂTEAU-THIERRY. Town of France, in the dept. of Aisne. It stands on the river Marne, 60 m. N.E. of Paris. Its ruined castle, said to have been built by the Franks, gave its name to the town. The church of S. Crépin dates from the 15th century.

The town gives its name to an important battle fought between American and German forces towards the close of the Great War. In this it was recovered by Franco-American troops on July 21, 1918, after six American divisions had helped to stay the Germans' offensive on July 19. It was decorated with the Cross of the Legion of Honour. Pop. 7,751. See Marne.

CHATHAM. Borough and seaport town of Kent. On the S. bank of the Medway, 34 m. by rly. E.S.E. of London, on the Southern Rly., it is joined on the W. by Rochester and on the E. by Gillingham. It is an important and strongly fortified naval and military station, and its dockyard covers 515 acres and extends for about 3 m. along the river.



Chatham. The Town Hall, an imposing modern building

The original dockyard was founded by Queen Elizabeth in 1588 and transferred to its present site in 1662. Within the fortified lines are government establishments, including barracks, arsenal, artillery park, military school and institute, and convict prison. The lines, now obsolete, have been

superseded by a strong chain of detached forts of modern design: Fort Pitt, to the W. of the town, has been converted into a military hospital. The Royal Naval Hospital, which replaced Melville Hospital (now a barracks), is at Gillingham. The church of S. Mary, rebuilt 1788, and S. Bartholomew's Hospital, founded for lepers in 1078, are other notable buildings.

There is a fine town hall and assembly rooms, and the corporation maintains a library and museum, technical school, and several recreation grounds and pleasure gardens. Pop. 40,820, excluding non-civilians.

CHATHAM OR MIRAMICHI. Town of New Brunswick, Canada, in Northumberland co. It is on the Miramichi river, 24 m. from the Gulf of St. Lawrence and 6 m. N.E. of Newcastle on the Canadian National Rlys. A river port, with a good harbour, it has saw and pulp mills, machine shops, and fisheries, and exports lumber. It possesses a fine town hall and a Roman Catholic cathedral. Pop. 4,506.

Another Chatham is in Ontario. It is on the Thames, 65 m. S.W. of London. Pop. 13,256.

Chatham Islands are a group in the S. Pacific. They cover 375 sq. m. and belong to New Zealand. They are 535 miles from Lyttelton.

CHATHAM. British cruiser, the nameship of a class of six light cruisers. Early in the Great War the Chatham discovered the German cruiser Königsberg hiding in shoal water six miles up the Rufiji river (German E. Africa), and heavily bombarded her Oct. 30, 1914. In 1920 she was presented to New Zealand. See Birmingham.

CHATHAM, WILLIAM PITT, 1ST EARL OF (1708-78). British statesman. William Pitt the elder was born in Westminster, Nov. 15, 1708, the grandson of Sir Thomas Pitt, governor of Madras. In 1735 he entered Parliament. Walpole was then in supreme control, and Pitt became attached to the opposition group which centred in Frederick, prince of Wales. He entered the Pelham ministry in 1746 as paymaster-general, and set an example by refusing the immense perquisites usually attached to that office. In 1755 he was again in opposition, but in 1757 joined the coalition which had been brought about by the incompetence of Newcastle's ministry.



William Pitt, 1st Earl of Chatham
After R. Brompton

Pitt's conduct of the Seven Years' War raised Great Britain from a position of humiliation to world-supremacy. In 1761, however, he was forced to resign. In 1766 he came back to form a ministry to deal with the struggle with the American colonies, but wrecked his own influence and prestige by accepting the earldom of Chatham. The ministry was hardly formed when Chatham's health broke down completely. On his partial recovery in 1769 he found that the breach with America had been made irreparable, and he resigned office. He continued vigorously to oppose the Government policy towards America until his death on May 11, 1778. The younger William Pitt was his second son; the elder, Thomas, succeeded to the title. See Pitt, W.

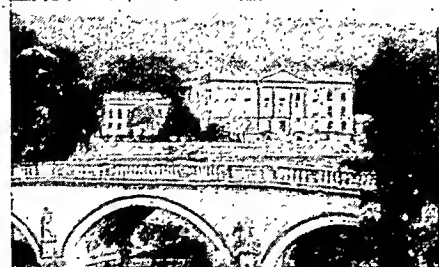
CHÂTILLON. Town of France, called Châtillon-sur-Seine to distinguish it from other places of the same name. It is in the department of Côte d'Or, 44 m. from Dijon. It has an old church, S. Nicolas, an hôtel de ville, formerly part of the Benedictine house, and a château standing in a large park. This was erected by Auguste Marmont, one of Napoleon's marshals, whose name it bears. A still earlier château has disappeared, but its Romanesque chapel remains. Pop. 4,413.



Chasuble. Vestment worn by a priest

The Congress of Châtillon was a meeting held in Feb. and March, 1814, between representatives of the Allies and those of France to discuss peace proposals. The Allies demanded that the French frontier should be the same as in 1791; Napoleon objected, and the sittings were suspended on Feb. 9. They were resumed later, but without result. *See Vienna.*

CHAT MOSS. Tract of land in Lancashire, 7 m. W. of Manchester. Formerly a morass, 12 sq. m. in extent, it has been largely reclaimed. The carrying of the Liverpool and Manchester Rly. across the Chat Moss in 1829 was one of George Stephenson's greatest engineering achievements. Manchester has an aerodrome on Chat Moss. *See Manchester.*



Chatsworth House. The magnificent Derbyshire seat of the Duke of Devonshire
Frith

CHATSWORTH. Parish of Derbyshire. It stands on the river Derwent, nearly 3 m. N.E. of Bakewell. Chatsworth House, a seat of the duke of Devonshire on the site of an earlier mansion, is a massive quadrangular structure in the Ionic style, erected, except for the N. wing, which was added in 1820, in 1687-1706. The park is about 11 m. in circumference.

CHATTANOOGA. City of Tennessee, U.S.A., co. seat of Hamilton co. On the Tennessee river, at the head of navigation. 150 m. S.E. of Nashville, it is served by the Alabama, Great Southern and other rlys. The seat of Chattanooga University, it has a museum, library, college of law, and a national cemetery. Pop. 57,895.

A battle was fought here, Nov. 23-25, 1863, between the Federal Army under Grant and the Confederates under Bragg, and ended in a decisive victory for the Federals.

CHATTEL (Lat. caput, head, property). In English law personal property comprises goods, chattels, and choses in action. In modern law the term includes everything except choses in action and real property. Originally it meant cattle. Chattel interests in land is an English legal term for any interest in land other than a freehold—that is to say, a leasehold. An incorporeal chattel is a description, not of things, but of rights relating thereto. The most common of them are patents, copyrights, trade marks.

CHATTERIS. Urban dist. and market town of Cambridgeshire. It lies on the W. edge of the Isle of Ely, 8 m. S. of March by the L.N.E. Rly. Market day, Fri. Pop. 5,086.

CHATTERTON, THOMAS (1752-70). British poet. Born at Bristol, Nov. 20, 1752, he began to write verse at the age of ten. Access to old parchments from the muniment room of the church of S. Mary Redcliffe led him to fabricate poems and prose fragments which he attributed to ancient sources. Among these were the Rowley Poems, described as by a 15th century monk. Failing to secure Walpole's help, he left Bristol for London, and lived at Shoreditch. He died by poison in



Thomas Chatterton in his boyhood

a garret in Brooke Street, Holborn, Aug. 24-25, 1770. Definite proof of his impostures was not forthcoming until afforded by Prof. Skeat in 1875. Chatterton's work contains some ballads and lyrics of great beauty.

CHAUCER, GEOFFREY (c. 1340-1400). English poet. The son of John Chaucer, a vintner of Thames Street, in the city of London, Geoffrey Chaucer was in the service of the duchess of Clarence in 1357. Two years later he was taken prisoner while serving in the army in France. Ransomed with the help of Edward III, he became a yeoman of the chamber and, later, one of the king's esquires. In 1374 Chaucer was appointed controller of the custom and subsidy of wool, skins, and hides in the Port of London, and in 1382 controller of the petty customs. He received other marks of royal favour, was several times sent abroad on special missions, and remained until his death in receipt of royal pensions. He died Oct. 25, 1400.

His fame rests chiefly upon *The Canterbury Tales*, a series of stories told by a party of pilgrims on the road to Canterbury. In his famous Prologue to the *Tales* he describes the assembling, at the Tabard Inn at Southwark, of nine and twenty pilgrims, from many different classes. The host offers a complimentary supper to the teller of the best story on the road, and Chaucer gives twenty-four of the stories, of which two are unfinished, interspersing them with some delightful talks. With the exception of a few short poems all Chaucer's later work went into *The Canterbury Tales*. In his prologue and stories he has left a gallery of portraits almost unequalled. Consult Works, ed. W. W. Skeat, 1901; and the Chaucer Society publications.

CHAUDIÈRE. River of Quebec, Canada. Rising near the border of Maine, U.S.A., it passes through Lake Megantic and follows a generally N. to N.W. course to the St. Lawrence river, which it enters 7 m. above Quebec; length 103 m. Lake Chaudière, an expansion of the Ottawa river, 18 m. long by 5 m. broad, terminates on the E. at Ottawa in the falls of Chaudière, which supply power for the electricity service of Ottawa.

CHAUTAUQUA. Lake of New York, U.S.A. It is 10 m. S.E. of Lake Erie, 1,300 ft. above sea level, 20 m. long, and averages 2 m. in width. The village on the W. side is the seat of the Chautauqua Literary and Scientific Circle, and of a summer school for teachers. The Assembly Grounds, N. of the lake, contain 500 cottages for the students, lecture halls, an amphitheatre, a museum of archaeology and other buildings.

CHAWORTH, MARY ANNE (1786-1832). Fourth cousin and early love of the poet Byron. Heiress of Annesley Hall, near Newstead, she was 17 and Byron 15 years of age when they met in 1803. In 1805 she married John Musters of Wiverton Hall, and from the pair is descended the family of Chaworth-Musters, still residing at Annesley. The poet's affection for her is expressed in a number of his poems, notably in *The Dream*; and in the lines *To a Lady* (in *Hours of Idleness*). *See Byron.*



Geoffrey Chaucer, English poet
Harleian Coll., Brit. Mus.

CHAW STICK (*Gouania domingensis*). Climbing shrub of the order Rhamnaceae. A native of Brazil and the W. Indies, its stems are chewed as a stomachic, and are also cut into short lengths and the fibres separated at the ends to form a tooth brush.

CHEADLE. Market town of Cheshire. It stands near the Mersey, 3 m. S.W. of Stockport, of which it is a residential district. The L.M.S. Rly. has stations at Cheadle and Cheadle Heath. It has bleaching and printing works. The Perpendicular parish church of S. Giles contains a 15th century altar tomb. With Gatley it forms an urban dist. Market day, Fri. Pop. 11,026.

CHEADLE. Market town of Staffordshire. On the L.M.S. Rly., 13 m. N.E. of Stafford, it has tape and metal working industries, and there are coal mines in the vicinity. Market day, Fri. Pop. parish, 6,178.

CHEAM. District of Surrey, 12 m. from London on the Southern Rly. There is an old wooden bouse, Whitehall, said to have been visited by Queen Elizabeth. Cheam school is one of the oldest private schools in England. It was established here in the time of Charles II. In the neighbourhood is Nonsuch Park. In 1928 Cheam became part of the urban district of Sutton. Pop. 7,849.

CHEAPSIDE. Historic London thoroughfare. Rebuilt after the Great Fire, it runs from S. Paul's churchyard to Poultry. Old Chepe (A.S. ceap, a bargain), an open-air market, contained two crosses, one pulled down in 1390 to build the conduit, the other a Queen Eleanor cross, destroyed in 1643.

In the side streets are the halls of the mercers, saddlers, and other city companies. These halls and the churches in the immediate neighbourhood, mostly the work of Wren were all built after the Fire. The



Cheapside. Queen Mary de' Medici passing along the thoroughfare during her visit to Charles I
From an old print

Mermaid tavern is generally believed to have been between Friday Street and Bread Street. It was the haunt of Shakespeare, Jonson, Beaumont, Fletcher, and other poets and dramatists. Modern Cheapside's points of interest include Bow Church and the old plane tree off Wood Street. *See London.*

CHEDDAR. Parish and village of Somerset. It lies S. of the Mendip Hills, 2 m. S.E. of Axbridge on the G.W.R. Adjacent are the Cheddar gorge and cliffs, with remarkable stalactite caverns. Cheddar gives its name to a variety of hard cheese. Pop. 2,007.

CHEDDITE. Generic name of a number of blasting explosives consisting essentially of a chlorate incorporated with a nitro-compound dissolved in castor oil. Potassium chlorate is the salt most frequently employed. Cheddites are used in large quantities for blasting.

CHEESE (Lat. caseus). Article of food made from milk. By condensing the bulk of the fat and casein of milk into cheese, and getting rid of the whey, a palatable and



Mary Anne Chaworth, Byron's first love

nutritious article of diet is obtained that keeps well and is conveniently small in bulk. Cheese is a very old form of food, having been made and eaten as early as 1400 B.C. At present a great variety of cheeses are made. They are divided into hard and soft, the difference depending upon the amount of water left in the cheese and the way in which it is cured. Of hard cheeses the chief are the English Cheddar, Stilton and Cheshire, and the French Gruyère. The soft or cream cheeses include Camembert and other varieties, made largely in France and Switzerland.

CHEETAH (*Cynaelurus jubatus*). Member of the Cat family, often known as the hunting leopard. It differs from the true cats in having the claws only partially retractile, and in its dentition. A slender, long-limbed animal, its fur is tawny in colour, and thickly spotted with black. Its tail is long. Common in many parts of Africa and the southern countries of Asia to India, it is often trained for hunting.



Cheetah, or Indian Hunting Leopard

CHEFOO or **CHI-FU**. Treaty port of China. In the prov. of Shantung, it is on the Gulf of Chih-li, 100 m. N.E. of Kiaochow. It has a large foreign settlement. Pop. 102,200.

CHEKA. Russian secret police. This first appeared in 1918, when the Soviet government employed it to destroy opposition, which was ruthlessly done. In 1922 its place was taken to some extent by a political department that had its own police, but the cheka remained in existence, and in 1929 the activities of the organization were again noticeable.

CHEKE, **SIR JOHN** (1514-57). English scholar. Born at Cambridge, June 16, 1514, from 1540-47 he was professor of Greek in the university there. In 1542 he was appointed tutor to the future King Edward VI, and was provost of King's College, Cambridge, 1548-53. He was knighted in 1552 and in 1553 made secretary of state. He died in London, Sept. 13, 1557.

CHEKHOV, **ANTON PAVLOVICH** (1860-1904). Russian novelist and dramatist. Born at Taganrog, S. Russia, he turned from the study of medicine to literature, and soon gained a wide popularity. His work consisted mainly of short stories, but he was also the author of several plays, including *The Seagull*. Among English translations of his writings are: *The Black Monk and Other Stories*, 1903; *The Kiss and Other Stories*, 1908; and *Plays*, 1912.



Anton P. Chekhov, Russian novelist

CHELLEAN. Early stage of the Palaeolithic age, when primitive man used flints and flint pebbles for making tools. It is named from Chelles, near Paris, where some of the implements have been found. The distinctive type of tool for this stage of culture was the boucher (hand-axe). See p. 98.

CHELMSFORD. City, borough and co. town of Essex. It stands in the valley of the Chelmer, near its junction with the Cann, 30 m. N.E. of London by the L.N.E.R. It has corn mills, tanneries, and breweries, and manufactures electrical apparatus, farm tools, etc. In 1914 the diocese of Chelmsford was formed out of that of St. Albans. The perpendicular church of S. Mary was made the cathedral. The diocese includes a large part of Greater London. The buildings comprise

grammar and endowed schools, shire hall, and corn exchange. There is a racecourse in the vicinity. Chelmsford is a centre of the wireless industry, having the works of the Marconi Co. and of other companies. The B.B.C. had a large broadcasting station here before the Danvers station was built. Market day, Fri. Pop. 20,761.

CHELMSFORD, **BARON**. British title borne by the family of Thesiger since 1858. Frederic Thesiger (1794-1878) was a lawyer and an M.P. Having been solicitor-general and attorney-general, he was lord chancellor in the Conservative ministries of 1858 and 1866-68. In 1858 he was made a baron, and he died in London, Oct. 5, 1878.

His son, Frederic Augustus, the 2nd baron (1827-1905), was a soldier. He commanded the British troops against the Kaffirs, and in the unfortunate Zulu War, 1878-79. He died Oct. 9, 1905, and was succeeded by his son, Frederic John Napier. Having been governor of Queensland, 1905-09, and of New South Wales, 1909-13, he was viceroy of India from 1916-21. In 1924, having been a viscount since 1921, Chelmsford was first lord of the Admiralty in the first Labour ministry.

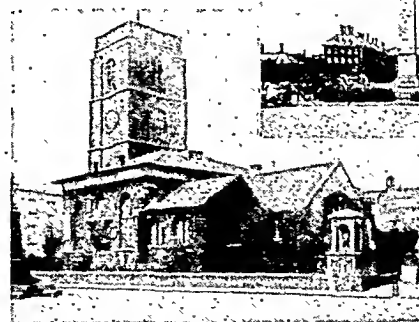
CHELSEA. Borough of S. London. Extending westwards from Pimlico about 1½ m. along the N. bank of the Thames, it has long been a favourite residential suburb.

About 1524 Sir Thomas More settled in the house later known as Beaufort House from the duke of Beaufort, to whom it passed, and who sold it to Sir Hans Sloane, by whom it was pulled down in 1740. On the site of Sir T. More's garden has been reconstructed Crosby Hall. Henry VIII acquired the old manor house and built the new manor house as a nursery. It adjoined the palace of the bishop of Winchester, which stood on the E. side of the present Oakley Street and extended as far as Don Saltero's coffee house in Cheyne Walk. For some years the princess Elizabeth lived here.



1st Viscount Chelmsford, Viceroy of India

Vandyke



Chelms, London. The Old Church. Above, exterior of Chelms Hospital with the Chillianwalla memorial

Notable residents include Carlyle, Sir Hans Sloane, whose statue by Rysbrack stands in the Physio Garden; Walpole, Fielding, Turner, George Eliot, Rossetti, and Whistler. Chelms has a polytechnic and a public library. Chelms Old Church dates from the 12th

century, and contains the More chapel and some chained books, the gift of Sir Hans Sloane. The church is a chapel of ease to the new parish church, S. Luke's, built in 1820-24, in which Charles Dickens was married. Chelsea Embankment, between Victoria or Chelsea and Battersea bridges, was opened in 1873. There is a power station in Lots Road. Pop. 63,700.



Baron Chelmsford, Lord Chancellor

Chelsea china was produced 1745-84, when the factory was transferred to

Derby. Pieces of the early period, domestic services and small figures, have an opaque glass-like paste and rather crude colouring. Pieces of the second period have a heavy compound paste, the mixture being imperfect, so that when held up to the light semi-transparent disks or "crescents" are seen. In the third period rich deep blue, pea-green, elaret, and turquoise grounds were common, the pieces being richly decorated and coloured.

Chelsea Hospital is an institution for old and disabled soldiers with no family responsibilities. Accommodation exists for about 550 in-pensioners. The hospital owed its foundation to Sir Stephen Fox (d. 1716), and was built by Wren, 1682-92. See Crosby Hall.

CHELTONHAM. Borough and market town of Gloucestershire. In the valley of the Chelt to the W. of the Cotswold Hills, 109 m. W.N.W. of London, on the G.W. and L.M.S. Rlys., it owes its fame as a health resort to the accidental discovery of mineral springs in 1716. The three saline spas, Old Well, Montpellier, and Pittville, and one chalybeate spa, Cambray, are considered beneficial for gout, dyspepsia, and liver complaints. Among local institutions are the proprietary college, ladies' college, training college for teachers, and grammar school. It is a hunting centre, the Cotswold having their headquarters here.

Cheltenham has a 14th century parish church, a modern town hall, winter garden, and free library, and among attractions is the annual county cricket week in Aug. Market days, Thurs. and Sat. Pop. 49,580.

Cheltenham College is a public school, established in 1840 on Church of England lines. Cheltenham Ladies' College, the first proprietary girls' school in England, was started Feb. 13, 1854, with 84 pupils. When Miss Dorothea Beale was made principal in 1858 there were only 69 pupils, but by 1873 the college possessed its own buildings and grounds, and at the present time it accommodates over 1,000 pupils.

CHEMIN DES DAMES.

Road in the dept. of Aisne, France. Known also as Route des Dames, or Ladies' Way, the road lies between the rivers Aisne and Lette, and runs

E. to W. from Craonne to Malmaison along the summit of the Craonne plateau. Its situation on the heights of the Aisne has always made it a battle-ground.

During the Great War incessant fighting took place for the possession of the Chemin des Dames. When the Germans retreated to the Aisne in Sept., 1914, they secured the heights, and from that time onward the French were engaged in guarding this critical area. Throughout 1914-16 this region was the scene of intermittent fighting. In the second battle of the Aisne (q.v.) April, 1917, the capture of the Chemin des Dames was an important objective. In the third German offensive in 1918 the Germans captured it on May 27. It was regained by the Allies in July-Oct

CHEMIST. By the Pharmacy Act, 1868, the title "chemist" is reserved for persons registered under that Act. These are dispensers of medicine or pharmacists, who were the original chemists. In modern times a class of men has sprung up who specialise in chemical problems, and are distinguished as professional, consulting, or analytical chemists.

A government chemist is an official who, on behalf of the Government, conducts analyses to test the purity of food and in connexion with kindred matters. The offices are at the Custom House, in Lower Thames Street, London, E.C.3, and at 13, Clement's Inn Passage, London, W.C.2. See Adulteration.

The Institute of Chemistry has as its objects to ensure that consulting and analytical chemists are duly qualified for the proper discharge of their duties. Examinations are conducted for the associateship. The offices are at 30, Russell Square, London, W.C.1.

CHEMISTRY. Branch of natural science concerned with the study of the composition of substances, the processes, termed chemical changes, by which substances are formed, the factors which influence such changes, and the accompanying phenomena. When Robert Boyle (1627-91) began his investigations, many substances had been prepared by chemical methods, and their properties had been examined, but the processes were carried out without real knowledge of the principles involved. Boyle was mainly responsible for raising chemistry to the status of a science. He defined an element as a substance which so far had not been split up into any other substances.

For about a century after Boyle chemists were mainly concerned with the study of combustion. The explanation of combustion and calcination now accepted was first given by Lavoisier (1743-94), to whom we owe also the establishment of the law of the conservation of mass. Between 1780 and 1810, the laws of chemical combination both by weight and by volume were established by the investigations of Proust, Dalton, Richter, Gay-Lussac, and others. Dalton propounded his atomic theory in 1808.

CHEMICAL CHANGE. When some finely-divided iron and flowers of sulphur are rubbed together in a mortar a mixture is obtained in which both substances retain their properties. When, however, some of the mixture is heated in a test tube it begins to glow, the glow spreads through the mass, and on cooling a product is obtained which is a definite chemical compound—iron sulphide—with characteristic properties of its own. There are two main types of chemical change: (1) Combination, when two or more substances unite to form a third; (2) Decomposition, when one substance at least splits up into two or more substances. Chemical changes are invariably associated with energy changes, e.g. the evolution or taking up of heat.

CLASSIFICATION OF ELEMENTS. With a slight modification of Boyle's definition, an element may be defined as a substance which cannot be decomposed at will. Between 80 and 90 elements are known. Copper, silver, gold, lead, and a number of other elements are termed metals. They show metallic lustre, conduct heat and electricity, and possess certain definite chemical properties. Elements which do not show these properties are termed non-metals. Certain elements, such as arsenic and tellurium, show some of the properties of both metals and non-metals. A few elements, such as hydrogen, oxygen, nitrogen, and chlorine, are gases at the ordinary temperature; two only, mercury and bromine, are liquid, and the great majority are solid under ordinary conditions.

LAWS OF CHEMICAL COMBINATION. For each element a fixed number, termed its atomic

weight, combining weight, or chemical equivalent, can be found, which represents the ratio, or a simple multiple or submultiple of the ratio, in which the element enters into chemical combination (*see Atom*). Chemical equivalents are now usually referred to oxygen taken as 16 (hydrogen = 1.008). Varieties of an element may exist which, though similar in properties, have different atomic weights. The name of isotope is given to such a variety. Though indistinguishable by chemical means such isotopes are separable physically. Dalton spoke of the atoms of compounds, as well as of atoms of elements, but the term as applied to compounds is unsatisfactory. Avogadro drew a distinction between atoms, the smallest particles of matter which can take part in chemical changes, and molecules, the smallest particles of matter capable of independent existence.

SYMBOLS AND FORMULAE. As chemical compounds are formed by the combination of two or more elements, it is natural to indicate the composition of a compound by writing side by side the symbols of the elements composing it. The symbol stands also for the atomic weight of the element. When more than one atom of an element occurs in the molecule of a compound, this is indicated by writing the appropriate figure at the lower right-hand corner of the symbol. Thus H_2SO_4 indicates that the molecule of sulphuric acid contains two atoms of hydrogen, one atom of sulphur, and four atoms of oxygen.



Chenonceaux. The castle, built in 1515, in which Francis II and Mary Queen of Scots spent their honeymoon

The study of radio-activity and the attendant atomic disintegration has shed a new light on chemistry. The alchemists sought for the mythical philosopher's stone, believing that with its aid they would be able to transmute base metals into gold. Transmutation occurs in nature, and the radio-active element uranium, for example, passes through a series of stages in progressive degradation, the end product being lead. This is an infinitely slow process, however, spread over millions of years, and cannot be influenced by any known means. *See Alchemy; Atom; Element; Gas; Isotope; Molecule; Radio-activity.*

There are a number of societies founded to promote the study of chemistry. Of these the principal British ones are The Chemical Society, founded in 1841 and holding its meetings at Burlington House, London; and the Society of Chemical Industry, devoted to the advancement of applied chemistry, Central House, Finsbury Square, London, E.C.2.

CHEMNITZ. Town of Saxony. It is on the river Chemnitz, about 50 m. by rly. S.E. of Leipzig. The old town hall and the church of S. James are Gothic. Modern features include the art gallery, technical school, town hall and public library. In the new town is an old Benedictine abbey, with its Gothic church still standing, known as the Schloss.

Engineering and textiles are the chief industries. Its modern prosperity dates especially from the commercial union of Germany in 1834, and the discovery of the local coalfield; this was so great as to win it the name of the Manchester of Saxony. Chemnitz is also a centre for tourists visiting the Harz Mts. Pop. 333,857.

CHENG-TU. City of China, capital of Sze-chuen prov. It lies in the valley of the Min, a tributary of the Yang-tse, 175 m. N.W. of Chung-king, a treaty port. The surrounding plain is one of the most productive and densely populated areas in the world. A centre of the tea and silk industries, the city is identified with Marco Polo's Sindafu. Pop (est.) 800,000.

CHÉNIER, ANDRÉ MARIE DE (1762-94). French poet. Born at Constantinople, Oct. 30, 1762, the son of the French consul-general in



André de Chénier, French poet

his Greek wife, Greek became his special study, and he made it his aim to infuse French verse with the old Greek spirit. His idylls, *Le Mendant* and *L'aveugle*; and his later *Hermès*, an imitation of Lucretius, are perhaps his best known works. Though a supporter of the Revolution, he was a vigorous writer against the Terror, and was guillotined, July 25, 1794.

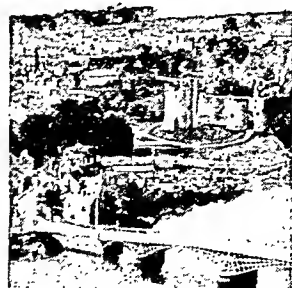
CHENIES OR CHENESS. Village of Buckinghamshire. On the Chess, 4 m. E. of Amersham, it is famous for its connexion with the Russell family, who obtained land here at the dissolution of the monasteries. Adjoining the old church of S. Michael is the Russell chapel, built in 1556, and containing memorials of Lord William Russell and others of the family.

CHENONCEAUX. Village of France, in the dept. of Indre-et-Loire, on the river Cher, 20 m. E.S.E. of Tours. Close by is the famous Renaissance castle begun by Thomas Bohier in 1515. It is joined with the opposite bank of the river by a two-storeyed gallery. It became state property and was given by Henry II to Diane of Poitiers. Later it was occupied by Madame Dupin, who was visited there by Voltaire, Rousseau and Bolingbroke.

CHEOPS. Egyptian king of the IVth dynasty. The name is, in Herodotus, the Greek form of the Egyptian Khufu. At Giza the great pyramid attributed to him contains a so-called king's chamber with a granite sarcophagus. In Sinai he sculptured rock-tablets. At Hatnub he quarried alabaster, vases of which are in London and Liverpool. At Abydos Flinders Petrie found in 1903 an ivory statuette of him, now in Cairo.

CHEPSTOW. Urban dist., market town, and river port of Monmouthshire. It stands on the Wye, about 2 m. from its junction with the Severn, 15 m. S. of Monmouth by the G.W.R. A sub-port of Gloucester, it trades in stone, coal, timber, and hark. In 1917 Chepstow was selected as the site of one of three national shipyards.

At Chepstow the tide (here) rises occasionally to 53 ft., the mean being 23½ ft. Brunel's tubular rly. bridge crosses the Wye, and a suspension bridge carries the road. The ruined castle and town walls date from the Norman conquest. Market day, Tues. Pop. 5,144.



Chepstow. The town and the Norman castle, seen across the river Wye
Valentine

CHEQUE OR CHECK. Document duly drawn up and signed by which money is conveyed from one person to another through the

medium of banks. Legally a cheque is a bill of exchange drawn by the customer on his banker. Cheques are payable on demand by the banker whose name they bear, but for safety the principle of crossing them has been introduced. A crossed cheque cannot be exchanged across the counter for cash, but must be paid into a banking account. The banker must meet any cheque presented to him if the customer's account has the necessary funds, or if arrangements have been made to provide them. Cheques were stamped with a penny stamp until 1918, when the tax was raised to twopence.

CHEQUERS. Mansion and estate in Buckinghamshire. It was presented, in Oct., 1917, by Sir Arthur Lee, M.P., later Lord Lee of Fareham, to the nation as the official country residence of the prime minister for the time being. It stands in a hollow of the Chiltern Hills, nearly 700 ft. above the sea, and the estate covers 1,500 acres.



Chequers. Mansion presented in 1917 by Lord Lee of Fareham for the official use of the British premier.

CHER. Department of central France. It is hilly in the S. and E. In the N.W. is the marshy district of Sologne. The land is largely used for pasturing horses and cattle, but a good deal is forest. Besides the Loire on the E. boundary, the Cher and the two Sautures, Grande and Petite, are the chief rivers, and the department is intersected by canals. Bourges (the capital), St. Amand-Mont-Rond, and Sancerre are the chief towns. Area, 2,819 sq. m. Pop. 298,398.

CHERBOURG. Town, port, and naval station of France, in the dept. of Manche. It lies at the mouth of the Divette, at the N. end of the Cotentin peninsula, on the English Channel, and 230 m. by rly. W.N.W. of Paris. The chief church is La Trinité and there is a fine old hospital. The naval harbour consists of three large and several smaller basins. The commercial harbour is at the mouth of the Divette. The roadstead is protected by an immense breakwater or digue. Steamers go to Southampton, the Channel Islands, and elsewhere. It is also a port of call for the Atlantic liners. It has a wireless station, and exports the produce of Normandy. Cherbourg existed under William the Conqueror, but its modern development dates from the time of Napoleon. Pop. 38,281.

CHEROKEE (Choctaw cave-men). North American Indian tribe of Iroquoian stock. Formerly occupying a large area in the S. Alleghenies, in 1838 they became one of the five civilized tribes in Oklahoma; their separate nationhood ceased in 1903. Their religion is a complex animal-worship and nature-worship. See illus. p. 73.

CHERRY (Cerasus, a town of Pontus). Fruit tree, of the order Rosaceae and genus Prunus. The garden cherry (P. cerasus) is

derived from the bird cherry (q.v.) and the wild cherry (P. avium), both common woodland trees. It is grown in the form of standards, espaliers, and other shapes in the same way as the apple. The sweet dessert cherries require a warm S. or W. aspect, but the Morello cherries will thrive in any position. Soil should be rich but light. Standard cherries are usually only used for orchard work, when they should be planted about 20 ft. apart every way, or 48 trees to the acre.

The flowering cherry (Prunus pseudo-cerasus) is a native of Japan. It is a familiar sight in spring, with its masses of double pink and white flowers. No fruit is borne. In Britain it rarely attains to a height of more than 25 ft., but in the forests of Japan it is a valuable timber tree.

CHERRY LAUREL (Prunus laurocerasus). Evergreen shrub of the order Rosaceae. A native of the Levant, it is the common laurel of European gardens. The leaves are broad, lance-shaped, leathery, and glossy; the flowers white, in sprays, succeeded by small cherry-like fruit. The plant is rich in hydrocyanic acid, constituting it highly poisonous.

CHERTSEY. Urban dist. and market town of Surrey. It stands on the Thames, 22 m. by the Southern Rly. S.W. of London. It was the site of a Benedictine abbey, founded 666. Its fairs date from the 12th and 13th centuries. Market day, Wed. Pop. 15,127.

CHERUBIM (lit. cherubs). Term familiar through the Prayer Book canticle, Te Deum Laudamus. The beings so called are here associated with the Seraphim. It is clear from many references in the O.T. that the cherubim were conceived as heavenly beings attendant upon the Divine Being, and as composite figures resembling the huge figures represented in Babylonian art as guarding the doors of temples and palaces. They were not objects of worship or angels, but proclaimed the presence of God and veiled His glory.

CHERUBINI, MARIA LUIGI CARLO (1760–1842). Italian composer. Born in Florence, Sept. 14, 1760, he produced his first opera, Quinto Fabio, in 1780, but it was not till 1788, when he settled in Paris, that his more important operative works were composed. From 1808, when he produced the Mass in F, he turned his attention almost entirely to church music, composing the Mass in C, 1816, the Requiem in C minor, 1817, and the Requiem in D, 1836. In

1822 Cherubini was appointed director of the Conservatoire at Paris, and that post he held for 20 years, publishing his treatise on Counterpoint and Fugue, 1836. He died at Paris, Mar. 15, 1842.

CHERVIL (Anthriscus cerefolium). Biennial herb of the order Umbelliferae. It is a native of E. Europe and W. Asia. Long cultivated as a potherb and for flavouring, it has large parsley-like leaves with an agreeable smell, and minute white flowers. Bulbous-rooted chervil (Chaerophyllum bulbosum) is a similar plant, but develops a more fleshy root.

CHERWELL. River of Northamptonshire and Oxfordshire. Rising at Charwelton, it flows 30 m. S. to the Thames at Oxford. At Oxford it is known as the Cher.

CHESAPEAKE. American frigate of 36 guns. Commanded by Capt. Lawrence, she had a short severe action with the British frigate Shannon, commanded by Capt. Philip Broke, off Boston, Massachusetts, June 1, 1813. The fight lasted but fifteen minutes, and the Chesapeake became the prize of the Shannon.

CHESAPEAKE BAY. Largest inlet on the Atlantic coast of U.S.A., in the states of Virginia and Maryland. The rivers emptying into it include the Susquehanna, Patuxent, Potomac, Rappahannock, York, and James, all from the W. Its length is 200 m., and its breadth (12 m. at the entrance) varies between 4 m. and 40 m. It is navigable for large vessels almost to the Susquehanna river. Chesapeake Bay was the scene of an indecisive naval engagement fought between the British and the French, Sept. 5, 1781.

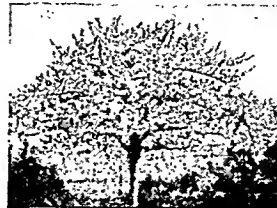
CHESHAM. Urban district and town of Buckinghamshire. It lies in the valley of the Chess, 26 m. by the Met. and Great Central Joint Rly. N.W. of London. Pop. 8,584.

CHESHIRE. County of W. England, which it partly separates from Wales; its greatest length 49 m., greatest breadth 33 m., and area 1,028 sq. m. The coast is confined to the Wirral peninsula between the Mersey and Dee estuaries. Mainly flat, except on the E. and W., the surface is thickly wooded in parts and dotted with small lakes, called meres, mainly in the south. The county contains places which are really suburbs of Manchester and Liverpool.

Cheshire is a noted dairy farming county, its cheese enjoying a high reputation. Salt is mined at Northwich, Winsford, Middlewich, etc. The consequent chemical industry is important, and coal and ironstone are worked; shipbuilding and textile manufactures are considerable. The Mersey, Dee, and Weaver are the chief rivers, and it has also the Manchester Ship, Trent and Mersey, Bridgewater, and other canals. The L.N.E., L.M.S., G.W., and Cheshire Lines Rlys. serve the county. Chester, the county town, and Birkenhead, Stockport, Congleton, Crewe, Macclesfield, Hyde, and Stalybridge are important towns. Pop. 1,025,423. See map p. 399.

CHESHIRE CHEESE. THE. Old London hostelry in Wine Office Court, Fleet Street, London. The present building dates from 1667, and arches in the vaults apparently belong to a period anterior to the Great Fire. It is thought that the tavern has existed on this spot since Elizabethan times. Although not recorded by Boswell, Dr. Johnson and Goldsmith are said to have frequented there, and Johnson's "favourite seat" is shown. It specialises in a beefsteak pudding made from a proprietary recipe and a glorified Welsh rarebit. See Fleet Street.

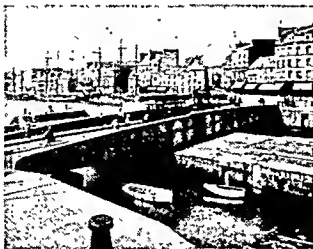
CHESHIRE REGIMENT. British regiment, the old 22nd of the line. It was first raised in 1689, and fought at Dettingen, where it saved King George II from some French cavalry, an incident commemorated in the oak leaf on its dress and colours. The regiment



Cherry. Tree of the garden cherry; above, fruit of the wild cherry.



Cherry laurel. Prunus laurocerasus



Cherbourg, French naval base. Alexander III Quay and the swing bridge



Luigi Carlo Cherubini. Italian composer

shared in the capture of Louisburg, 1758, and of Quebec. In later times the Cheshires fought under Sir Charles Napier, and in India won renown by their brilliant defence of Hyderabad. They were engaged on the Modder river, 1899, and at Paardeberg, and in the Great War the regiment won further battle honours. The regimental depot is at Chester.



Cheshire Regiment badge

CHESHUNT. Urban district of Hertfordshire. On the river Lea, it is 14 m. N. of London by the L.N.E. Rly. Cheshunt College, for training Nonconformist ministers, was removed to Cambridge in 1905, and the building bought by the

Capablanca (q.v.), world champion 1921-27, and Alekhine (q.v.), champion since 1927.

Chess is played between two opponents on a board of eight rows of eight squares each, coloured alternately white and black. Each player has on the rank in front of him five kinds of pieces—king, queen, two rooks, two knights, and two bishops—and on the second rank eight pawns. The object of the game is nominally to capture the opponent's king, capturing at chess being effected by placing a man on a square already occupied by a hostile man and removing the latter. In actual practice, however, the game always stops when one king is in such a position that he cannot escape capture next move. The notation is shown in the diagram given below. Each piece has a move varying in direction and scope. The

queen can move in any direction and as far as the limitations of the board allow, and is thus the most valuable piece in the game. Consult My Chess Career, J. R. Capablanca, 1920; My System, A. Nimzowitsch, 1929.

CHESS. River of Buckinghamshire and Hertfordshire. It rises just above Chesham, and flows S.E. to the Colne near Rickmansworth. It is noted for watercress and trout. It is about 8 m. long.

CHEST (A.S. cest). Oblong or square box of wood or iron, strongly made with a elaborately carved or otherwise ornamented. It was once an in-



Cheshire. Map of this English county on the Welsh border. It is noted for its salt mines, its dairy farms, and its meres. See p. 393

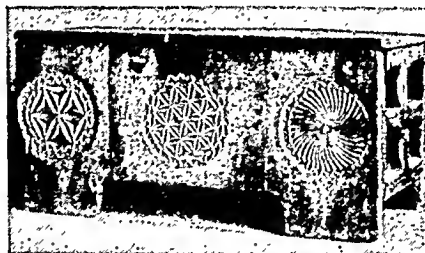
Church of England. Near is Theobalds (q.v.), with old Temple Bar. Pop. 14,250.

CHESIL BANK. Shingle ridge, on the coast of Dorset, connecting the Isle of Portland with the mainland at Abbotsbury. Some 16 m. by 170-200 yards, it is bounded for 9 m. by an inlet called the Fleet, noted for its swannery.

CHESNEY, SIR GEORGE TOMKINS (1830-95). British soldier. Born at Tiverton, April 30, 1830, he entered the Bengal engineers, became president of the engineering college at Calcutta, and was the first president of Cooper's Hill college, 1871-80. From 1880-86 he was military secretary to the Indian government, and from 1886-91 military member of the viceroy's council. He was Conservative M.P. for Oxford city from 1892 until his death, March 31, 1895.

CHESS. Game of skill played with "pieces" on a chequered board. A game very similar to modern chess can be traced back to the 6th century A.D., being mentioned in Indian and Persian literature about the beginning of the next century. By the 13th century chess seems to have been played all over Western Europe in a form little different from that in which the Arabs met it in Persia. England's contribution to the game began early in the 19th century, and Howard Staunton was supreme until, in 1851, the German-born Adolf Anderssen came to London and won the first great international tournament. Masters of the game have included Steinitz, Lasker,

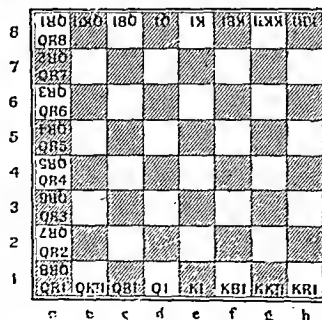
binged lid, sometimes elaborately carved or otherwise ornamented. It was once an in-



Chest. Oak chest, English, 13th century, said to have come from a church in Hampshire. Victoria & Albert Museum, S. Kensington

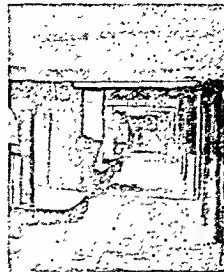
dispensable article of furniture for the storing of church plate, registers, and parish archives. These ecclesiastical chests were often of large size. Some chests were fitted with drawers, hence the term chest of drawers. See Coffin.

CHESTER City, county, and county borough of Cheshire. It lies on a rocky eminence on the river Dec, 16 m. S.E. of Liverpool, being served by the L.M.S., G.W., L.N.E., and Cheshire Lines Rlys. and the Dec and Chester and Nantwich canals. It is still enclosed by its old walls, dating from the 14th century; the gates and of the 18th. The river is crossed by a seven-arched bridge, and by the single stone span Grosvenor bridge, 200 ft. in length, which was erected by Thomas Harrison in 1828.



Chess board, showing the notation

The four main streets which converge on the market cross present a feature known as the Rows. These are formed by continuous, paved galleries, occupying the front part of the first floor of the buildings, and reached by staircases from the street. Many of the houses are timber structures of the 16th and 17th centuries. Stanley Palace, built in 1591, the finest Tudor building in Chester, was presented to the city in 1928 by Lord Derby. The cathedral em-



Chester. The cathedral. Above, Watergate Row, one of the upper paved galleries bordering the streets. Frith

braces Norman to Late Perpendicular styles; the central tower, 127 ft. high, has a splendid Perpendicular west window. Of the castle, only Caesar's Tower and a few other remains exist. Outside the walls is the church of St. John; its central tower fell in 1470 and the west tower in 1881. Among other buildings and institutions are the Grosvenor museum and school of art, town hall, King's school, blue-coat school, the Queen's school for girls. Races are held, the Chester Cup being the most famous event. Cheese fairs are held monthly. Chester was the Dera (camp upon the Dee) of the Romans, and an important military centre. Pop. 42,030

Chester was the name of a British light cruiser. She displaced 5,235 tons, had a speed of 25 knots, and ten 5.5-in. guns. It was aboard this ship that J. T. Cornwell (q.v.) remained at his post beside a gun, although mortally wounded, in the battle of Jutland, and for which he received the V.C.

CHESTERFIELD. Borough and market town of Derbyshire. It stands at the junction of the Hipper and the Rother, connected by canal with the Trent, 12 m. S. of Sheffield, on the L.N.E. and L.M.S. rlys. It has a Gothic church with a twisted spire, 228 ft. high, large market place, grammar school, and iron and brass foundries, tanneries, and silk factories. Market day, Sat. Pop. 66,450.

CHESTERFIELD, EARL OF. British title borne by the family of Stanhope, now Seadmore-Stanhope, since 1628. In 1616 Sir Philip Stanhope was made Baron Stanhope, and in 1628 earl of Chesterfield. His grandson and great grandson, both named Philip, succeeded to his titles, which then came to the famous 4th earl, Philip Dormer. In



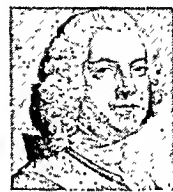
Chesterfield. Church with twisted spire

1883, when the 8th earl died, the direct line failed, and Henry E. C. Scudamore-Stanhope became the 9th earl. In 1887 his son, Edwyn Francis, succeeded him as 10th earl. The earl's eldest son is called Viscount Porchester.

A modern form of sofa with comparatively high back and thickly padded sides is known as a Chesterfield.

Chesterfield House, a mansion at the corner of Curzon and South Audley Streets, Mayfair, London, W., was built in 1750 by Isaac Ware for the 4th earl. After his death it was tenanted by the Chesterfield family until 1850. Later part of the grounds was leased for the building of Chesterfield Gardens, and the property passed to Lord Burton. In 1919 the dowager Lady Burton sold Chesterfield House to Viscount Laseelles, afterwards earl of Harewood.

CHESTERFIELD, PHILIP DORMER STANHOPE, 4TH EARL OF (1694-1773). English statesman, orator, wit, and letter-writer. Born



Earl of Chesterfield, English statesman and letter writer
After Hansky

Sept. 22, 1694, he sat in the House of Commons as a Whig, 1715-23. In 1726 he succeeded his father as earl. Ambassador at The Hague, 1728-30, and lord high steward, 1730, his opposition to the Excise bill brought about his dismissal from office in 1738. In 1744 he joined the Pelham administration, becoming successively special envoy to

The Hague, lord-lieutenant of Ireland, and secretary of state; but in 1748 he resigned office. He is best known by the letter addressed to him by Dr. Johnson (1755), and by the Letters which he wrote to his natural son, Philip Stanhope. He died March 24, 1773. Consult Life, W. H. Craig, 1907.

CHESTER-LE-STREET. Urban dist. of Durham. It stands near the river Wear, 6 m N of Durham by the L.N.E. Rly., on Ermine Street. Its church contains monuments of the Lumleys. It has coal mines and ironworks. Pop. 17,500.

CHESTERS. Residence near Chollerford, in Northumberland. Its park contains a section of the Roman wall and remains of the Roman station of Cilurnum. A good deal of excavating work has been done here and the museum in the park has a splendid collection of Roman relics.

CHESTERTON, GILBERT KEITH (b. 1874). British author. Born in London, he studied art, and early exhibited remarkable precocity with pen and pencil. His first publication was *The Wild Knight* (1900), a volume of poems. A master of paradox, Chesterton delighted an ever increasing public with startling criticisms of life and letters, with fantastic fiction and volumes of essays. Among these were *All Things Considered*, 1908; *Tremendous Trifles*, 1909; and the novels, *The Napoleon of Notting Hill*, 1904; *Manalive*, 1912; and *The Flying Inn*, 1914. He wrote monographs on Browning, 1903; Watts, 1904; and Dickens, 1906; and a series of detective stories, such as *The Innocence of Father Brown*, 1911; *The Wisdom of Father Brown*, 1914. He became editor of *The New Witness*, 1916. Later works are *Irish Impressions*, 1919; *The Return of Don Quixote*, 1927; and *The Thing*, 1929.

His brother, Cecil E. Chesterton (1879-1918), wrote a history of the United States, 1918. He was the founder and editor of *The New Witness*, 1912-16. He served as a private soldier in France, where he died, Dec. 6, 1918.



G. K. Chesterton, British writer
Russell

CHESTNUT. Tree of the order Cupuliferae, genus *Castanea*, largely grown in Spain and on the continent of Europe generally for food. The tree was introduced into Britain many centuries ago, possibly by the Romans. Chestnuts may be grown close together in order to form underwood or covert, in which case they attain a height of only a few feet, or planted at least 30 ft. apart, where they will form noble specimen trees 70 ft. or more in height. The flowers are yellow and bloom in June and July. The horse chestnut (q.v.) belongs to a distinct order, Sapindaceae.



Chestnut. Male and female flowers

CHETWODE, SIR PHILIP WALHOUSE (b. 1869). British soldier. Born Sept. 21, 1869, he served in Burma, 1892-93, and throughout the South African War. In August, 1914, he was in command of the 5th cavalry brigade. In 1916 he was sent to Egypt to take over the desert column of the Egyptian expeditionary force. He took a leading part in the final conquest of Palestine under Allenby. In 1919 he became military secretary to the secretary for war, and in 1922 adjutant-general. In 1923-27 he was G.O.C. the Aldershot command. He became chief of the general staff in India in 1928, and in 1929 was appointed commander-in-chief. In 1905 he succeeded to the baronetcy, created in 1700.



Sir Philip Chetwode, British soldier
Dassano

CHEVALIER ALBERT (1861-1923). British comedian. He was born in London, March 21, 1861 and made his first professional appearance in 1877 with the Bancrofts, under the name of Knight, in *An Unequal Match*, at the Prince of Wales Theatre. In 1891 he achieved remarkable success with his coster sketches and songs (*My Old Dutch*, etc.) at the Pavilion music hall. After four years at the halls he went on tour with his own entertainment, both in England and America.



Albert Chevalier, British comedian

Chevalier published two books of reminiscences, in 1895 and 1901. He died July 10, 1923.

Chevalier, Sulpice Guillaume (1804-66). French draughtsman and caricaturist, better known by the name Paul Gavarni (q.v.).

CHEVIOT HILLS. Range extending about 35 m. between England and Scotland. They attain their highest elevation (Cheviot, 2,676 ft.) in the extreme E. in Northumberland, 6 m. S. of Wooler. Other prominent summits are Windygate Hill (2,034 ft.), Cuslat Law (2,020 ft.), Peel Fell (1,975 ft.), and Carfer Fell (1,815 ft.). The Coquet, Till, Tyne, and tributaries of the Tweed rise in the hills.

The hills give name to the breed of Cheviot sheep. The wool of this is a medium fine fibre of exceptional springiness used to make Cheviot tweeds.

CHEVRON (Fr. from late Lat. caprio, *goat*). Charge in heraldry counted as one of the ordinaries. It is formed by diagonal bands rising from the dexter and sinister sides of the shield and meeting in a point. It should occupy a third of the field.

The name chevron is given to the V-shaped stripe worn by sailors, soldiers, airmen, and police on the sleeve of a coat or jacket to indicate rank or length of good conduct service. In the British army in the former

case chevrons are worn above the elbow, in the latter below. A serjeant has three chevrons, a corporal two, a lance-corporal one.

The Chevrons Club for petty officers of the navy, non-commissioned officers of the Royal Marines, the army, and the Royal Air Force, was founded in 1918. The address is 74, St. George's Square, London, S.W.

CHEVY CHASE. Ancient border ballad dealing with the rivalry of the English earl Percy of Northumberland and the Scottish earl of Douglas. There is no historical evidence of the battle which ensued as a result of the Percy's defiant hunting in the domain of the Douglas, but the ballad probably celebrates an actual encounter.

CHEYNE, THOMAS KELLY (1841-1915). British scholar. Born in London, Sept. 18, 1841, he was educated at Oxford. Having been ordained, he entered upon the Biblical studies which placed him in the front rank of those who accepted what was called the higher criticism. In 1885 he was appointed professor of the interpretation of Holy Scripture at Oxford and canon of Rochester. Cheyne was Bampton Lecturer, 1889, one of the revisers of the Old Testament and joint editor of *The Encyclopaedia Biblica*. He died Feb. 16, 1915. Pron. Chaîny.

CHIANG KAI SHEK. Chinese president. Having joined the party of Sun Yat Sen, he became in 1920 head of a military academy. In 1925, just after Sun's death, he was made commander-in-chief of the forces of the Kuomintang, and was successful in bringing some of the provinces under its authority. At this time he was closely associated with Borodin and other Soviet emissaries, but about 1927 he broke away from them. The headquarters of the nationalists were transferred from Canton to Nanking, and the communists lost their influence. Further military successes included the taking of Peking, after which, in 1928, Chiang was chosen president of the republic. See China.

CHIANTI. Range of hills forming part of the Etruscan Apennines, Central Italy, between Siena and Arezzo provinces. A wine is made from grapes grown on them. It has a slightly astringent taste, and resembles a dry Burgundy.

CHICAGO. City of Illinois, U.S.A., capital of Cook co. The second city of the U.S.A. in population and importance, it lies on the Chicago river, near the S. end of Lake Michigan, and is the centre of the livestock, packed meats, grain, and lumber trades. Printing is another important industry. The U.S. frontier post, Fort Dearborn, was built in 1804 on the site of the city.

The commercial importance of Chicago began about 1850, and by 1871 it had over 300,000 inhabitants. A fire then swept the city, but it was rebuilt on a finer scale. Notable buildings include many sky-scrappers, such as the Wrigley building, the offices of The Chicago Tribune, and the Masonic Temple. The City Hall is a fine pile.

The Academy of Science stands in Lincoln Park, and the Field Museum of Natural History occupies reclaimed land on the lake front. To the S. is Soldiers' Field, a stadium erected in memory of the Great War. More land is being reclaimed from Lake Michigan. and the World's Fair of 1933 is to be held on reclaimed islands. The Art Institute and the Public Library are in Michigan Avenue.

Among educational institutions are the University of Chicago, occupying over 100 acres on both sides of the Midway Plaisance, and the Northwestern University. Other intellectual establishments include the opera association. Around the city is a reserved belt of forest land



Chevron in heraldry

The Union Stockyards are one of the wonders of the world. Here in 500 acres is centred the organization that feeds much of the civilized world. The great national political conventions often meet in Chicago, and its local politics, complicated by the large alien element and strongly imbued with the democratic spirit, are lively and vehement. In 1929-30 there was a crisis in the city's financial affairs. Pop 3,157,400.

East Chicago is a city of Indiana, 21 m. S.E. of Chicago.

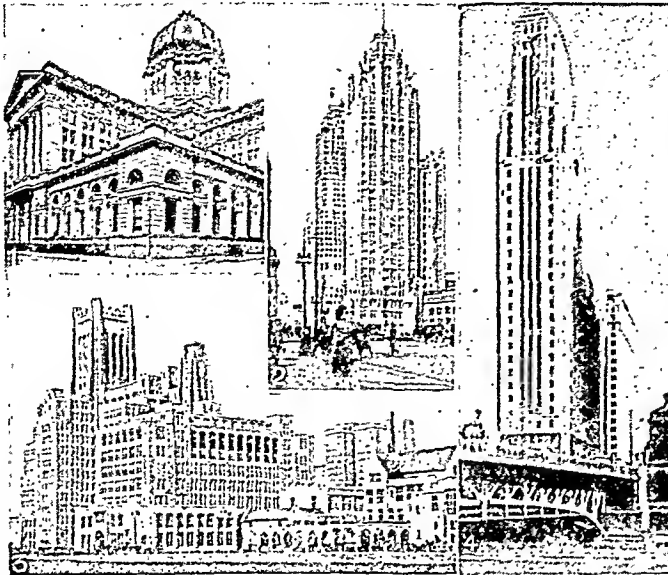
CHICHELEY OR CHICHELE, HENRY (c.1363-1443). English archbishop and statesman. Born at Higham Ferrers, Northamptonshire, he was ordained priest in 1396. Having held the rectory of S. Stephen's, Walbrook, and other benefices, he was appointed bishop of S. David's in 1407, and archbishop of Canterbury in 1414. A staunch supporter of Henry V, he was active in legislative and administrative work. Of his many benefactions the chief was the founding of All Souls College, Oxford. He died April 12, 1443. See All Souls.

CHICHESTER. City and market town of Sussex. On a plain between the sea and the South Downs, 69½ m. by rly. S.W. of London, on the Southern Rly., it is enclosed by an ancient wall, now converted into promenades. The cathedral (11th to 16th centuries), 411 ft. long and 131 ft. wide, superseded a wooden building founded in 1078; it has a detached Perpendicular campanile or bell tower. The present spire (277 ft.) replaced one which fell in 1861. The bishop's palace is S.W. of the cathedral. Other buildings are S. Olave's Church, the Guildhall, S. Mary's Hospital, and the market cross, erected about 1500. The cattle market is probably the largest in the S. of England.

The Regnum of the Romans and the headquarters of Vespasian, Chichester suffered at the hands of the South Saxons in 491, but was rebuilt by Cissa, after whom it is named (Cissae Castrum, Cissaceaster). The Roman road known as Stane Street, from Chichester to London, may still be traced for considerable distances. Market day, Wed. Pop. 12,413.

The town gives its name to the title of earl borne since 1801 by the family of Pelham. Thomas, the 2nd earl (1756-1826), was home secretary, chancellor of the duchy, and postmaster-general. The family seat is Stanmer Park, Lewes, and the earl's eldest son is known as Lord Pelham.

CHICKEN POX OR VARICELLA. Acute infectious disease of children and young adults. The symptoms begin with sickness



Chicago. 1. Government offices, built in 1905. 2. Offices of The Chicago Tribune. 3. McKinlock Campus buildings of the Northwestern University. 4. Commercial building at the end of Michigan Avenue Bridge. 2, 3 and 4, "The Times" copyright

and fever, followed within 24 hours by the appearance of rash, generally on the back or chest. At first the rash consists of red papules, but in a few hours they become rounded vesicles filled with a clear or turbid fluid. After a couple of days the vesicles contain pus or matter, and thereafter they dry up, fresh crops having, however, appeared in the meantime. In the majority of cases chicken pox runs a favourable course.

CHICK PEA (*Cicer arctinum*). Annual herb of the order Leguminosae. A native of Europe and Asia, its leaves are broken up into oval leaflets. The pea-like flowers are white or rosy, and succeeded by short pods containing one or two seeds. As gram it is extensively cultivated in India for food and for export to Europe, especially Spain.

CHICKWEED, STITCHWORT OR STARWORT (*Stellaria media*). Annual herb of the order Caryophyllaceae. It is a native of the arctic and N. temperate regions, but naturalized in most other places where the ground is cultivated. It is a tender little plant with fragile jointed stems and little oval leaves in pairs. The small white flowers are often imperfect, the petals being much reduced in size or absent.

CHICORY (*Cichorium intybus*). Perennial herb of the order Compositae. It has a fleshy, tapering root and long leaves boldly cut in from the edges, which if broken emit a milky juice. The bright blue flower-heads are 1 in. or 1½ in. across, on a rigid, branched stem 2 or 3 ft. in height. The roots, dried,

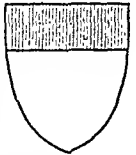
ground, and roasted, are much used as an adulterant to or a substitute for coffee. The root contains sugar and starch.

Chicoutimi. City of Quebec, Canada, on the Saguenay, 227 m. N. of Quebec. It is a hunting and fishing centre. Pop. 8,937.

Chidley. Most northerly point of Labrador, also known as Chudleigh.

CHIEF. Word derived from the Latin caput, head, and meaning the principal man of an organization. It and its variant, chieftain, are the head of a tribe. Tenants in chief were landowners who held their land directly from the king. Chief of the staff is the name given to the chief assistant of a sailor or soldier holding a high command.

In heraldry the chief is the upper third of a shield, reckoned as one of the ordinaries. It is represented by a band, the shield being parti-coloured. Any charge borne above the fess point, or middle of the shield, is said to be in chief.



Chief in heraldry

CHIFFCHAFF (*Phylloscopus rufus*). Small song-bird, one of the earliest summer visitors to Great Britain. The head, back, and wings are greenish ash colour and the under parts yellowish white. It feeds on insects, most of which it catches in flight, and it is found mainly about the edges of pools and streams.



Chiffchaff. Young of this small song-bird, an early migrant

CHIGI. Name of an illustrious Roman family. Agostino Chigi (1465-1520), a great banker, acted as financial adviser to Pope Julius II, and built the Farnesina palace and gardens at Rome. Fabio Chigi (1599-1667), became pope as Alexander VII. His nephew, Agostino, made prince of Farnese and duke of Ariccia, was created a prince of the Holy Roman Empire in 1659. From 1712 the hereditary office of marshal of the Church and guardian of the conclave has been held by the Chigi.

CHIGWELL. Village of Essex. On the borders of Epping Forest, it is 13½ m. N.E. of London by the L.N.E. Rly. The church of S. Mary contains a brass to Samuel Harnett, archbishop of York (d. 1631), who founded (1629) the grammar school, where William Penn was a pupil. The old King's Head Inn, where the Verderers' or Forest courts were held until 1855, is the original of the Maypole in Dickens's Barnaby Rudge. Pop. 2,943.

CHILANGA. Station of Rhodesia. On the line from Livingstone to Broken Hill, it is 80 m. S. of the latter place. In 1929 it was selected as the capital of Northern Rhodesia in place of Livingstone.

CHILBLAIN OR KINE (Pernio). Inflammation of the skin due to cold. The toes, fingers, heels, ears, nose, and cheeks are the parts most frequently affected. A chilblain neglected may pass into severe ulceration. Soothing liniments should be applied at first, and later on tincture of iodine, friars' balsam, and compound liniment of camphor are useful.

CHILD, SIR FRANCIS (1642-1713). English banker. He removed to London from Wiltshire, and was apprenticed to a goldsmith. About 1671 he became a partner in and soon afterwards head of the



Chicory, *Cichorium intybus*



Chichester. The Cathedral from the E. On the right is the detached bell tower

banking firm which adopted his name. In 1689 he was knighted, and in 1699 was lord mayor. For some years he was M.P. for Devizes, and in 1702 for the City of London. He died Oct. 4, 1713.

His sons continued the business, one of them, Sir Francis, also becoming lord mayor. Another, Robert, had a daughter who married the 10th earl of Westmorland, and to their daughter, Sarah, was left Robert Child's interest in the bank. Sarah married the 5th earl of Jersey, and the earls of Jersey thus became the chief partners in Child's Bank.

CHILD. The law relating to the protection of children and young persons is largely contained in the Children Act, 1908. In that Act child is defined as being a person under the age of 14, and a young person as being a person of 14 or upwards, but under the age of sixteen.

The Act materially strengthens the law which had previously been designed to limit the evils of baby farming. Heavy punishments are provided for cruelty to children and young persons. A parent or other person legally liable to maintain a child or young person neglects him or her for the purposes of this section if he fails to provide adequate food, clothing, medical aid, or lodging for him or her.

Any person who causes or allows a child or young person to be in any street, premises, or place to beg, or to receive alms, or to induce the giving of alms, may be fined £25 or sent to prison for three months with hard labour.

Caro is taken that when children or young persons are detained after arrest or on remand, or after having been committed for trial, they shall be prevented from associating with adults charged with offences, and shall be committed for custody in special places of detention. Sentence of death cannot be pronounced on a child or young person. Instead, detention during his Majesty's pleasure is ordered. A young person aged from fourteen to sixteen cannot be sentenced to penal servitude nor to imprisonment, unless too unruly for a place of detention, and, in addition, a child under fourteen cannot be sentenced to penal servitude or imprisonment.

The Education Act, 1918, which applies only to England and Wales, amended the law relating to the employment of children. Under its provisions no child under the age of 12 years is to be employed at all, and children between 12 and 14 (or 15 if the local education authority has fixed that as the age up to which parents must keep their children at school) must not be employed on Sundays for more than two hours, nor on any day on which they are required to attend school before the close of school hours on that day, nor on any day before 6 a.m. or after 8 p.m. No child may be employed in street trading, nor in any factory, workshop, mine, or quarry. In 1929 it was decided to raise the school-leaving age from 14 to 15.

Courts for children were created by the Act of 1908. They hear charges against offenders under the age of sixteen, investigate the cases of children brought before them for vagrancy, destitution, ill-treatment, or moral danger, and consider the granting of licences for young performers. Juvenile courts can commit young offenders to training institutions. See Adoption; Affiliation; Baby; Borstal; etc.

CHILE. Republic of S. America, on the Pacific coast. It is bounded N. by Peru, E. by the Andes, while the S. extremity terminates in lat. 56° S., where the Pacific and South Atlantic unite. The S. and S.W. ends are fringed with islands. Its extreme length is about 2,800 m. The width varies from 50 m. to 100 m. throughout most of its extent. Santiago is the capital and the seat of the state university. Other important towns include Valparaiso, Concepcion, Iquique, and Antofagasta. Chile is a member of the League of Nations. The area is about 290,000 sq. m.; pop. 4,276,000. (See maps, pp. 121, 275.)

Chile may be broadly divided into three zones—the tropical rainless deserts of the N., the temperate cultivated zone in the centre, and the rainy and stormy forest zone of the S. None of the rivers flowing down the steep slopes of the Andes are of much use as navigable highways, but attention is being increasingly given towards utilizing them for cheap hydraulic and electric power. Earthquakes are frequent.

Mining and agriculture are the chief occupations. Chile is the second greatest copper producing country in the world. For many years the world's supply of natural nitrate has come from the vast nitrate fields in the N., from which region are also obtained iodine, borate of soda, copper, gold and silver. The central zone yields copper, iron, manganese, and silver, while iron and coal are mined in the S. Chile produces large crops of wheat, barley, oats, and maize, besides wine, fruit, and vegetables. The grass lands of the far S., where Chilean territory embraces a considerable stretch of Patagonia and most of Tierra del Fuego, are

mainly devoted to sheep farming. The majority of the population are of European origin. The language is Spanish. The indigenous inhabitants comprise Fuegians in or near Tierra del Fuego, Araucanians (see illus. p. 112) in the valleys and western slopes of the Andes, and Changos on the coast of Atacama in the N. The rlys. are chiefly owned by the state. Most of the ports are connected by lateral lines with the longitudinal rly. running from Tacna in the far N. to Puerto Montt in the S., and there is rly. connexion across the Andes with Argentina and Bolivia. There is a steadily increasing chain of wireless stations along the coast. The nominal unit of currency is the gold peso, worth 6d. All able-bodied citizens from the age of 20 to 50 must serve in the army for a training period of 18 months and then for 12 years in the reserve. The active strength of the navy is about 8,000. An air force was formed in 1918.

Chile was discovered by the Spaniards in the 16th century and remained under Spanish rule until 1818, when its independence was finally secured and a republic set up. The war between Chile and Peru over the nitrate lands in the N., which began in 1879, lasted until 1883, when the Peruvian prov. of Tarapaca was ceded to Chile in perpetuity and those of Tacna and Arica for ten years. In 1929, after a lengthy dispute, Chile ceded Tacna to Peru and retained Arica for a payment of £1,200,000.

A new constitution came into force in 1925. The president is elected by direct popular vote for a term of six years. The legislative power is vested in the National Congress, which consists of a Senate of 45 members and a Chamber of Deputies of 132.

CHILE PINE OR MONKEY PUZZLE (*Araucaria imbricata*). Evergreen tree of the order Coniferae. A native of Chile, it grows to a height of 150 ft., and its symmetrical branches are horizontal, or with a slight tendency downward. These are covered by the overlapping oval leaves, each ending in a sharp point. The male and female flowers are produced on separate trees, the latter yielding cones.



Chile Pine cone

CHILLIES. Fruit pods of *Capsicum annum*, a herb of the order Solanaceae, native of S. America. The fruits are used for making chillie vinegar and, together with those of a shrubby species (*C. frutescens*), in the preparation of the hot condiment known as Cayenne pepper. See Cayenne.

CHILLINGHAM. Village of Northumberland. It stands on the river Till, 4 m. S.W. of Wooler. To the S. is Chillingham Castle, seat of the earl of Tankerville. In the park is preserved a herd of semi-wild cattle.

CHILLINGWORTH, WILLIAM (1602–44). English divine. Born in Oxford, he was there educated and was ordained. Siding with the king in the Civil War, he served as a chaplain with the forces, and was taken prisoner by the parliamentarians at Arundel. He died at Chichester, Jan. 30, 1644. Chillingworth is rightly regarded as one of the most liberal-minded men of his time and a pioneer of liberty of thought among Anglicans.

CHILLON. Castle of Switzerland. It stands on a rocky islet at the E. end of the lake of Geneva. Dating from the 8th century, it was partly rebuilt in 1293 by Amadeus IV. of Savoy. It was long used as a state prison. Bonivard (q.v.), the prisoner immortalised in Byron's poem, was confined here, 1530–36.



Chillon. The castle which stands on an islet in Lake Geneva

CHILTERN HILLS. Range of chalk hills extending some 45 miles north-eastwards from the Thames at Goring. The highest points are Wendover Hill, 905 ft., and Ivinghoe Beacon, 904 ft. From the summits to the north-west there is a sharp drop to the valley of the Upper Thames, or the Vale of Aylesbury. In the opposite direction the land slopes gradually to the London basin of the Lower Thames. At the foot of the scarp numerous streams flow across the plains to the Thame and Great Ouse: down the gentler slope the Wye, Misbourne, Chess, and Colne are almost the only streams. Between the hills are the dry wind gaps usually known by the names of the neighbouring towns of Princes Risborough, Wendover, Berkhamsted, and Luton.

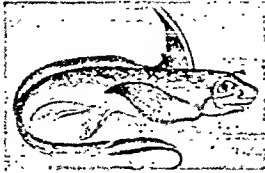
There is a town called Chiltern in Victoria, Australia, 22 m. S.W. of Albury.

CHILTERN HUNDREDS. The hundreds of Burnham, Desborough, and Stoke, in the Chiltern Hills, Bucks. Application for the stewardship of these is the formality gone through by a member of parliament who wishes

to retire, resignation not being permissible by law. A nominal salary of 20s. a year goes with this stewardship, which is the gift of the chancellor of the exchequer, and automatically involves the retirement of a member.

CHIMAERA (Gr. she-goat). In Greek mythology, fire-breathing monster with the fore-quarters of a lion, the middle of a goat, and the tail of a dragon. The monster dwelt in Lycia, where it was the terror of the neighbourhood, until killed by Belleroophon mounted on his steed Pegasus. Pron. Kim-*er*a.

CHIMAERA. Sub-class of large fishes, related to the rays. The skeleton is cartilaginous; and the internal organs have points of resemblance with those of the sharks. They are about 4 ft. long, and work havoc with the herring fishery. They inhabit the European seas and are also found along the W. coast of N. America.



Chimaera. Northern chimaera a feeder on herrings

CHIMPANZEE OR CHIMPANZI (Anthropopithecus troglodytes). Large anthropoid ape. Nearly related to the gorilla, it differs in the teeth, in the shape of the skull, and in the fact that the sexes differ in little but size. The arms do not exhibit the disproportionate length so marked in the other anthropoids. Chimpanzees are natives of Western and Central Equatorial Africa. They live in the forests, spend part of their time in the trees, and feed mainly on fruit. Chimpanzees are shy and wary, and appear never to molest man if unprovoked. See Anthropoid Ape.



Chimpanzee. Large anthropoid ape

CHINA. Formerly an empire, now a republic of Asia. China proper, exclusive of Manchuria, Mongolia, Sin-kiang, Tibet, and other dependencies, extends approximately from lat 18° to 43° N., and from long. 98° to 122° E. over a total area of 1,532,800 sq. m. It comprises 18 provs., viz.: Sze-Chuen, Yun-nan, Kansu, Chih-li, Kwangtung, Hu-nan, Shan-si, Kwangsi, Shen-si, Hu-peh, Kiang-si, Honan, Kweichow, Shan-tung, Anhwei, Fukien, Kiang-su, and Che-kiang. Important towns include Nanking (the capital), Peking (the former capital), Shanghai, Canton,

the Hwang-ho or Yellow river, the Yang-tse kiang, and the Si-kiang or West river. These broadly represent N., central, and S. China respectively. The climate in general is temperate. The greater part of the country is mountainous, the Kwen-lun range throwing out several branches. In the E. the great plain of China roughly forms a triangle, with its apex near Peking and its base along the Yang-tse from the neighbourhood of Shanghai to that of Ichang. The Grand Canal links the basins of the Pai-ho, Hwang-ho, Hwai, Yangtse, and Tsiang. S. of Ningpo the coast abounds in good natural harbours.

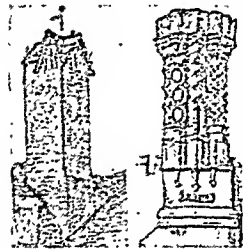
China is essentially an agricultural country. Rice is the staple crop throughout the S. and central provs. In the N. the chief crops are wheat, barley, maize, millet, and beans. The central provs. produce ramie, mulberry, sesamum, and vegetable oils. Cotton is grown as far N. as the N. part of Chih-li, but the lower Yang-tse valley is the great cotton region. The tea gardens are in the W. and S. One of the most successful industries is silk culture.



China. Chief priest of a Buddhist temple

CHIMBORAZO. Mt. of Ecuador. An extinct, craterless volcano of the W. Cordillera of the Andes, its height is 20,498 ft. It was twice ascended by Whymper in 1880. It gives its name to a prov. of Ecuador. See Andes.

CHIMNEY (Lat. caminus, hearth). In Anglo-Saxon times smoke from the domestic fire escaped through a hole in the roof, but by the 13th century chimneys were common. Palladio (1518-80) knew the principle on which they should be constructed—neither too wide so as to cause loss of heat and diffusion of current, nor too narrow to afford a free outlet. In Great Britain the task of removing soot from chimneys was originally performed by small boys known as



Chimney. Left, of Abingdon Abbey, c. 1250. Right, of Thornbury Castle, 1514

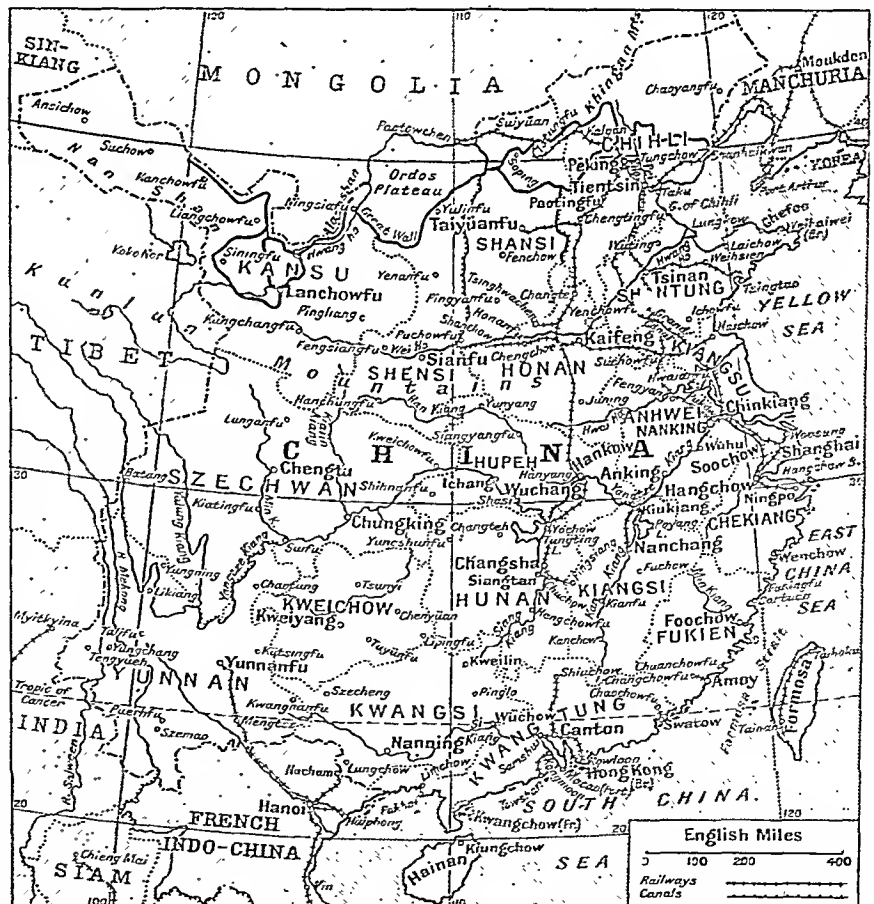
originally performed by small boys known as climbing boys, but the Act of 1842, amended in 1864, made such employment illegal.

The assemblage of architectural dressings round the fireplace in a room is known as the chimney-piece. At first merely a hood to catch the smoke, attention began to be paid to the stonework surrounding the hearth, though the decorative additions were not always fixtures. Elizabethan chimney-pieces were of stone, wood, and sometimes coloured marble. The architecture of the chimney-piece was carried up to the ceiling, and the best specimens were in harmony with the wood panelling of the walls. The chimney-piece of the Jacobean period rivalled the staircase as a feature of noble house interiors. About the middle of the 18th century further developments were introduced by the brothers Adam.



Chimney-piece in Adam style in Lansdowne House, London Country Life

In engineering, what is termed a chimney shaft is a device employed (1) to promote draught through a boiler or other furnace, and (2) to discharge waste and noxious gases at a height where they will not create a nuisance.



China, map of the great republic of the Far East, exclusive of its dependencies. It has a population of over four hundred millions, and includes some of the most densely populated areas in the world.

Hankow, Ningpo, Tientsin, Soochow, Hangchow, and Foochow. Pop. 414,011,519.

The country falls into three great natural divisions—the basins of the three chief rivers,

China producing about one-fourth of the world's supply of raw silk. Despite repeated efforts to suppress the opium traffic, the poppy is still grown. Pigs are reared everywhere.

Coal is the most important mineral. Iron ores are abundant. Copper is found in most parts, and especially in Yun-nan. Tin is the chief mineral export. China produces more antimony than any other country. Other minerals include gold, silver, lead, and tungsten. Petroleum is also found.

The manufacture of silk is one of the most important industries. Modern industrial methods are being increasingly adopted. There are silk filatures and cotton mills at Shanghai Canton, and other centres, sugar refineries at Canton, iron and steel



China. Chinese lady of rank with her maid in attendance

works at Han-yang, and shipbuilding and engineering works at Shanghai, Hankow, and Foochow. The exports include silk, beans, bean-cake, vegetable oils, cotton, and tea. There are over 7,500 m. of rlys., and the roads have been greatly improved since 1920. The rivers and canals carry most of the internal trade. The postal service is fairly good, and the telegraph service is well developed, and there are wireless stations

The Chinese Empire, one of the oldest monarchies in the world, came to an end in 1912, when the Republic of China was inaugurated. After the death of the first president, Yuan-Shih-Kai, in 1916, the rivalry between N. and S. long continued to disturb the country. In 1927 the government of N. China was established at Peking, while the government of the nationalist party (Kuomintang) was installed at Canton. In June, 1928, the nationalists captured Peking and Nanking was made the capital. In Oct. 1928 Chiang-Kai-Shek, the commander-in-chief of the victorious nationalist armies, became president. He consolidated the South, but early in 1930 there were signs that war with the North was again possible

The government of China is a committee government representing the Kuomintang. It consists of five yuans or councils—executive, legislative, judicial, examination, and control. The yuans are subordinate to the "three conferences," over which that of the nationalist party is supreme. To assist the president there are from 12 to 16 state councillors, from whom the presidents and vice-presidents of the yuans are appointed. There is a cabinet, whose ministers are no more than functionaries of the administrative council.

CHINA ASTER (*Callistephus chinensis*). Annual herb of the order Compositae. A native of China, it was introduced to Great Britain in 1731. It has branching stems about 2 ft. high, with toothed, oval leaves, and rosy lilac flower-heads about 3 ins. across. See Aster; also illus. p. 147.

CHINA CLAY. White clay resulting from the decomposition of felspar. It is used in the manufacture of porcelain, and as a filler or loading in paper making. China clay is yielded by granite, gneiss, pegmatite, porphyry, and some felspathic sandstones, through kaolinisation, a process of alteration whereby the felspar passes into a soft, white, pulverulent mass. China clay is worked largely in the W. of England, in the St. Austell district, and on Bodmin Moor and Dartmoor.

CHINA-ROOT. Root of *Smilax china*, a climbing plant of the order Liliaceae, a native of China and Japan. The large, reddish, fleshy root is used for food in its native countries, and is exported as a dyestuff.

CHINA SEA. Western division of the Pacific Ocean. Its N. part, the Yellow Sea, lies between Korea and Kiang-su; the central part, the Eastern China Sea, lies between Japan and Formosa; while the S. portion, or S. China Sea, extends from Luzon, Philippine Islands, S. to Borneo and the Malay Peninsula. These inland waters are periodically subject to typhoons. See Pacific Ocean.



China-root. Part of root, and flowering spray.

CHINAWARE. Name originally denoting fine pottery imported from China, and afterwards applied to any porcelain ware. Porcelain is broadly distinguished from other pottery fabrics by being vitreous and, when thin, translucent.

True or hard porcelain is composed of a hard-paste body formed by mixing white infusible china clay—Chinese, kaolin—with fusible felspathic china stone—Chinese, petuntse—and quartz, the glaze being of china stone and lime. Both are fired at one operation at about 1,350° C. Ordinary steel cannot scratch it, and its fractured surface is shell-like. Invented by the Chinese during the Tang dynasty, 618-906, it was reproduced in similar materials, now commonly called Dresden china, by J. F. Böttger, at Meissen, near Dresden, about 1713, and by W. Cookworthy, at Plymouth, about 1768. The latter's patent rights were acquired by R. Champion, and passed in 1781 to Staffordshire. The development there of chinaware under Spode, Copeland and Minton, and others, belongs to the 19th and 20th centuries.

Artificial or soft porcelain is composed of a soft-paste body fired to an unglazed or "hiscuit" condition at about 1,100° C., the glaze being applied subsequently and fired at about 1,000° C. It is easily scratched, and its fractured surface is granular.

English soft porcelain is traceable back to 1745. Within a dozen years it was being produced at Bow, Chelsea, Derby, Worcester, and Longton Hall. J. Sadler, of Liverpool, by his invention of transfer printing about 1752, helped to secure for English ware the pre-eminence in mass production. In 1769 W. Duesbury bought the Chelsea works, running them concurrently with Derby for 16 years—the Derby-Chelsea period. In 1776 he acquired the Bow stock-in-trade. The Crown Derby period extended from 1780 to 1830.

CHINA MARKS. Devices employed by potters for identifying their work. They pertain to all objects of baked clay included in the term ceramic, whether earthenware, stoneware, or porcelain. They usually denote the place of manufacture, master potter, workman, or decorator; less frequently, the patron, date, quality, capacity, and other details. Produced on the plastic surface, they are imprinted, painted, stamped, or incised. Still-marks left by the supports used in the kiln are often characteristic. The fraudulent imitation of marks is of high antiquity. Consult Marks and Monograms on Pottery and Porcelain, W. Chaffers, 12th ed. 1908.

CHINCHILLA (*Chinchilla lanigera*). Small squirrel-like rodent, allied to the porcupines, found in the Andes. It has long hind legs and a bushy tail. It is 10 ins. long, lives in burrows in barren districts, and is valued for its fur.

CHINDE. Port of Portuguese East Africa (Mozambique), on the Chinde river, the only navigable mouth of the Zambezi. Important as an outlet for the Zambezi valley, N. Rhodesia, and Nyasaland by the Shire river, goods and passengers travel by coasting steamers to Beira (q.v.). Chinde exports cotton, sugar, coffee, rubber, oil-seeds, ivory, wax, etc. Pop. 3,400.

CHINESE WHITE. Zinc oxide prepared by burning zinc and allowing the vapour to condense. The white powder that results is known also as flowers of zinc. It is used as a pigment in place of white lead. Although more permanent, it has less covering power than white lead.

CHINGFORD. Urban district and parish of Essex, 10½ m. N. of London by the L.N.E.R., between Epping Forest and the river Lea. The Tudor building known as Queen Elizabeth's Hunting Lodge may have been the manor house. The old church of All Saints dates from the 14th century. Abandoned in 1844, and partly restored in 1873, its roof collapsed in Feb., 1904. In 1929 the church was restored and again used for public worship. The new church of SS. Peter and Paul is on Chingford Green. Chingford reservoir, 1½ m. long by ¾ m. wide, was opened Mar. 15, 1913. Pop. 13,500.

CHINO-JAPANESE WAR. Fought in 1894-95 mainly in and about Korea. Korea held herself to be independent, though nominally under the suzerainty of China, while Japan had established there large and flourishing settlements. In May, 1894, the king of Korea applied to China for assistance to quell an insurrection, and a small Chinese force was sent. Japan immediately dispatched a brigade. The rebellion was put down and China wished to withdraw her men, but Japan insisted on a guarantee for future maintenance of order. China objected to Japanese interference.

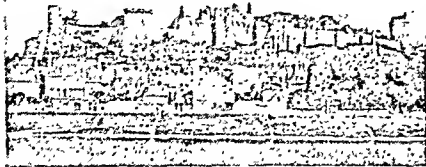
War was declared on Aug. 1, and Japan drove the Chinese out of Korea with only two serious engagements, the battle of Pingyang on Sept. 15, and the crossing of the Yalu river on Oct. 25. On Sept. 17 the Japanese attacked the Chinese conveying fleet, destroying practically all except two battleships. On Nov. 21



China Marks. 1, 2, 3. Bow, 1730-75; 4, 5, 6. Chelsea, 1745-69; 7. Derby, 1751-69; 8. Chelsea-Derby, 1769-80; 9. Crown Derby, 1780-1816; 10. Bloor, 1816-39; 11. Derby, modern; 12, 13. Plymouth, 1768-72; 14, 15. Bristol, 1770-77; 16, 17, 18. Worcester, 1751-83; 19. Chantilly, 1725; 20. St. Cloud, 1695-1773; 21. Sèvres, date 1754; 22. Dresden-Meissen, date 1716; 23. Copenhagen, 1772-74

the Japanese carried Port Arthur by assault. After further victories in Manchuria, the Japanese prepared to march on Peking. The war ended with a peace treaty, signed April 17, 1895, by which the Liao Tung peninsula and Formosa were surrendered to Japan, and China was to pay an indemnity.

CHINON. Town of France, in the dept. of Indre-et-Loire. On the Vienne, 22 m. S.W. of Tours, it was part of Anjou. Its historic buildings include the churches of S. Stephen, S. Maurice, and the ruined S. Mesme. On a rock above the town are the ruins of the castle, which consists of three parts. Of the Château de S. Georges, built by Henry II, who died here, little remains. The Château du Millieu, built in the 11th century on the site of the Roman fort of Caino, has been repeatedly restored. Pop. 5,622.



Chinon. The ancient French town and château on the right bank of the river Vienne

CHINOOK. Warm, dry wind experienced in the belt stretching along the E. margins of the Rocky Mts., in lats. 55°-60° N. Air currents descend on the E. side of the Cordillera and become both denser and warmer, and consequently can now absorb water vapour. Thus the descending warm, drying wind clears away snow, and allows cattle to find pasture.

CHINS (Chinese, men). Collective name for hill-tribes of Tibeto-Burman stock in N.W. Burma. With the Lushais and Kukis they represent an early Tibetan migration, and cling tenaciously to their pre-Buddhist animism.

CHIOGGIA. City of Italy, on Chioggia Island, at the S. end of the Venetian Lagoon, 15½ m. S. of Venice. A stone bridge connects it with the mainland. It is the principal fishing port of Italy. The cathedral dates from 1663. In 1379 it was the scene of a naval battle between the Venetians and Genoese, who were defeated. Pop. 36,104.

CHIOS, KHIOS, or SCIO. Island of the Aegean Sea, belonging to Greece, about 8 m. off the W. coast of Asia Minor, S.W. of the entrance to the Gulf of Smyrna. Its area is 321 sq. m. It is one of the most beautiful islands in the Levant. Antimony is mined and marble quarried. Chios or Castro, the capital, on the E. coast, is the seat of a Greek bishop. Pop., island, 75,680; town, 22,122.

CHIPMUNK. Name for species of ground squirrel (*Tamias*) common in Siberia (*T. asiaticus*) and N. America (*T. striatus*). In appearance they resemble the British squirrel, but live in holes in the ground or in hollow logs.

CHIPPENDALE, THOMAS (d. 1779). English cabinet-maker. Born in Worcestershire, he came to London about 1750, and carried on the business of cabinet-making and upholstery in S. Martin's Lane.

His name is chiefly associated with chairs, cabinets, and bookcases. His book, *The Gentleman and Cabinet-Maker's Director*, 1754, contains his own drawings for the furniture he designed and made. He died Nov. 13, 1779. In the best Chippendale period the chairs had square backs with outspreading ears; ladder or pillar bars, either turned or flat splat work, with interlaced centres; legs round or square, and also of cabriole type. These three patterns of legs were also seen in the small round and square tables. Cabinets and chests of drawers were solid, rather low, rectangular or with bowed or serpentine fronts. Bookcases had traceried doors and usually heavy pediments.



Chipmunk. North American species

CHIPPENHAM. Borough and market town of Wiltshire. It stands on the Bristol Avon, 13 m. N.E. of Bath by the G.W.R. The entrance to the town is by a long old bridge, rebuilt in 1796, across the stream. In the Market Square is the old Guildhall. The Norman church of S. Andrew has been largely rebuilt. Market days, second and last Fridays in the month. Pop. 7,757.

CHIPPING CAMPDEN. Market town of Gloucestershire. It is 9 m. from Evesham, with a station on the G.W. Rly. A picturesque place, it has some old houses dating from the time when it was a flourishing centre of the wool trade. The chief buildings are the magnificent Perpendicular church, the town hall, and the grammar school. Pop. 1,700.

CHIPPING NORTON. Borough and market town of Oxfordshire. It is 13 m. S.W. of Banbury by the G.W. Rly., and has woollen and glove factories and a Gothic church. Market day, Wed. Pop. 3,522.

Chipping Wycombe is a variant for High Wycombe, Bucks. See Wycombe, High.

CHIRK. Parish and village of Denbighshire. It is on the Ceiriog, 9 m. S.S.W. of Wrexham, on the G.W. Rly. The Ellesmere Canal, by means of an aqueduct, here passes over the river, which is also spanned by a rly. viaduct. The castle occupies the site of one erected in the time of Edward I. Pop. 2,576.

CHIROL, SIR VALENTINE (1852-1929). British journalist. Born May 23, 1852, he travelled much in the East, joined the staff of *The Times* in 1892, and from 1899-1912 was the director of its foreign department. He served on the Indian Royal Commission, 1912, in which year he was knighted. His writings include 'Twixt Greek and Turk, 1881; *The Far Eastern Question*, 1896; *The Middle Eastern Question*, 1903; *Indian Unrest*, 1910; *The Egyptian Problem*, 1920; *The Occident and the Orient*, 1924; *Fifty Years in a Changing World*, 1927. He died Oct. 22, 1929.

CHIRON or CHEIRON. In Greek legend, one of the Centaurs, distinguished for justice and wisdom. Accidentally wounded by a poisoned arrow of Hercules, he refused to take advantage of his immortality, which he bestowed upon Prometheus, and died.

CHIROPRACTIC (Gr. *cheir*, hand; *prasein*, to act). System of drugless therapeutics which treats disease from its cause in the spine. Its theory is based on the principle that pressure upon nerves, through malalignment of the spinal column, causes loss of function of the organs and tissues involved. It treats the cause of disease by physiological adjustment of the displaced vertebrae. No instruments of any kind are used.

CHIROPTERA (Gr. *cheir*, hand; *pteron*, wing). Order of mammals commonly called bats. The hands are enormously developed, the fingers being much longer than the body. Between these fingers stretches a leathery membrane which also covers the hind legs and the tail, and which forms the wings. See Bat.

CHIRU (Pantholops Hodgsoni). Antelope found in the barren districts of Tibet. The male has long horns and a curiously swollen muzzle. The horns are often over 2 ft. long, though the animal only stands 32 ins. high at the shoulder.

CHISLEHURST. Urban district of Kent. Beautifully situated, 300 ft. high, 11 m. S.E. of London, by the Southern Rly., it is a favourite residential district. Camden Place, where William Camden, the antiquary, died in 1623, became later the home of Napoleon III.

S. Nicholas is the oldest of the churches, and S. Mary's (R.C.) has associations with Napoleon III and the Prince Imperial. The ancient chalk caves, the original use of which can only be conjectured, were reopened to the public in 1920. In 1928 a school of church music was opened. Pett's Wood was acquired as a memorial to William Willett, the promoter of daylight saving. Pop. 10,000.

CHISWICK. Urban district and parish of Middlesex, 5 m. W. of Hyde Park Corner, in a loop of the Thames between Hammersmith and Brentford. Its stations are Chiswick and Grove Park on the Southern Rly. and Chiswick Park on the District Rly. The church of S. Nicholas, with a 15th century tower, was rebuilt in 1884.

Chiswick House was built by the architect earl, Lord Burlington, about 1730, and passed into the possession of the 5th duke of Devonshire. C. J. Fox and G. Canning died here. The house afterwards became a private asylum; its iron gates were removed to Devonshire House in Piccadilly, and later re-erected in the Piccadilly side of the Green Park. In 1928 the mansion was sold by the duke of Devonshire to the district council. The grounds were opened in 1929 as a public park. Chiswick Hall, pulled down in 1874, became in 1810 the home of the Chiswick Press. On Chiswick Act, or Eytot, the Danes are said to have wintered in 879. Pop. 40,938.

CHITRAL. State in India in the Malakand (Dir, Swat, and Chitral) Agency of the North-West Frontier Province. There are three fertile cultivated valleys in the state, which is shut in by spurs of the Hindu Kush mts. The ruler of Chitral is called the Mehtar. It covers 4,500 sq. m. Chitral is the capital.

In 1895 a British fort in Chitral was attacked by turbulent tribesmen incited by emissaries of the amir of Afghanistan. The fort, which was an outpost of Kashmir, the suzerain of Chitral, was the centre of British influence in the country, and the political agent, Sir George S. Robertson, and a garrison of 543 British and Sikhs were compelled to shut themselves up in it.

Two expeditions were sent to relieve him. One under Sir R. Low, advanced on Chitral by the Malakand Pass; the other, under Col. Kelly, started from Gilgit in Kashmir. The siege, begun on March 4, was raised by Kelly's force on April 20, after a brilliant march in face of many difficulties. Consult Chitral: A Minor Siege, G. S. Robertson, 1898.

CHITTY, SIR JOSEPH WILLIAM (1828-99). British judge and athlete. Son and grandson of famous lawyers, he was born in London. He stroked the winning Oxford boat in 1850-52 inclusive. Called to the bar at Lincoln's Inn, 1856, and Q.C. 1874, he was elected Liberal M.P. for Oxford, 1880, and was made a judge of the high court and knighted 1881. He was raised to the court of appeal in 1897, and died Feb. 15, 1899.

CHIVES (Lat. *cepa*, onion). Perennial, purple-flowering plant of the order Liliaceae, genus *Allium*. Its leaves are employed in soups and salads in preference to the onion, as the flavour is more delicate. It can be grown anywhere, usually in the herb garden, by planting in March.

CHLORAL or **TRICHLORACETALDEHYDE** (C_2HCl_3O). Substance first prepared by Liebig in 1832. It is obtained by the chlorination of alcohol. The pure chloral is converted into chloral hydrate by mixing 100 parts of water with 12½ parts of chloral. Chloral hydrate ($CCl_3 \cdot CH(OH)_2$) is a white, crystalline substance, freely soluble in water. Chloral was formerly much used for relieving sleeplessness, but as it has a depressing effect upon the circulation and respiration, it has since been largely superseded. An overdose produces profound unconsciousness and laboured respiration.

CHLORATES. Salts formed by the reaction of chloric acid (q.v.) and metals. The best known is potassium chlorate (KClO_3), which is used in the manufacture of matches, in fireworks and as an oxidising agent in calico-printing. It is also used as a source of oxygen and is administered as a febrifuge, and as a gargle or in tablets for sore throat.

CHLORIC ACID (HClO_3). Oxyacid of chlorine discovered by Berthollet in 1786. It is a powerful oxidising agent; organic bodies such as paper decompose the acid at once, and so rapidly as to take fire.

CHLORINE. Element in gaseous form first prepared by Scheele in 1774. Its true nature as an element was proved in 1810 by Davy, who called it chlorine from its greenish yellow colour. Its symbol is Cl; its atomic weight 35.46; and its atomic number 17. Chlorine gas is not found free in nature, but occurs combined with sodium, potassium, and manganese. Common salt is sodium chloride. Potassium chloride, known as sylvite, is found in abundance at the salt mines of Stassfurt, Saxony. Chlorine is prepared by various methods for laboratory or industrial purposes. In the Weldon process for the large scale production of chlorine black oxide of manganese and hydrochloric acid are heated together. The manganese chloride which forms is regenerated, so that it can be used over and over again. The latest processes are electrolytic, in which metallic chlorides are decomposed by an electric current.

Chlorine at the ordinary temperature is a greenish yellow gas extremely irritating to the lungs. Faraday in 1823, by means of pressure and cold, reduced it to a liquid. In this state it is produced commercially, being stored in iron cylinders. It was in this form that this poisonous gas was first introduced into warfare in 1915. Chlorine is largely employed in bleaching cotton and paper, and it is a powerful disinfectant. When absorbed by quicklime it forms the well-known bleaching powder.

The property of chlorine by which it combines with metals or their oxides to form chlorides is known as chlorination. It is applied to the extraction of metals such as gold and silver from their ores. Chlorimetry is the process of estimating the amount of chlorine contained in a liquid or a solid.

CHLORITE. Mineral group consisting of hydrated silicates of magnesia, iron, and alumina, with much water. It crystallises in a monoclinic system, and occurs as hexagonal plates, and also in fibrous and scaly aggregates. The colour is dark green. It occurs in andesites, porphyrites, and syenites, and is a common constituent of schists.

CHLOROFORM or **TRICHLOROMETHANE** (CHCl_3). A colourless heavy liquid with an ethereal odour and a sweet taste. It is prepared by mixing 10 parts of bleaching powder with 40 parts of hot water, and adding one part of alcohol. A reaction takes place in the course of which the chloroform distils over, and is collected and purified. Discovered by Liebig in 1831, it was first employed as an anaesthetic, now its most important use, by Sir James Simpson, of Edinburgh, in 1848. Externally, chloroform, if rubbed into the skin, is an irritant; hence its value in liniments in the treatment of rheumatism. See Anaesthesia.

CHLOROPHYLL (Gr. chloros, green, and phyllon, leaf). Colouring matter of leaves, consisting of at least two pigments, green and yellow. It is soluble in alcohol, exhibiting an emerald green colour and a deep blood-red fluorescence. Chemically, it is related to the red colouring matter of the blood.

Chlorosis or **GREEN SICKNESS.** Form of anaemia occurring most frequently in young girls. See Anaemia.

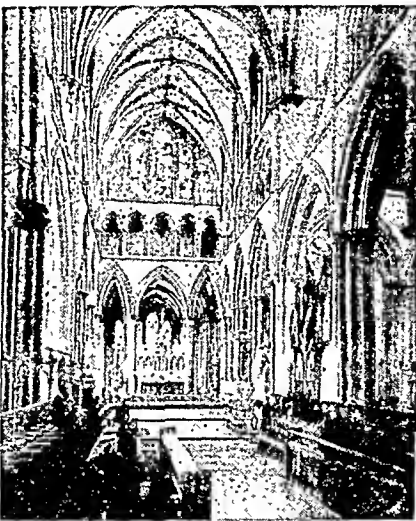
CHOATE, JOSEPH HODGES (1832-1917). American diplomatist. Born at Salem, Mass.,

Jan. 24, 1832, he was for many years a leading lawyer at New York and an active supporter of the Republican party. He was U.S. ambassador to Great Britain from 1899-1905 and delegate to the Hague peace conference 1907. His efforts helped to maintain good relations between Great Britain and America. He died at New York, May 15, 1917. Consult Life, T. G. Strong, 1918.

His uncle Rufus Choate (1799-1859) was a noted lawyer, politician and orator.

CHOCOLATE. Beverage and sweetmeat prepared from the bean of Cacao theobroma. Up to the point of roasting, grinding, and winnowing the beans, the processes for the manufacture of cocoa (q.v.) and chocolate are identical. Chocolate, however, retains the natural cocoa oil. The cocoa bean, when intended for chocolate, is mixed with a certain proportion of sugar and ground in a grinding machine, the pans and rollers of which are slightly heated. From this it emerges as a thick liquid, which is run into moulds and cooled. These moulds pass into mixing machines, vanilla and more sugar are added, and the various materials worked into a homogeneous light brown dough. The result is the chocolate of commerce.

CHOCTAW (Span. chato, flat). North American Indian tribe of Muskogian stock. Their name refers to their practice of head-flattening, whence they are sometimes called Flat-heads. They migrated from the W., and settled in middle and S. Mississippi, becoming the chief agricultural tribe of this region. Removing to Oklahoma, they ranked as one of the five civilized tribes until their separate nationhood ceased in 1906. They number about 26,000. See illus. p. 73



Choir of Salisbury Cathedral, a magnificent example of Early English architecture, built 1220-c. 1350

CHOIR (Gr. choros), formerly spelt **QUIRE**. (1) Group of singers for unison or part singing in church services, or a similar group for secular music. The most usual arrangement is in four parts, soprano or treble, contralto or alto, tenor, and bass; but any other division of voices is permissible. (2) By association of ideas choir is the name given to the portion of a cathedral or church where the choir sits.

In early Christian churches it was restricted to the part immediately in front of the altar, and was enclosed by a low wall or other obstruction pierced by a gateway. In Norman churches such as Peterborough, S. Albans, and Winchester, the choir is extended into, and really forms part of, the nave. But a division between the two is often made by a choir screen. See Cathedral; Church.

CHOKE COIL. In electricity, an induction apparatus. By causing reactance or phase displacement, it checks excessive or abrupt changes of potential in an alternating electric current circuit. Choke coils are used in connexion with arc lamps in series, as ballast resistance, and in wireless telegraphy apparatus. They are used extensively in broadcast receiving apparatus, and are employed at the transmitter to control the modulation of the carrier waves.

CHOKE DAMP. Name given by miners to the poisonous gas which follows a mine explosion, as distinguished from the fire damp which causes the explosion. It is the product of the combustion of the fire damp, i.e. chiefly carbonic acid gas. The men, even if unharmed by the explosion, are often overtaken and suffocated by the gaseous products, which course rapidly through the workings.

CHOLERA (Gr. kholē, bile). Acute infectious disease caused by a micro-organism, the vibrio cholerae, discovered by Koch (q.v.) in 1883. Throughout history epidemics of the disease have devastated communities in many parts of the globe. The most frequent method of transmission is by drinking infected water, or milk diluted with water. Conveyance by flies has also been known. A person defined as a carrier (q.v.) may also act as unsuspected means of initiating an epidemic.

After infection there is a period of incubation which varies from a few hours up to six days. The onset is usually sudden, with attacks of diarrhoea. Vomiting occurs early in the disease. The patient rapidly becomes emaciated, and the pulse and heart become weak. Painful cramps may appear in the muscles. Unconsciousness supervenes, and the patient may die in from 12 to 36 hours after the beginning of his illness.

Treatment consists in administering calcium permanganate water and pills containing potassium permanganate at frequent intervals. If the circulation fails, an injection of saline solution into a vein should be made. In the later stages, bismuth and opium may be given. Persistent vomiting may be relieved by sucking small pieces of ice. During the acute stage no food should be taken. When recovery is beginning the patient may take thin arrow-root and milk mixed with soda-water.

CHOPIN, FRÉDÉRIC FRANÇOIS (1810-49). Polish composer and pianist. Born near

Warsaw, Feb. 22, 1810, of a French father and a Polish mother, he studied at the Warsaw Conservatoire, and when only nine years old attracted great attention by his piano playing. In 1830 he went to Paris, where his playing and compositions created the greatest enthusiasm. In 1838, suffering from a chest complaint, he went to Majorca, being accompanied by George Sand, who nursed him for several years. He visited England and Scotland in 1849, where he played in both public and private. He died in Paris, Oct. 17, 1849.

Chopin was essentially a composer of pianoforte music, and as such occupies a unique position. Many of his works are built upon the rhythms of Polish national dances.

CHOPSTICKS (Pidgin-English chop, quick). Pair of slender, tapering rods of wood, bone, or ivory used in China, Japan, and Korea for conveying food to the mouth. Chinese chronicles claim for them an antiquity exceeding 4,000 years. The term was introduced by the 17th century navigators. The Chinese name is kwai-tze (the nimble ones); the Japanese kashi. See illus. p. 407.



Frédéric F. Chopin, Polish composer

CHOREA or **St. VITUS DANCE** (Gr. choreia, dance). Disease, most frequent between the ages of 5 and 15, characterised by irregular, involuntary movements of the muscles. Girls are more often affected than boys. A large proportion of the cases are associated with acute rheumatism or rheumatic fever. A highly strung, nervous temperament, fright, and the strain of education are contributory factors. Heart disease is a frequent complication. Most cases recover after the condition has persisted for two or three months. Treatment consists in keeping the child absolutely quiet in bed, all excitement being avoided.

CHOREOGRAPHY or **CHOREOGRAPHY** (Gr. choria, dance; graphein, to write). Dance notation; art of teaching the steps of a dance by written signs. The figure dances of ancient Greece were chalked on the floor in signs, that the dancers might learn them. See Dancing.

CHORLEY. Borough and market town of Lancashire. It stands on the Chor, and on the Leeds and Liverpool Canal, 9 m. S.E. of Preston by the L.M.S. Rly. The church is Gothic. Astley Hall, an Elizabethan structure, with its park, was given by R. A. Tatton as a War Memorial. Cotton, colours, chemicals, and railway wagons are manufactured, and there are brass foundries, bleaching yards, coal mines and quarries. Market day, Tues. Pop. 31,150.

CHORLEY WOOD. Urban district and village of Hertfordshire, 20 m. N.W. of London by the Metropolitan Rly. About 400 ft. above sea level, it is one of the beauty spots of the Chiltern Hills. The Tudor Manor House was restored for Queen Elizabeth, and near is the mausoleum built by the countess of Bedford in 1556. Pop. 2,439.

CHORUS. In ancient Greece, term originally used for a place for dancing, then for dances accompanied by music and song. At the festival of Dionysus, the function of the chorus consisted of singing the praises of the god and his achievements. Later, a separate actor was introduced, with whom the leader of the chorus carried on a conversation. From this the dialogue and, with the addition of a second and third actor, tragedy and comedy proper were developed. The rôle of the chorus then became subordinate.

In modern musical works the chorus now shares largely in the action itself. The word also means the music sung by the chorus singers, and the refrain of a song, whether sung by a body of voices or by the soloist.

Chosen. Japanese name for Korea. It was adopted in 1897, when Korea became a part of the Japanese Empire. See Korea.

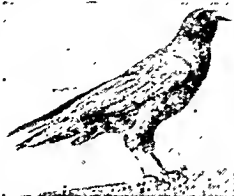
CHOSROES or **KHOSRAU.** Name of two Persian kings of the Sassanid dynasty. Chosroes I, called the Great, reigned A.D. 531-579. In 540 he captured Antioch, and extended his rule to the Black Sea. Chosroes did much to improve the social conditions of his subjects, and encouraged the arts and sciences.

Chosroes II, named Parvez (the victorious), reigned from 591 to 628. His father, Ormazd (Hormisdas), son and successor of Chosroes I, was killed in a revolution which placed Bahram on the throne. Chosroes took refuge in Byzantine territory and was reinstated by the emperor Maurice. He conquered Syria and made himself master of Egypt and Asia Minor, and pressed on to the walls of Constantinople. The Emperor Heraclius drove off the Persians, invaded their country, and crushingly defeated them near Nineveh (627). A rebellion took place and Chosroes was put to death.

CHOUANS (Fr. chat huant, screech owl). Name given to certain royalists during the French Revolution. In 1792 they rose in revolt.

The movement spread from the western seaboard to Brittany and was in some wise linked up with the rising in La Vendée; hence it is sometimes called La Petite Vendée. Under Georges Cadoudal the rising became more formidable, until it was crushed by Lazare Hoche in 1795. It was finally put down in 1815. See French Revolution.

CHOUGH (Pyrrhocorax). Group of the crow family, including several species, of which the rare Cornish chough is an example. Distinguished from other crows by its red legs and curved beak, it is found only on the rocky coasts of Western Britain. It feeds chiefly on insects.



Chough, Coast-frequenting bird of the crow family

CHOW-CHOW.

Breed of dogs imported from China. It should be self-coloured, without spots or patches. The coat is heavy, with a deep ruff round the neck, and the tail is carried tightly curled on the back. The tongue and the whole interior of the mouth should be black.

CHRIST (Gr. Christos, anointed). Name given to Jesus by those who believed in him. It has much the same meaning as the Hebrew word Messiah. See Jesus Christ.

CHRIST, ORDER OF.

Papal and Portuguese order founded by King Denis at Lisbon, 1317, on the suppression of the Templars, and approved by Pope John XXII in 1319. It is now the highest of the honours of the papal court. The decoration is a long red cross with gold edging surmounted by a crown. The badge worn on the breast is a silver eight-pointed star with the cross of the order in the centre encircled with gold oak leaves.

CHRISTADELPHIANS (Gr. Brethren of Christ). Religious denomination which claims to have revived the apostolic faith of the 1st century. It was established in 1848 by John Thomas, M.D., an Englishman, in the U.S.A. Christadelphians teach as their fundamental doctrines the infallibility of the Bible and the natural mortality of man, immortality being conditional and future.

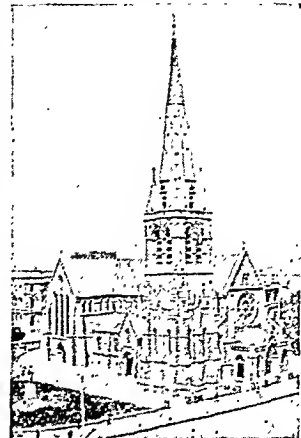
CHRIST CHURCH. One of the colleges of the university of Oxford. It was founded by Cardinal Wolsey and was at first called Cardinal College. In 1546 Henry VIII refounded it as Christ Church. It is both a cathedral and a college. The dean is the head of both, and five of the canons are professors of the university. The buildings of Christ Church, planned by Wolsey, are among the finest in Oxford. The cathedral serves also as the college chapel.

CHRISTCHURCH. Borough of Hampshire. It stands at the junction of the Avon and Stour, $1\frac{1}{2}$ m. from the sea, and 104 m.

S.W. of London on the Southern Rly. The ancient priory church is a magnificent cruciform Norman and Early English structure, with a fine N. porch and a monument to Shelley. There are remnants of a Norman castle. Pop. 6,993.

CHRISTCHURCH. Town of South Island, New Zealand, capital of the prov. of Canterbury.

It stands on the Avon river, 8 m. by rly. from Lyttelton. Founded by the Canterbury Association of the Church of England in 1850, the city is reminiscent of an English cathedral town. The cathedral is modelled on that of Caen and built from designs by Sir G. Scott, with a tower and spire 240 ft. high. Other buildings comprise government and municipal offices, the museum, and the university college. The chief industries are the freezing and export of mutton. Hydro-electric power from Lake Coleridge in the S. Alps is used. Pop. 123,370.



Christchurch, New Zealand. The fine cathedral designed by Sir G. Scott
Photo, New Zealand Publ. City

CHRISTIAN. Usual name for a follower of Jesus Christ. According to Acts 11 the disciples were first called Christians at Antioch. Occurring only three times in the N.T. (Acts 11 and 26: 1 Pet. 4), it implied a stigma. Christian is the name of the chief character in John Bunyan's Pilgrim's Progress.

CHRISTIAN. Name borne by several kings who reigned over united Denmark and Norway. Christian II (1481-1559) was the son of King John who reigned over Sweden, in addition to Denmark and Norway. His reign was marked by disputes with Sweden, which refused to acknowledge him as king, and finally he lost his throne. Christian IV (1577-1648) was also involved in wars with Sweden. He established a powerful navy, developed the commerce of his country, and founded Christiania (Oslo). Christian V (1646-99) was a weak ruler, and through his incapacity Denmark, after war with Sweden, 1675-79, was left impoverished.

CHRISTIAN IX (1818-1906). King of Denmark. Son of Duke William of Schleswig-Holstein-Sonderburg-Glücksburg, he was born April 8, 1818. In 1842 he married Louise (d. 1893), daughter of the landgrave of Hesse Cassel and a niece of Christian VIII. Ten years later a conference of the European powers in London



Christ Church, Oxford, showing the tower containing the great bell Tom



Christ Church College arms

decided that he should succeed the childless Frederick VII as king of Denmark, and he ascended the throne Nov. 15, 1863. During his reign the duchies of Slesvig-Holstein were lost to Denmark.

A daughter, Alexandra, married the prince of Wales, later Edward VII; another daughter, Dagmar, married Alexander III of Russia. His second son, George, became king of the Hellenes, and in 1905 one of his grandsons king of Norway as Haakon VII. Christian died in Copenhagen, Jan. 29, 1906.

CHRISTIAN X (b. 1870) King of Denmark. Born Sept. 26, 1870, he ascended the throne May 14, 1912. He married in 1898 Alexandrine, princess of Mecklenburg. Their family consists of two sons.

CHRISTIAN (1831-1917), Danish prince. A son of the duke of Slesvig-Holstein, he fought with his father for the independence of the duchies. After this had been lost he married, in 1866, Helena, daughter of Queen Victoria, and lived for the rest of his life in England. The prince died Oct. 28, 1917, and the princess June 9, 1923. Their elder son, Prince Christian Victor, died at Pretoria while on active service, Oct. 29, 1900.

CHRISTIAN BROTHERS. Religious order in Ireland. It was founded at Waterford in 1802 by Edmund Rice, to provide education for the children of Roman Catholic parents. The first monastery was opened in 1803. In 1820 the order was formally instituted by a papal brief, and became the first Irish order with a charter from Rome.

CHRISTIAN ENDEAVOUR SOCIETY. Association for promoting Christian work on evangelical lines among young people of both sexes. The Young People's Society of Christian Endeavour was founded in 1831 at Portland, Maine, U.S.A., by Dr. F. E. Clark (q.v.). The movement gradually spread throughout the world, so that there are now about 75,000 local societies, with a membership of nearly 4,000,000.

Christiania. Former name of the capital of Norway, now Oslo (q.v.).

CHRISTIANITY. Religion founded by Jesus Christ and spread abroad by S. Paul and other of his disciples. It is divided to-day into three main branches—the Roman Catholic church, the Greek Orthodox Church, and the various Protestant churches. It is the national religion of most of the western countries, although not officially recognized as the state religion in France and the United States, for instance, but is less strong in the east, where it took its rise. Its adherents number about 700,000,000, but only a fraction of these give more than a nominal allegiance to one or other of its organizations. About 460,000,000 of its followers are in Europe and 120,000,000 in North America.

The basis of Christianity is the teaching of Jesus Christ, as shown in the Gospels, but around this a vast mass of other doctrine has accumulated. Much of this is of Hebrew origin, the greater part of the Bible, for example, and some is of Greek. On these combined ideas the Christian church, now divided into several branches, has been built. The influence of Christianity has been and is far greater than that of its ecclesiastical organizations, and in its purest form, i.e. in

the teaching of Jesus Christ, it is generally accepted as giving ideals of conduct that have never been equalled by any other religion.

The great part which Christianity has played in the spiritual history of mankind is due, according to the Rev. W. P. Paterson, D.D., to three main causes. These are the personality of Jesus; the supernatural element in his life; and the fact that it made a better provision than was otherwise available to meet the spiritual needs of human nature.

The history of Christianity falls into four main periods in which it came under the influence of different races and civilizations, and of diverse intellectual and moral conditions. The chief lines of the development have been: its missionary expansion throughout the world; the elaboration of its doctrines in creeds and confessions and in theological literature; the growth of ecclesiastical institutions; the history of worship, including the use of art; and the progress made in understanding and in realizing all that is implied in the Christian ideal.

In modern times, which may be dated from the beginning of the 18th century, Christianity has had a no less troubled history, and even more fundamental issues were raised. The old controversies continued within the Church, but additional forces came into play which attacked the Christian system as a whole, or threatened injury in some vital place.

Chief among these forces were the scientific discoveries of the 19th centuries, which widened greatly the fissure between science and religion. Christianity, although perhaps weakened in some ways, survived these attacks, only, however, to encounter more insidious ones in the general changes in ideas of faith and conduct that followed the War. See Buddhism; Mahomedanism; Religion, etc.

CHRISTIAN SCIENCE. Name given by Mrs. Baker Glover Eddy to a religious system which she expounded in the U.S.A. during the later part of the 19th century. The principles of the new faith were incorporated in a book entitled *Science and Health* (1875). In this, Mrs. Eddy's main contention is the non-existence of matter. She denies the existence of suffering and evil, sickness being a mere illusion to be overcome by right thinking.

The Church of Christ Scientist, or Christian Science Church, was organized at Boston, Massachusetts, in 1879. It consists of the mother church in Boston, with branches throughout the world. The number of organized congregations in June, 1925, was 2,202. Free public reading-rooms are also maintained where Mrs. Eddy's writings and other Christian Science literature may be consulted. The Christian Science Publishing Society, Boston, issues a remarkable daily international paper, *The Christian Science Monitor*, which has a large circulation. See Eddy, M. B. G.

CHRISTIE, SIR WILLIAM HENRY MAHONEY (1845-1922). British astronomer. Educated at King's College school, London, and Trinity College, Cambridge, in 1870 he was appointed chief assistant at the Royal Observatory, Greenwich. He was astronomer royal 1881-1910, and was knighted 1904. He died Jan. 21, 1922. He published *Manual of Elementary Astronomy*, 1875.

CHRISTIE'S. Popular designation of the firm of Christie, Manson & Woods, auctioneers, of 8, King Street, St. James's, London, S.W. The firm was founded in 1766 by James Christie the elder (1730-1803), who started business in Pall Mall. During the life of James Christie the younger (1773-1831) the business was transferred to King Street in 1824. Christie's is the recognized emporium for the disposal of every description of artistic property, especially paintings, and the catalogues of the

picture sales held on the premises furnish invaluable information to both art connoisseur and student.

CHRISTINA. Name of two queens regent of Spain: (1) Maria Christina (1806-78), who married Ferdinand VII, and after his death was queen regent for their daughter Isabella, 1833-40. (2) Maria Christina, born July 21, 1858, who married Alphonso XII, Nov. 29, 1879. After his death, Nov. 25, 1885, she acted as queen regent until 1902, when their son, born in May, 1886, succeeded to the throne as Alphonso XIII (q.v.).

CHRISTINA (1626-89). Queen of Sweden. Born at Stockholm, Dec. 8, 1626, the only child of Gustavus Adolphus, she became queen on his death in 1632. A woman of great ability, from 1644 she exercised her influence in state affairs, though not always judiciously, as in the peace negotiations in 1648. She was interested in learning.

Declining to marry, Christina appointed her cousin, Charles Gustavus, as her successor, and in 1654 she abdicated. From that time she lived an unconventional life, travelling from place to place, and died in poverty in Rome, April 19, 1689. Christina and Elizabeth of England were much alike in their abilities and also in their masculine and dominating temperaments.

CHRISTMAS. Annual festival kept on Dec. 25 in commemoration of the birthday of Jesus Christ. The observance of Christmas as a Christian festival dates from the 4th century, when it gradually superseded Jan. 6, the Epiphany (q.v.), still kept as Christmas by the Armenian Church. The fact that Dec. 25 was observed as the solar festival by the Romans probably explains the fixing of that date for the celebration of Christ's birth.

The giving of presents at Christmas may be traced to the custom in pagan Rome of making gifts on Jan. 1. The popular German Christmas songs date from the 11th century, carols date from the 13th century, and the Christmas tree, first employed at Strasbourg in 1605, was only introduced into England from Germany by the Prince Consort in 1840.

CHRISTMAS ISLAND. Isolated atoll in the Indian Ocean, 190 m. S.W. of Java. It belongs to Britain, and is a dependency of Singapore. It contains important deposits of phosphates. The area is 62 sq. m.; pop. 1,159. The Christmas Island in the Pacific Ocean, also a British possession, was attached to the Gilbert and Ellice Islands Colony in 1919.

CHRISTMAS ROSE.

Hardy perennial plant of the order Ranunculaceae, genus *Helleborus*. The plants are about 1 ft. in height, and their white flowers are borne in winter. Many hybrids, having pink and red flowers, have been raised, but these do not bloom until after the turn of the year.

CHRISTOPHER, SAINT (Gr. Christos, Christ; pherein, to bear). Legendary Christian martyr of the 3rd century. Reputed to be a native of Syria, converted by a hermit, he undertook for the love of God to carry wayfarers across an unbridged river. A child one



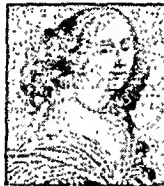
Christian IX
King of Denmark



Christian X,
King of Denmark



Maria Christina, queen
regent of Spain, 1885-
1902



Christina,
Queen of Sweden
After Bourdon



Christmas Rose,
Helleborus niger

day came to him, and on Christopher nearly stumbling in mid-stream with the weight, the child revealed to him that it was Christ he was carrying. In token Christopher was told to plant his staff in the ground, and next morning the staff had blossomed into a palm tree. Martyred by the Roman prefect Dagnus, he is honoured as the patron saint of ferrymen and travellers by water, and also of bookbinders. His feast in the Roman Catholic Church is on July 25, and in the Greek Church March 9.

CHRIST'S HOSPITAL

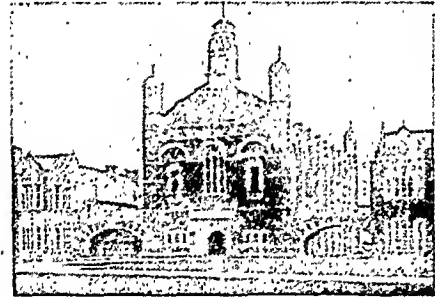
OR THE BLUE COAT SCHOOL. English public school. Formerly in Newgate Street, London, E.C., on a site now occupied by the new G.P.O. and the extension of S. Bartholomew's Hospital, it was removed in 1902 to Horsham, Sussex, where it can accommodate about 800 scholars. Founded by Edward VI, it was at first rather an orphanage than a school, and had about 400 inmates, boys, girls, and babies. The girls' section was in 1778 removed to Hertford.

The pupils of Christ's Hospital still retain the blue coat dress of their predecessors,



Saint Christopher bearing the child Christ across the river

Engraving by Albert Dürer



Christ's Hospital. Big School, one of the new buildings at Horsham, whither the school removed in 1902

wearing no head-dress even in winter. Boys and girls are admitted by the presentation of governors and others. See Blue Coat School.

CHRIST'S THORN (*Paliurus aculeatus*). Shrub of the order Rhamnaceae, a native of the Mediterranean region. Its oval leaves have stipules which are converted into a pair of spines, one straight, the other curved into a hook. It has small greenish yellow flowers, succeeded by dry fruits resembling in miniature a head wearing a broad-brimmed hat. Its stems are reputed to have furnished Christ's crown of thorns.



Christ's thorn. *Paliurus aculeatus*

CHROME STEEL. Compound of chromium and steel. The effect of chromium is to increase the tensile strength of steel and its resistance to fracture by impact.

CHROME YELLOW. Pigment prepared by adding potassium chromate to a solution of lead acetate. Known also as Paris or Leipzig yellow, it is chemically neutral lead chromate.

CHROMITE. Mineral belonging to the spinel group and consisting essentially of iron oxide and chromic oxide. Found in the serpentine rocks, it is the chief source of the metal chromium.

CHROMIUM. Elementary metal. Its symbol is Cr; atomic weight 52.01, atomic number 24, and specific gravity 6.92. Its melting point is higher than that of platinum. It is steel grey in colour and harder than glass. Chromium was first discovered in 1797 by the French chemist Vauquelin. Its chief commercial source is chromite. Chromium forms important alloys with steel, and is largely used in the preparation of pigments and dyes, and also as a tanning agent.

CHROMOSPHERE (Gr. chroma, colour: sphaira, sphere). Layer of gases surrounding the photosphere or surface region of the sun. It is composed chiefly of hydrogen and helium gases, from 5,000 to 10,000 m. in thickness. From the chromosphere arise the prominences of the sun noticed from 1706 onwards, but whose objective reality, with that of the chromosphere, was hardly established before 1851. At a total eclipse the chromosphere appears as a red ring round the sun with irregular prominences. See Sun.

CHRONICLES, THE FIRST AND SECOND BOOKS OF. Two books of the O.T. They are so closely related to the books of Ezra and Nehemiah that the three together "form really a single, continuous work" (Driver). The history in 1 and 2 Chronicles is parallel with that contained in the books from Genesis to 2 Kings, i.e. from Adam to the decree of Cyrus in 538 B.C. permitting the return of the Jewish exiles; but the chronicler, a later writer, writes from a different standpoint, that of the priest and ecclesiastic, and is concerned mainly with the history of Judah.

CHRONOMETER. Timekeeper of exceptional accuracy used in navigation. The first was made by John Harrison (1761-62), who applied in it the principle of compensation for changes of temperature by the unequal expansion or contraction of two metals.

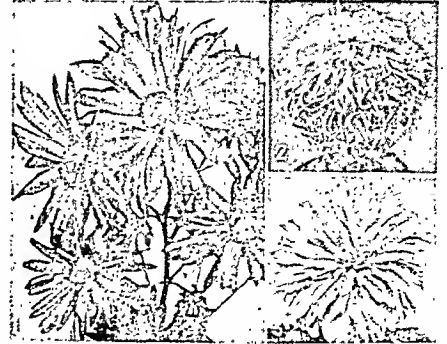
CHRYsalis (Gr. chrysalis, gold-coloured sheath). Pupal or resting stage in the metamorphoses of insects more correctly restricted to those of butterflies. When the larva has finished the eating stage, it either forms a cocoon or suspends itself to a pad of silk and becomes dormant. During this period as a chrysalis

the entire structure is broken up and the organs of the imago or perfect insect are developed. See Butterfly: Insect; Moth.

CHRYsANTHEMUM

(Gr. chrysos, gold; anthe-mon, bloom, flower). Hardy annual and perennial plant of the

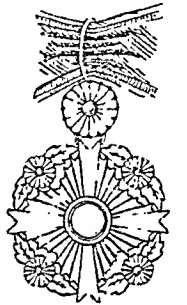
order Compositae, a native of Britain and China. These plants were introduced into Japan, whence foreign varieties reached



Chrysanthemum: three varieties of this favourite flower. 1. Anemone-flowered. 2. Japanese. 3. Incurred

Britain in 1764. The majority of the annual species thrive if treated in the ordinary way, but chrysanthemums, in the general acceptance, are represented by the innumerable hybrid varieties, of which *C. indicum* is the parent. These include the Japanese, Incurred, Reflexed, Anemone-flowered, and other exhibition classes. By stopping out all except the main bud on a plant a solitary bloom of enormous girth is produced for exhibition purposes.

The order of the Chrysanthemum is a Japanese order of chivalry, instituted in 1876. The badge is a red sun with 32 white rays, within a wreath of chrysanthemums; the ribbon is crimson with purple border.



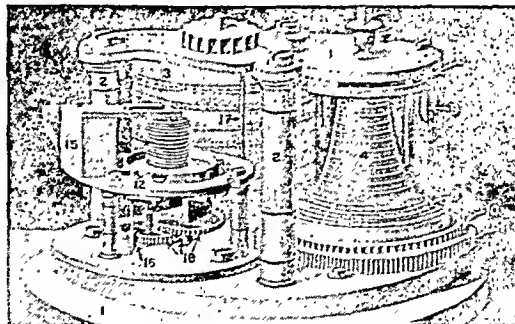
Chrysanthemum. Badge of the Japanese Order

CHRYSEIS. In Greek legend, daughter of Chryses, a priest of Apollo. Taken prisoner by Achilles in the Trojan War, she passed into the possession of Agamemnon, who refused to give her back to her father. Apollo thereupon visited the Greek host with a pestilence, an assembly was held, and the prophet Calchas declared that the god would not be appeased until the maiden Chryseis was set free.

CHRYSOBERYL. Beryllium aluminate. It is found in varying shades of green, and used as a gemstone. The most precious is the alexandrite. When cut "en cabochon"

it is classed as a cat's eye. Chrysoberyls are found in Ireland, Ceylon, the Urals, etc.

CHRYSOSTOM, JOHN (c. 357-407). Saint and father of the Christian Church. He was born at Antioch, and was carefully trained by his mother, Anthusa, a Christian. He lived for about six years as a hermit, returned to Antioch, and was ordained priest 386. Appointed by Eutropius, minister of the emperor Arcadius, to the archbishopric of Constantinople, 398, he won the love of the



Chronometer. 1. Plates. 2. Connecting pillars. 3. Mainspring barrel. 4. Fusee. 5. Chain stop. 6. Cam acting on chain stop. 7. Staff for mainspring. 8. Winding staff. 9. Fusee chain. 10. Maintenance wheel. 11. Great wheel. 12. Regulator plate. 13. Cylindrical spring. 14. Balance wheel. 15. Bracket. 16. Pinion for the seconds hand. 17. Main staff for hour and minute hands. 18. Pinion wheels. When the chronometer is wound the whole of the chain is on the fusee, 4; the mainspring then gradually unwinds the chain and sets the entire mechanism in motion



Chrysalis of Buff-tip moth

people by his generous almsgiving. His zeal for reforms raised enemies against him, and he was banished, 403. Recalled in 404 and again banished, he died Sept. 14, 407.

A prayer from a liturgy attributed to him is in the Prayer Book. The festival of S. Chrysostom is kept in the Greek Church on Nov. 13, and in the Roman Catholic Church Jan. 27. He received the surname Chrysostom, golden-mouthed, from his eloquence.

CHUB (O.E. cop, a head). Fresh-water fish of the carp family; also known as chevin. It occurs in most British rivers with clean gravelly bottoms. Its average length is about 15 ins. and its weight is from 2 lb. to 5 lb. The upper parts are dark greenish, the sides and under parts silvery or brassy.

CHUBB, CHARLES (d. 1845). British locksmith. He started in business as a locksmith, and founded in London the firm known by his name. Assisted by his brother, Jeremiah, he patented various locks, and also designed fire- and burglar-proof safes. He died May 16, 1845. His son John (1816-72) continued and greatly developed the business. The works of the firm are in London and Wolverhampton, with branches all over the world. Its chairman, Sir George Hayter Chubb, was created Lord Hayter in 1927.

CHUNG-KING. Treaty port of China, in the prov. of Sze-chuen, at the junction of the Kia-ling and Yang-tse. It is the principal trading centre of the prov. It was opened to foreign trade in 1891. Pop. 623,300.

CHUNUK BAIR. Range of hills in Gallipoli, 5 m. S.E. of Suvla Bay. It was prominent in the later stages of the campaign in that peninsula. It was seized on Aug. 8, 1915, by New Zealand and other forces, but eventually the Allies abandoned it. See Gallipoli.

CHURCH. Term originally meaning the Lord's house (Gr. Kyriakon dôma), and used in the sense of a body of Christian believers in at least three ways, which may be described as the local, the general, and the ideal. The church is, first, the company or congregation of Christians in any locality; secondly, the aggregate of all such local congregations as, in a real sense, one body in Christ, their one Head; thirdly, the whole assembly of the saved in heaven and on earth.

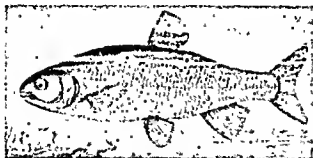
The phrase the Christian Church is used to include the whole body of believers, but in addition almost every group of Christians. The Society of Friends being an exception, call themselves collectively a church. The Anglican church is a term used for all who accept the rule and teaching as maintained by the Church of England.

The various Protestant bodies, both in Great Britain and North America, call themselves churches, so we have the Protestant Episcopal church, the Wesleyan church, and the several Presbyterian churches. Other churches are the Church of Christ Scientist, the Moravian church, and the Coptic church. The term, moreover, is not entirely confined to Christian bodies, as people speak of the church of humanity, the Buddhist church, etc.

The word church is also used for the building in which Christians meet for worship. In some churches, notably the Roman Catholic and the Anglican, each building is dedicated to a particular saint and known by his name—e.g. S. Peter's and S. Andrew's. See Architecture; Cathedral; Church of England; Roman Catholic Church.

CHURCH. Urban dist. of Lancashire, England. It is 1 m. W. of Accrington, on the L.M.S. Rly. and the Leeds and Liverpool Canal. The industries include dyeworks and chemical factories. Pop. 6,888.

CHURCH, RICHARD WILLIAM (1815-90). Anglican divine. Born at Lisbon, April 25, 1815, in 1838 he was elected fellow of Oriel. Ordained priest in 1852, he accepted the rectory of Whatley, Somersetshire. Church was appointed dean of S. Paul's in 1871. Ten years later he declined the archbishopric of Canterbury. A recognized leader of the older High Church party, to the last he protested against prosecutions and imprisonments for ritual. His best literary works are the books on Anselm, 1870, Dante, 1878, Spenser, 1879, and Bacon, 1884. He also wrote a History of the Oxford Movement, 1891. He died at Dover Dec. 9, 1890.



Chub, a fresh-water fish belonging to the carp family

CHURCH ARMY. Church of England evangelistic organization, founded in a poor district of Westminster in 1882 by the Rev. Wilson Carile (q.v.). At first it held open-air meetings and processions, but later devoted its energies to supplying parish helpers and to social work for the betterment of the poor: It conducts a large number of labour homes for men, refugees and homes for women and girls, institutions for inebriates and first offenders, lodging houses for men and women respectively, an Emigration Test Farm, and other institutions. Its headquarters are at 55, Bryanston Street, London, W.

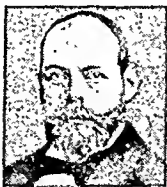
Church Association. Church of England Society founded in 1865 to maintain Protestant principles; offices 13-14, Buckingham St., London, W.C.2.

CHURCHES OF CHRIST. Religious denomination. The membership in Great Britain exceeds 14,000, with 16,000 Sunday scholars. The offices are at Moss Side, Manchester. There are centres at Newcastle, etc.

CHURCHILL, MISSINNIPI, OR ENGLISH River of Saskatchewan and Manitoba, Canada. Rising in La Loche, or Methy, Lake, it finds an outlet at Fort Churchill into Hudson Bay. It is 1,100 m. long and has rapids.

CHURCHILL, LORD RANDOLPH (1849-95). British politician. Third son of the 7th duke of Marlborough, he was born Feb. 13, 1849, and educated at Eton and Merton College, Oxford. He entered Parliament as Conservative member for Woodstock in 1874, and from 1885 until his death represented S. Paddington.

After 1880, when the Liberals were in office, Lord Randolph became extremely prominent as a freelance, attacking the Gladstone administration with unflinching zeal. The small group who acted with him, including Sir John Gorst, were commonly known as the Fourth Party. When Lord Salisbury took office in 1885 he was made secretary of state for India. On the Unionist triumph in 1886 he became chancellor of the exchequer and leader of the House of Commons; but within six months tendered his resignation, which, much to his own surprise, was accepted. His public appearances from then onwards were rather spasmodic, due in part to a long and painful illness, which ended in general paralysis. He died Jan. 24, 1895. Lord Randolph married a daughter of Leonard Jerome of New York, a lady who was very prominent in London society; they had two sons, Winston and John. Consult Life, W. Churchill, 1906.



Lord Randolph Churchill, British politician
Bassano

CHURCHILL, WINSTON LEONARD SPENCER (b. 1874). British politician. Born Nov. 30, 1874, the elder son of Lord Randolph Churchill, he was educated at Harrow, and passed through Sandhurst into the army, 4th Hussars.

In 1895 he was attached to the Spanish army during the war with the United States. There he acted as a war correspondent. In 1897 and 1898 he served on the Indian frontier, and in the latter year was attached to the 21st Lancers, in the campaign that led to the fall of Khartoum. When the South African War broke out, Churchill went thither as correspondent for The Morning Post. On Nov. 15, 1899, he was taken prisoner by the Boers, but he soon escaped from captivity at Pretoria.

As a politician Churchill first appeared in 1899, when he stood in the Conservative interest for Oldham. He was beaten, but in 1900, at the general election, he was returned for that borough. He opposed tariff reform and joined the Liberals, and in the Liberal interest he was elected for North-West Manchester in Jan., 1906. He had just been made under-secretary for the Colonies.

In 1908 Churchill entered the Cabinet as president of the Board of Trade, in 1910 was transferred to the Home Office, and in 1911 went to the Admiralty. He was First Lord when the Great War began, and was thus responsible for directing the early activities of the fleet. Since 1906 Churchill had been M.P. for North-West Manchester. On entering the Cabinet he had to seek re-election, and was defeated, but was returned for Dundee. Defeated there in 1922, he twice unsuccessfully tried to enter Parliament, until in Oct., 1924, he was returned for the Epping division.

In the Coalition ministry, 1915, Churchill was relegated to the chancellorship of the duchy of Lancaster. Resigning office in November, he went to France, and for a while was in command of a battalion, but in a short time he was again in England. He became minister of munitions, 1917. In Jan., 1919, he was transferred to be secretary for war. Secretary for the colonies, 1921-22, he was chancellor of the exchequer, 1924 to 1929.

As an author, Churchill has written on the campaigns in which he has shared: The Story of the Malakand Field Force, 1898; The River War, 1899; London to Ladysmith via Pretoria, 1900; and Ian Hamilton's March, 1900. He has also written the standard biography of his father, 1906. His war memories, The World Crisis (3 vols.) and The Aftermath, appeared in 1923-29.

CHURCHILL, WINSTON (b. 1871). American novelist. Born at St. Louis, Nov. 11, 1871, his first success was Richard Carvel in 1899. The best known of his later works are The Crisis, 1901; The Crossing, 1904; Coniston, 1906; Mr. Crewe's Career, 1908; A Far Country, 1915; and A Traveller in War Time, 1918. His three-act play, Dr. Jonathan, appeared in 1919.

CHURCHING. Christian rite of great antiquity. In the Church of England since 1552 its full title has been The Thanksgiving of Women after Child-birth, commonly called The Churching of Women. It is a short service consisting of a Psalm, the Lord's Prayer, and responses. In the Roman Catholic Church the sprinkling with holy water and the blessing by the priest are the special features.



Winston Spencer Churchill, British politician
Russell



Church Army badge

CHURCH LADS' BRIGADE. Church of England movement founded in 1891. It combines military organization with moral and religious instruction. In various parts of the empire it has a membership of over 60,000 lads in 1,332 companies. During the Great War some 250,000 of its members and ex-members served. The headquarters are at Aldwyeh House, Catherine St., London, W.C.2.

CHURCH OF ENGLAND. State church of England and recognized as the mother church of the Anglican community throughout the world. As a national church it owes its existence to the preaching and organizing of S. Augustine, his followers and successors. He came from Rome, and until the 16th century the church remained in communion with the Church of Rome and therefore under the Pope's authority. Its doctrine and organization were those of the Church of Rome, but modified by a certain infiltration of Celtic influences.

Its form of government is episcopal and its bishops claim a direct spiritual descent from the apostles. The archbishop of Canterbury has always been regarded as its head, although in early days his authority over the archbishop of York was questioned.

When Henry VIII quarrelled with the Pope and declared himself head of the church no doctrinal changes were made. Changes, however, were made by Edward VI, but Mary restored the old faith and with it the authority of Rome. Finally Elizabeth effected a settlement which has lasted until to-day. An Act of 1559 made compulsory the use of the Prayer Book of 1552, which contains the orders for divine worship and the administration of the sacraments, while its doctrines are laid down in the appended 39 articles. Elizabeth was declared supreme governor, not supreme head of the church.

Notable events in the church's history since 1559 have been the breaking away of the Nonconformists; the abolition of most of the privileges enjoyed by its clergy and members; and the Oxford movement, which widened the differences between high and low churchmen. In the 20th century the church in Wales, an integral part of the whole organization, was disestablished. The Church has been given a certain amount of self-government, but the rejection of the proposals for the reform of the Prayer Book by Parliament in 1927 and 1928 created a situation which many churchmen considered intolerable.

The church is governed by the two archbishops, each the head of a province, and the various bishops, each in charge of a diocese. Its corporate will is expressed in convocation (q.v.) and in the newer Church Assembly. Established in 1920, this consists of three houses, bishops, clergy, and laity. The laity are elected by the diocesan conferences. The Assembly can decide upon alterations in the church services and organization, but before such changes become law the sanction of Parliament is necessary. There is also an annual meeting called the Church Congress.

For the year ending 1928 the voluntary offerings of the church were nearly £10,000,000. There were 2,339,283 communicants at Easter 1929 and 200,838 confirmations during the year. See Anglicanism; Episcopacy; Prayer Book.

CHURCHWARDEN. Lay officer of the Church of England. Churchwardens are appointed at Easter, usually one by the incumbent and another by the parishioners. Acting generally as lay representatives of the parish, their duties include the preservation of the church fabric and furniture, the collection of the offertory, and the maintenance of order in church.

CHURCHYARD. Burial ground attached to a church. In it parishioners have under common law a right of burial. Equally with

the church itself it is consecrated ground, and is in the care of the churchwardens. See Burial; Cemetery.

CHUVASH. Autonomous republic of Soviet Russia. It lies S. of the Mariiskaia area, some 300 m. E. of Moscow. The chief town is Cheboksari. Its area is 7,192 sq. m. Pop. 893,724.

CIBBER, COLLEY (1671-1757). English dramatist. Born in London, Nov. 6, 1671, he went on the stage in 1691, and in 1696 acted



Colley Cibber,
English dramatist
After Van Loo

in his first play, *Love's Last Shift*, in the part of Sir Novelty Fashion, this making his reputation. He played many parts, and appeared for the last time in 1745. In all he wrote some thirty plays, many of them adaptations from Shakespeare and other dramatists. The success of *The Non-Juror*, 1717, an anti-Jacobite play, adapted from Molière's *Tartuffe*, brought him the poet laureateship. Pope ridiculed him in *The Dunciad*, and Fielding and Johnson spoke of him with contempt, but he had the support of Swift and Steele. He died Dec. 12, 1757.

CICADA (Lat.). Group of large, four-winged insects, of which there are about 500 known species, mostly inhabitants of the tropics. Some 18 species occur in S. Europe. The males make a peculiar chirping sound. The larva lives for several years before its transformation into the perfect insect.

CICATRIX (Lat.). Scar formed by the development of fibrous tissue during the process of healing. Extensive scars, such as those caused by burning, may cause serious deformity by contracting. A scar of any depth or size, though it may fade considerably, will show some indication throughout life. In the early stages it is red, but as time passes it becomes white and glistening.

CICELY (Myrrhis odorata). Perennial herb of the order Umbelliferae. A native of Europe and the temperate parts of S. America, it has a hollow stem about 3 ft. high, a fleshy, spindle-shaped root, and large, much divided aromatic leaves. The small flowers are white, in terminal umbels, of which only the outer series produce fruits. Cicely was formerly cultivated in England as a pot-herb, and in Italy is still used in salads.

CICERO, MARCUS TULLIUS (106-43 B.C.). Roman orator, statesman, and man of letters. Born at Arpinum, Jan. 3, 106 B.C., his father belonged to the equestrian order. After visiting Greece and the East in 79 and 78 especially to study oratory, he began his public career in 77, joining the aristocratic or senatorial party. But he was no consistent supporter of this party, and often severely criticised some of its members. Cicero's oratorical powers were first displayed as a pleader in the law courts. He was consul in 63. His term of office being distinguished by the resolute, though technically illegal, manner in which he crushed the conspiracy of Catiline to overthrow the republic.

In 58 the disreputable Clodius, a personal enemy of Cicero, was allowed to introduce a

measure bringing Cicero to book for his illegalities in putting the Catilinarian conspirators to death without a trial. Cicero left Italy, but was recalled in 57. On the outbreak of the Civil War, Cicero joined the Pompeians, and after the murder of Caesar (44), in which he had no part, he reappeared again in public life, delivering violent speeches against Antony. When Antony became master of Rome Cicero was a marked man, and was killed by the emissaries of Antony, Dec. 7, 43.

It is as a man of letters that Cicero's fame rests on the surest foundation. In addition to over 50 extant speeches, Cicero wrote on oratory, philosophy, law, and politics. Many books of letters also survive.

CID CAMPEADOR, RUY DIAS (c. 1040-99). Spanish military hero. Born in Castile of noble birth, when more than half Spain was in the hands of Moorish princes, he was known to the latter as Sidi, of which Mio Cid was the Spanish version. His personal valour, and successes against the infidel when for a few years he acted as the champion of Christendom, won him an almost fabulous reputation among Christians and Moors alike. His exploits were recorded in the 12th century Spanish epic, the *Poema del Cid*. Innumerable dramas have been written around the story of Ruy Dias.

CIDER. Fermented apple juice. France takes the lead as a cider-producing country; in England the ciders of Devonshire, Somersetshire, Gloucestershire, Herefordshire, Kent, and Norfolk are noted. Cider apples are small in size and generally grown on standard trees in grass orchards. The ripe fruit is first crushed or grated. The juice is then pressed from the pulp and allowed to stand in an open vat until the solid particles present have risen to the surface as a scum, which is skimmed off. The clear liquid is transferred to a fermenting cask, from which it is removed and filtered.

CIGAR (Span. cigarro). Tobacco leaf prepared for smoking by being rolled and tapered at one or both ends. The cigar consists of a core or inside mass of fillers, which are enveloped in an inner and an outer wrapper. The filler for a choice cigar must all be of uniform fine quality and packed longitudinally so that it will burn evenly and allow the smoke to draw easily from end to end. The filler is then wrapped inside a whole leaf of the same quality. For the outside wrapper only the most perfect leaves are used. When the cigars are made, they are dried, either in the sun or by artificial heat.

A cigarette, or little cigar, is a small roll of fine-cut tobacco wrapped in thin paper. The idea of smoking tobacco in this way originated in Russia about the time of the Crimean War. At first the cigarettes were made by the users, but later factories were built where they were made by machinery. To-day enormous quantities of cigarettes are manufactured in Great Britain, the United States, and elsewhere. Of the many varieties those most generally smoked are known as Virginian, Turkish, and Egyptian. See Tobacco.

CIMABUE (1240-1302). Florentine painter, whose proper name was Giovanni Gualtieri. That he was born in Florence and worked at Rome, 1272, and in mosaics at Pisa, 1301, is all that is known of his life. The Altarpiece of The Madonna for Santa Maria Novello at Florence, long described as his most famous achievement, is now known to be by Ducio di Buoninsegna, and paintings by unknown artists have been attributed to Cimabue.



Marcus Tullius Cicero,
Roman orator and statesman
From a bust in Madrid Museum



Cimabue,
Florentine painter
From an old fresco

CIMA DA CONEGLIANO, GIOVANNI BATTISTA (c. 1460–c. 1517). Italian painter. Often known as Giovanni Battista da Conegliano, he worked at Vicenza and at Venice, where he was a pupil of Giovanni Bellini (q.v.). Among his best pictures are two of the Virgin and Child with Saints, at Parma; the Glory of S. John the Baptist, Venice; The Incredulity of S. Thomas, National Gallery, London; Madonna and Child, Bologna; S. Peter Martyr, and The Descent from the Cross, Modena. His earliest work was in tempera.

CIMMERII. Name given in the Homeric poems to a mythical people believed to dwell in the far W. where the sun never shone. The historical Cimmerii, originally inhabiting the neighbourhood of the sea of Azov, migrated into Asia Minor in the 7th century B.C. and settled in Lydia. The phrase Cimmerian darkness is used for intense, utter darkness.

CIMON (c. 504–449 B.C.). Athenian general and statesman. The son of Miltiades, his distinguished service at the battle of Plataea (479 B.C.) was followed in 466 by a double victory over the Persians by land and sea. On the death of Aristides, Cimon became leader of the aristocratic party at Athens, and, after Themistocles had been forced into exile, its chief statesman. Having returned from banishment, Cimon became responsible in 450 for a truce between Athens and Sparta.

CINCHONA. Dried bark of the stem and branches of cultivated plants of cinchona succubra. It is used in medicine chiefly in virtue of the quinine it contains, but also as a remedy for dipsomania. It is imported, largely from Java, India, and Jamaica, in the form of quills, and has a bitter, astringent taste. See Bark.

CINCINNATI. City of Ohio, U.S.A. On the N. bank of the river Ohio, and connected by bridges with Covington and Newport on the Kentucky side of the river, it is an important port and rly. centre.

The city runs from the river to an amphitheatre of hills. In the "bottoms" are the manufacturing and wholesale districts, on the higher levels the shopping districts, while the finest residences are on the heights. Notable buildings include the chamber of commerce, U.S. government building, city hall, masonic temple, art museum, S. Peter's (R.C.) cathedral, S. Paul's (Protestant Episcopal) pro-cathedral, and the Union Central Life building of 34 storeys (495 ft. high). In Fountain Square is the beautiful Tyler Davidson fountain. Cincinnati has a municipal university, and is famous for its musical festivals. Pop. 401,247.

CINCINNATUS (c. 519–439 B.C.). Hero of the early Roman republic. Consul 460 B.C. in 458 he was appointed dictator when the country was invaded by the Aequians. The deputation sent to summon him found him, patrician though he was, ploughing his own land. Having defeated the Aequians in 16 days, he resigned the dictatorship and returned to the plough.

CINDERELLA. Heroine of a widespread folk cycle tale. It generally follows the fortunes of a young girl who is cruelly and contemptuously treated by her step-sisters. By the sweetness of her character and the aid of a fairy godmother Cinderella triumphs and wins the love of a prince.

CINDERFORD. Colliery centre of Gloucestershire, 3 m. N.W. of Newnham, on the L.M.S. & G.W. Jt. Rly. Market day, Sat. Pop. 3,500. See Dean, Forest of.

CINEMATOGRAPH, or **KINEMATOGRAPH** (Gr. kinema, movement; graphē, to write, describe). Apparatus employed for projecting animated pictures on to a screen. The first photographic analysis of motion

was made by Edward Muybridge in 1872, when he attempted to take instantaneous photographs of a galloping horse, using 24 cameras placed side by side. Muybridge gave an exhibition of photographic analysis of motion at the Royal Institution in 1882. While glass photographic plates only could be used it was impossible to obtain a continuous picture. The difficulty aroused the attention of George Eastman, who in 1885 discovered how to make the transparent roller film for photography. William Friese-Greene, a native of Bristol, invented a moving-picture camera, which he used for the first time on Nov. 15, 1889, in photographing a scene in Hyde Park. Edison, seeking a film to complete the kinetoscope, or moving picture peep-show which he patented in America on Mar. 14, 1893, adopted the Eastman invention, and showed the kinetoscope at the World's Fair at Chicago.

Robert W. Paul, a London scientific instrument maker, finding that Edison had not patented the kinetoscope in England, set to work to make a duplicate. Paul was soon sending his machines all over the world, and later invented a moving-picture camera of his own. The difficulty of projecting a picture had yet to be overcome. In Feb., 1895, Paul was able to throw a clear moving picture on the screen for the first time. The film was 40 ft. long, showing a picture 7 ft. sq. Among those who followed Paul was Charles Urban, who exhibited "moving pictures at theatres under the name of bioscopes. The history of the moving picture producing and exhibiting industry is dealt with in the article Film.

The moving picture camera of to-day resembles in principle the kinetograph invented by Edison in 1889. A narrow, sensitized film is made to pass in intermittent motion behind a focussed lens, and is held stationary for a brief period while the exposure is made, after which the exposed portion is wound on to a spool and a fresh portion comes into place behind the lens. The mechanism is operated by turning a crank, or by a clockwork or electric motor. The moving picture camera takes pictures at the rate of about 20 per second.

A positive film made from the photographic negative is passed between the condenser and lenses of the projecting lantern in such a way that the film lasts for a fraction of a second while each separate picture is thrown on to the screen.



Cinderella. Heroine of the world-famous fairy story
Painting by Val Prinsep, R.A.

fireproof spool boxes. The mechanism is actuated by an electric motor, the operator regulating the speed. To guard against the danger of

fire in picture theatres the projection apparatus is housed in a fireproof chamber, usually with automatic shutters which drop down in emergency and cut off the projection box from the rest of the building.

The recording and reproduction of speech, sound, and incidental music along with the cinematograph picture had been attempted by many inventors without much success until 1927, when different systems got to the practical stage. In the course of the next year a number of sound-film systems were developed, based on three main types of apparatus, to be presently described, and the beginning of 1929 saw the talking picture a formidable rival to its predecessor, the silent film. In one method a sound-record is made on a wax disk as the picture is photographed, and a permanent record prepared from the wax original is passed through a gramophone device as the film is projected, sound-record and picture being carefully synchronised.

In the sound-on-film system the sound vibrations picked up by the microphone are made to cause variations of intensity in a slender beam of light directed upon a narrow band at the edge of the sensitive cinematograph negative. In the projection apparatus the sound record on the edge of the film interrupts a constant beam of light shining through a narrow slit, and so produces electrical variations in a photo-electric cell. These are amplified and converted into sound vibrations.

In the two-film system a separate film is used for the sound record, a beam of light being reflected on to the negative from an oscillating mirror. The sound record is made to produce variations in an electrical circuit, and so to work a loud speaker.

In 1930 the silent picture was being rapidly displaced by the "talkie" in English-speaking countries, while multi-lingual films were being

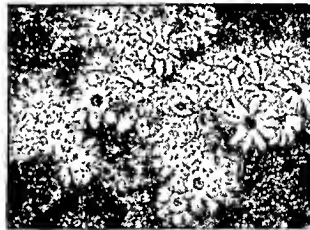
produced to make possible the universal exhibition of talking films. See Film.

CINERARIA (Lat. cinerarius, ashy). Greenhouse plants, of the order Composite. For the most part natives of S. Europe and the Canary Islands, they were introduced into England in 1777. Of an average height of about 2 ft., with greyish leaves, they bear masses of starry flowers of all shades of colour, from white to red, purple and blue. They are decorative and easily raised from seed.

CINGALESE. Variant name, based on the Tamil spelling, of the Sinhalese, most numerous of the native people of Ceylon. It is applied inaccurately to the whole Ceylonese population, including Tamils. See Ceylon.

CINNA, LUCIUS CORNELIUS (d. 84 B.C.). Chief of the democratic party at Rome and a supporter of Marius. In 87 B.C. he was elected consul with the approval of Sulla leader of the senatorial party. After Sulla had left for the East, Cinna brought forward various proposals, among them one for the recall of Marius from exile. These were opposed by his colleague, Octavius, and Cinna was obliged to leave Rome. He joined Marius, and their combined forces entered Rome and massacred the adherents of Sulla. In the end he was murdered by his mutinous soldiers.

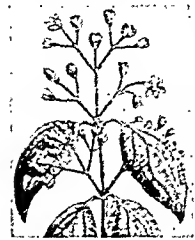
CINNABAR or **VERMILION** (Gr. kinnabari). Called also red sulphide of mercury, it is the name of the ore from which mercury is almost solely obtained. When pure the mineral is composed of mercury 86.29 p.c., and sulphur 13.71 p.c., but it usually carries impurities. It occurs massive and in earthy layers and also crystalline: the colour is normally bright



Cineraria. Many coloured flowers of this decorative greenhouse plant

red, shading off into brownish-red or even brownish-black. Cinnabar is chiefly mined at Almaden, in Spain, and at Idria, in Carniola. Apart from its use as a source of mercury, it is employed as a pigment and for colouring red sealing wax. See Mercury; Vermilion.

CINNAMON (*Cinnamomum zeylanicum*). Small evergreen tree of the order Lauraceae, a native of Ceylon and Malabar. In Ceylon



Cinnamon. Flowering shoot of *C. zeylanicum*

many thousands of acres are devoted to its cultivation, the trees being coppiced to induce the growth of numerous long and slender shoots. From these the tender bark is peeled after a longitudinal cut, and it rolls into the familiar quills of commercial cinnamon, and is then dried in the sun. The peculiar fragrance is due to the presence in the bark of an essential oil (oil of cinnamon) which is carminative and astringent. The bark is valuable in diarrhoea and internal haemorrhage and the oil is used for stimulating the flow of the gastric juices in cases of digestive disorders.

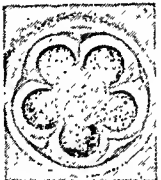
Cinnamic acid is formed in oil of cinnamon by oxidation, and is also prepared from storax for medicinal use. Cinnamic aldehyde which is a bright yellow liquid with an aromatic odour and sweetish, spicy taste, is prepared from oil of cinnamon or oil of cassia.

CINQUEFOIL (*Potentilla reptans*). Perennial herb of the order Rosaceae. A native of Europe, Asia, the Canaries, etc., it has a hard, long root-stock, from which slender stems several yards in length run along the ground in all directions, rooting at intervals. The long-stalked leaves are divided into five oval leaflets with toothed margins; and the bright yellow flowers are an inch across.



Cinquefoil, *Potentilla reptans*

The name cinquefoil is also given to an architectural ornament consisting of a group of five curved pendants inscribed on a pointed arch. When applied to windows it is generally contained in a circular ring.



Cinquefoil in architecture, an ornamental device in a pointed arch

and Rye (q.v.) were added. Faversham is a member of the port of Dover. They undertook obligations as a first line of defence in times of invasion, and in return enjoyed privileges, all of which were definitely set forth in a charter granted by Edward I. This was surrendered to the crown in 1688, and by the Municipal Corporations Act of 1835 and other Acts their administration was brought into uniformity with the rest of the country. The warden of the Cinque Ports, now an honorary office, has a residence at Walmer Castle.

CINQUEVALLI, PAUL (1859-1918). Polish juggler. He first appeared as a trapeze artist at Odessa. As the result of an accident he took up the calling of a juggler. He appeared first in England at Covent Garden Theatre, in 1885, and for the next twenty years was probably the cleverest performer of his class. He retired in 1914, and died in London, July 14, 1918. His most wonderful tricks were performed with billiard cues and balls.

CINTRA. Town of Portugal, 17 m. by rly. N.W. of Lisbon. It is a summer resort and was for centuries a royal residence. Dominated by a Moorish castle, it has two royal palaces and a rock-ent, cork-panelled convent. Pop. 5,930.

The Convention of Cintra was an agreement made Aug. 22, 1808, between the French and British generals in Portugal after the battle of Vimero. The French agreed to evacuate Portugal, British transports being provided to take them back to France.

CIPHER (Arab. sifr, anything empty). Secret method of communication. There are numerical and alphabetical ciphers, syllable and word ciphers, stencil and blackline, and miscellaneous ciphers. The latter include angle-writing thread-writing, the foot-rule cipher, the puncture-system, the playing-card cipher, etc. Ciphers highly developed can be traced back to classical and earlier times, and rarely but practical methods are found among primitive peoples. Speaking generally, every cipher can be deciphered in course of time.

CIPRIANI, GIOVANNI BATTISTA (1727-85). Italian painter and engraver. He was born in Florence, and after art work there and in Rome he came to London in 1755. Cipriani's free, easy, and graceful style suited the mode which Bartolozzi had rendered popular. Cipriani restored some of Antonio Verrio's paintings at Windsor and Ruhen's ceiling in Whitehall Chapel. A foundation member of the Royal Academy, he designed the diploma given to members on their election. He died Dec. 14, 1785. Pron. Chipriaby.

CIRCE (Gr. Kirkē). In Greek mythology, an enchantress who lived upon the island of Acaea. According to Homer, Circe by means of a magic potion changed into swine the companions of Odysseus when cast ashore on her island. Odysseus himself, fortified by an antidote from Hermes, drank of the cup unharmed, and remained on the island with Circe for a year. Pron. Sir-see.

CIRCLE (Lat. circulus, little ring). Plane figure bounded by a curved line called the circumference every point of which is equidistant from a fixed point known as the centre of the circle. Any straight line through the centre and terminated at both ends by the circumference is a diameter of the circle, and each half of it is a radius. Thus the fundamental property of the circle is that its radii are all equal. Another is that if both ends of a diameter are joined to any point on the circumference, the angle formed is a right angle.

Circular measure is the term given to a mathematical method of measuring the size of an angle in terms of the arc which it subtends. See Geometry.

CIRCUIT (Lat. circum, around; ire, to go). Name given in the English-speaking world to the journeys of judges for the purpose of trying criminals and settling disputes of importance. At present England and Wales are divided into eight circuits: Northern, North-Eastern, Midland, Western, Oxford, North Wales and Chester, South Wales, and South-Eastern. London and Middlesex are outside the circuit system. Scotland is divided into two circuits, North and South. The

North of Ireland has one only, while the Irish Free State is divided into eight circuits. See Assizes; High Court; Judge.

CIRCUIT. In electricity, the path traversed by an electric current. If the positive and negative terminals of a galvanic battery or accumulator be connected by a wire a circuit is formed, the current flowing from one terminal through the wire back to the other terminal and through the battery. If a wire loop with its ends joined be rotated in a magnetic field, so as to cut the magnetic lines of force, a current is induced in it, and the wire then constitutes a circuit. A circuit is said to be closed when no gap or break exists; when continuity is broken at any point it is said to be open. In some cases the earth serves as a portion of an external circuit. Short circuit is a leakage of current from one portion of a circuit to another, whereby the current takes a short cut instead of passing through the whole circuit.

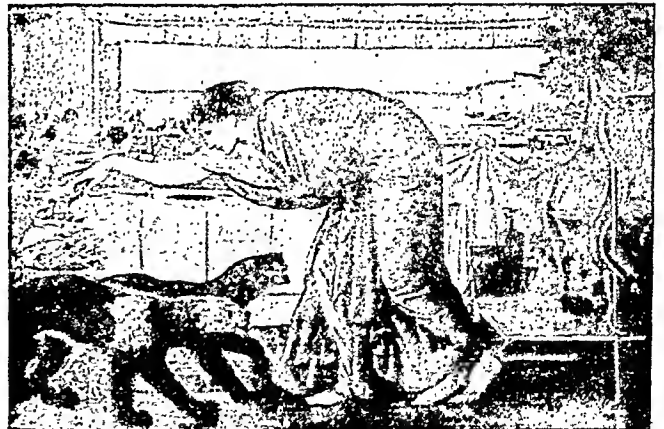
A circuit breaker is a device inserted in an electric circuit for breaking or stopping the current. See Cell; Dynamo Kathode.

CIRCULAR NOTE. Note issued by a bank which its representatives abroad will cash on demand. Much used by travellers, they are usually issued for not less than £10 each.

CIRCULATOR. Invention for heating water quickly. The water passes through a coil of piping surrounded by gas jets, and in three or four minutes will reach boiling point. This apparatus is enclosed in a circular box which can be fixed over sink or bath: pipes can also be carried to other rooms.

CIRCUMCISION (Lat. circum, around; caedere, to cut). Surgical operation of high antiquity, practised by many peoples preparatory to adult life. A universal Jewish rite, it is found almost everywhere, except in the Indo-European world and in non-Semitic Asia. A religious ceremony in origin, circumcision is also useful as a hygienic and preventive measure.

The Feast of the Circumcision is a Christian festival kept on Jan. 1 in memory of Christ's obedience to the old covenant (Luke 2).



Circe. Sir Edward Burne-Jones's picture, *The Wine of Circe*. The Greek enchantress mixing the potion which transformed human beings into animals
Photo Fredk. Holtger

CIRCUS (Lat. ring, circle). Place in ancient Rome specially constructed for holding chariot and horse races, games, and, later, athletic and wild beast combats. The structure was in the form of a long rectangle, with a semicircle at one end. The most notable circus at Rome was the Circus Maximus, 1,875 ft. long by 625 ft. wide. The seating capacity was enlarged from time to time, and in the 4th century it was said to be capable of seating 385,000 spectators.

Of modern circuses in the United Kingdom, the oldest and best known was that built in London by Philip Astley in 1770, familiar for many years as Astley's Amphitheatre, afterwards taken over by Mr. Lord George Sanger. Another notable one was P. T. Barnum's "Greatest Show on Earth," consisting of a huge company of equestrians, clowns, and acrobats, human freaks, and a menagerie. It was known later as Barnum and Bailey's.

CIRENCESTER. Urban dist. and market town of Gloucestershire. The Roman Corinium it is situated on the river Churn and the



Cirencester. The market place and parish church

Thames and the Severn Canal, 21 m. S.E. of Cheltenham on the G.W. and L.M.S. and Southern Junc. Rlys. The parish church of S. John the Baptist has an embattled tower 134 ft. high. Of the abbey founded 1177 by Henry I only an Early English gateway remains. Cirencester Park, belonging to Earl Bathurst, contains an avenue 5 m. long and a deer park. The Royal Agricultural College is near the town. Market day, Mon. Pop. 7,408. Pron. Sissiter.

CIRRHOSSIS (Gr. kirrhos, reddish yellow). Chronic inflammation with increase of connective tissue of an organ. The term is most often used of the liver, when the most frequent cause is long-continued alcoholism. The organ may be reduced in size or may be much enlarged. Pressure of the new tissue upon the blood-vessels in the liver eventually leads to obstruction of the circulation, chronic catarrh of the stomach with dyspepsia and vomiting, and sometimes severe hæmorrhage from the mucous membrane. The veins on the surface of the body become enlarged, and there is often dropsy of the abdomen. In the early stages strict abstinence from alcohol, light diet, and healthy living may do much to arrest the disease. After dropsy has occurred measures must be taken to reduce the fluid.

CISALPINE REPUBLIC. State in Italy set up in 1797 by Napoleon. Its area was about 16,500 sq. m., and its population about 3,500,000. Milan was its capital. It was governed by a directory of five members and a parliament of two houses. It became later the short-lived (1805-14) kingdom of Italy.

CISSBURY. Site of an early British earthwork, near Worthing, Sussex. The camp covers 60 acres, with oval fosse and vallum, and near by are 50 circular pits, 40 ft. deep, with lateral tunnels. They are attributed to neolithic flint miners.

CIST (Gr. kistē, chest; Welsh eistvaen, stone chest). Small stone sepulchral chamber. Sometimes denoting a rock-hewn tomb, the term is used especially of a prehistoric stone coffin, formed by setting up on edge four or more hewn or unhewn slabs, with one or more flat capstones. It developed into the dolmen and sarcophagus. Pron. Sist.

CISTERCIANS. Roman Catholic religious order founded at Cîteaux by S. Robert, abbot of Molesme, Langres, France, in 1098. It followed the Benedictine rule, its chief leaders being S. Alberic (d. 1109), S. Stephen Harding, an Englishman (d. 1134), and S. Bernard. From the 14th until the end of the 18th century, when it was suppressed, it declined in numbers and discipline. But a reform had

been instituted at La Trappe in Normandy in 1663, and the Trappists took refuge in America and revived the order in Europe in the 19th century. In 1892 they were united into one order, while the Cistercians of common observance remained a separate order. Their most famous house was Port Royal, and they had several in England. See Abbey; Monasticism.

CITADEL (Ital. città, n. city). Name for a fortress in or near a city. Citadels were built to protect the city and in case of siege to be the refuge of its inhabitants; also to be a storehouse of weapons and the centre of the defensive organization. Notable citadels are those at Plymouth and Quebec and at Belfort and Carcassonne. See Carcassonne; Castle.

CITRIC ACID (Lat. citrus, citron) ($C_6H_8O_7$). Acid to which lemons owe their sour taste. It occurs naturally in other fruits, such as cranberries, red currants, gooseberries, and raspberries. Lemon juice contains from 6 to 7 p.c. of citric acid. The acid is used in beverages such as lemonade and also in calico printing and dyeing.

CITRON (Citrus medica). Member of the orange family. A native of N. India, it is considered by some to be the wild species from which cultivated forms of orange, lemon, lime, and shaddock have been evolved. The glossy, lance-shaped leaves are attached to the leaf-stalk by a distinct joint. The flowers are purple on the exterior and white inside. The fruit is oblong, 6 ins. to 9 ins. long, with a thick, hard rind, yellow and fragrant when ripe. The pulp is white and the juice acid.



Citron. Flowering spray of Citrus medica

CITY (Lat. civitas, borough; Fr. cité). In Domesday Book the name city was commonly bestowed upon the county town in each shire. Later on the term tended to be limited to towns which were episcopal sees and the sites of cathedral churches.

To-day in Great Britain a number of large towns have by royal authority been raised to the honorary eminence of cities, irrespective of their ecclesiastical character. In the U.S.A. every town which enjoys a government by mayor and corporation is commonly called a city, and in Canada the name is given to places having a certain population, say over 25,000. The special name, The City, is used to denote the older or central portions of both London and Paris. See Borough.

CITY COMPANIES, THE. Guilds or companies of the city of London, also called livery companies from the distinctive costume worn by members from the time of Edward III. Each company secured a monopoly of its trade within a prescribed area. They acted in common with similar guilds in provincial towns, and on the Continent and in association with the Privy Council maintained a control of the chief commerce of the country.



Cistercians. Dress of this monastic order

To-day, with few exceptions, the city livery companies of London are limited in action to the administration of charitable trusts committed to their care; the encouragement of technical and general education; and hospitality. Of the 80 companies remaining of the original 109, twelve take precedence, and are known as the Great Companies: Mercers, Grocers, Drapers, Fishmongers, Goldsmiths, Skinners, Merchant Taylors, Haberdashers, Salters, Ironmongers, Vintners, and Clothworkers. See Guild; also entries under the names of the respective companies.

CITY OF REFUGE. Jewish institution, resembling the asylum of ancient Greece and Rome, for abating the evils of blood-revenge. Moses appointed six such cities: three on the E. of the Jordan, Bezer, Ramoth, and Golan; and three on the W., Kedesh, Shechem, and Hebron (Deut. 4; Josh. 20). If anyone who had unintentionally killed another could reach any one of these cities before being overtaken by the avenger of blood, he was safe.

CIUDAD BOLIVAR. City of Venezuela. capital of Bolívar state. It stands on the Orinoco, and exports rubber, cocoa, coffee, sugar, tobacco, etc. In 1819 its name was changed from Angostura to Bolívar. Pop. 19,712.

CIUDAD RODRIGO (Span. Roderick's city). City of Spain, in the prov. of Salamanca. On the Agueda river, 56 m. by rly. S.W. of Salamanca, it has a 12th century cathedral (modernised) and remains of a Roman aqueduct, the bridge being built on Roman foundations. Founded by Count Rodrigo Gonzalez in the 12th century, it was captured by the French in 1810, but was recaptured in 1812 by Wellington, who received from it the title of duke. Pop. 8,761.

CIVET OR CIVET CAT (Arab. zabad) Family Viverridae of the carnivora. Coming next to the cats in general structure, they differ from them in dentition, and in many cases the claws are only partially retractile. All have slender bodies, heads with sharply pointed muzzles, long tails, and short legs. The general colour of the fur is brownish grey, handsomely mottled, and the hair is coarse. They have highly developed glands near the tail, which secrete the valuable civet perfume. Civets live in woods and high grass, and feed at night on small mammals, birds, and reptiles. All are natives of the Old World, being found both in Asia and Africa.

CIVIL LAW (Lat. civis, a citizen). Law which a state enacts for its citizens, more particularly that derived from the Roman



Civet. White-whiskered palm civet

Corpus Juris Civilis, compiled in the 6th century by order of the emperor Justinian. It is the basis of most of the law of W. Europe to this day. Scots law is also founded on it, but it had much less influence in England, where the people were jealous of their own Common Law.

CIVIL LIST, THE. Name given in Great Britain to the allowances paid to the king and others of the royal family, and to other payments made for the upkeep of the crown.

The civil list is revised at the beginning of each reign. King Edward VII received £470,000 a year from the country, or rather more than had been enjoyed by his mother, Victoria; and when the list was revised after his death in 1910 the same amount was granted to King George and Queen Mary. In addition King George receives about £70,000 a year from the revenues of the duchy of Lancaster. The Prince of Wales derives his income from the revenues of the duchy of Cornwall, and not from the civil list.

In Great Britain yearly allowances, known as civil list pensions, are given by the state to persons not in affluent circumstances, distinguished by their work in literature, science, and art, or to their dependents.

CIVIL SERVICE. Name given to permanent salaried non-combatant officers of the crown whose duty it is to administer in any capacity the affairs of the nation, or to maintain its interests abroad. They are grouped into many departments, and are controlled by the nation through its parliamentary system. The great public branches are represented in the House of Commons by a responsible minister. The cost of the home civil service is defrayed from the national revenue. Particulars of the estimated expense of each department are furnished yearly to Parliament, by which the requisite amounts are voted.

The majority of appointments of every grade are awarded on the results of examinations in which any qualified candidate may take part. Candidates for certain situations requiring special knowledge or experience are nominated and then appointed after an examination confined to nominees. Examinations for entrance into the civil service are controlled by the Civil Service Commission, Burlington Gardens, London, W.

Women are extensively employed in the civil service, especially in the Post Office. Since the Great War they have also been admitted to certain positions hitherto reserved for men, notably as first class clerks and inspectors of taxes.

Initial salaries are generally small, and promotion is often tardy. Against these drawbacks should be set the right of every efficient officer to a fixed annual increment, steadily advancing his salary, apart from special promotion, to the maximum prescribed for his class. Another advantage is security of tenure. The pension scheme is non-contributory, and provides for a retiring allowance, at the age of 60, with a cash payment not exceeding $1\frac{1}{2}$ years' salary. The maximum pension is half-pay, which is secured by 40 years' service.

Since the Great War civil servants have, in addition to their salaries, received bonuses, these being calculated according to the official cost of living figures. In 1929 a royal commission was appointed to inquire into the conditions of employment, pay, etc., in the service.

The Indian civil service is quite distinct from the home service, but the annual examination for entrance to it is the same as that for Class I clerkships at home. Australia and Canada have each their own service, and there is a colonial service, which includes positions in the various crown colonies.

CIVIL WAR. Struggle between Charles I and the Parliament from 1642 to 1649. The quarrel came to a head when, on Aug. 22, 1642, Charles raised his standard on a hill outside Nottingham Castle, since known as Standard Hill. The first pitched battle was fought at Edgehill on Oct. 23. Several small royalist successes followed, and the winter was spent in fruitless negotiations. In 1643 the royalists captured Bristol and other towns, and besieged Gloucester, but a new parliamentary army, led by Essex, relieved the city. On Sept. 20, 1643, was fought the first, and indecisive, battle of Newbury.

Charles next entered into negotiations with Ireland, while the Parliamentarians turned for aid to Scotland, the result being the Solemn League and Covenant by which a Scottish army was promised. This took the field in 1644, and on July 2 the contending forces met on Marston Moor. The royalists suffered a severe defeat at the hands of Cromwell, and Charles lost most of his strongholds in the north of England. The second battle of Newbury was fought on Oct. 27, the result being again indecisive. On June 14,

1645, the newly organized parliamentary armies gained an overwhelming victory at Naseby, this being followed in 1646 by the surrender of the king's army in the west.

For two years Charles remained a prisoner, but in 1648 the royalist risings recommenced. Cromwell first crushed the insurgents in Wales and then hurried north to meet the duke of Hamilton, who was advancing from Scotland, and whose army he destroyed in running fights lasting three days. The capture of Colchester on Aug. 28 marked the end of the Great Civil War. See Charles I.; Cromwell; Rupert.

CLACHAN. Small cluster of cottages in Scotland and Ulster. They are usually of stone. The word is presumably connected with Gaelic clach, a stone, often applied to stone circles and menhirs, such as Clach-na-Breatain, Stone of the Britons, in Glenfalloch, Perthshire.

CLACKMANNAN. Scottish county, bounded by Perthshire, the Firth of Forth, Stirlingshire, Kinross-shire, and Fifeshire. The Ochil Hills traverse the northern border, whence the surface descends gently to the Forth. Besides the Forth, the only rivers of note are its tributaries the Devon and Black or South Devon. Its area is 55 sq. m. Pop. 32,543.

CLACTON. Urban district and popular seaside resort of Essex. It is 70 m. by rly. N.E. of London on the L.N.E.R. In 1929 a town hall and municipal offices were erected. Steamboats go regularly to and from London during the summer months. Pop. 17,049.

CLAIRVAUX. Village of France, in the department of Aube, on the Aube river, 35 m. S.E. of Troyes. Its name, a corruption of Latin clara vallis (clear valley), is due to its position in the valley of the Aube, where in 1115 S. Bernard (q.v.) founded an abbey. The abbey buildings, used as a prison, mainly date from the 18th century. See Cistercians.

CLAIRVOYANCE (Fr. clair, clear; voir, to see). Faculty of seeing, or becoming cognizant of, things not at the time visible to the eye. This phenomenon usually takes the form of a person suddenly seeing something happening at a distance; but there have been cases where the clairvoyant, when blindfolded or in total darkness, was able to describe pictures or the colour of objects placed in the hand, or to read the contents of a closed book. See *Psychical Research: Spiritualism*.

CLAM. Name vaguely applied to many bivalve molluscs. In Scotland it means the scallop, and in England is used for species of *Mya* and *Macra*, both marine. In America it is used especially for the genera *Venus*, *Mya*, and *Tridacna*. The name refers to the firm grip of the shell when shut tight, clam meaning a vice or pincers.

CLAN (Gaelic clann; cf. Lat. planta, stock). Social group claiming a common ancestry. The word denotes primarily communities developed in the Scottish highlands in early times. By the 14th century they began to appear beyond the highland line. In the 15th century the system became profoundly changed. It might still comprise a chief, kinsmen within a limited degree, and a com-

monalty of the same blood, all bearing the same surname, commonly a patronymic with the prefix Mac, son. It embraced also subordinate septs claiming no blood-relationship.

The tenacity of the clan-spirit culminated in the rebellions of 1715 and 1745. When the Stuart cause was finally suppressed clanship was uprooted by the abolition, in 1748, of heritable jurisdictions and the disarmament of the clansmen. The number of clans and septs still preserving their historic continuity is about sixty. Some of them have established societies or associations.

CLAN-NA-GAEL. Society founded among the Irish-Americans by some Fenians in the U.S.A. about 1832. Their object was to terrorise the English people into giving Ireland independence. The headquarters were at Chicago. See Fenianism.

CLANRICARDE, EARL OF. Irish title now borne by the marquess of Sligo. In 1543 Ulick de Burgh was made earl of Clanricarde, and in 1785 his descendant, the 12th earl, was made a marquess. The marquessate became extinct in 1795, but was revived in 1825.

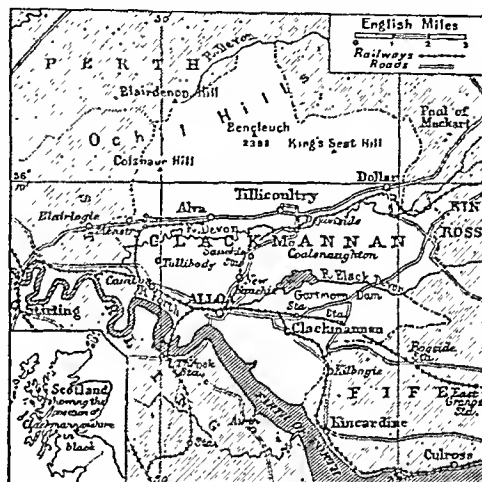
Hubert George, the 2nd marquess (1832-1916), came into prominence by his resistance to the policy of land purchase in Ireland, which he fought in the law courts. In the end the Clanricarde estates were sold in 1915. When he died, April 12, 1916, he left his great fortune to his nephew Viscount Lascelles, later earl of Harewood (q.v.).

CLAPHAM. Suburb of London. In the met. bor. of Wandsworth between Brixton and Battersea, it is served by the Southern Rly. and also by one of the London tubes. The station and district known as Clapham Junction is in Battersea. Clapham Common has been public property since 1874. At a house on a corner site of Cavendish Road, Henry Cavendish (q.v.), the chemist, made his experiment. Macaulay spent his earlier years at No. 5, The Pavement, a house facing the common and near the Plough Inn.

Clapham was the home of prominent members of the Evangelical party, called the Clapham Sect. Clapham Park was laid out by Thomas Cubitt in 1824. The parish church of Holy Trinity was built 1774-76, and Grafton Square Congregational Church in 1852. There is a school of art and a hospital for women. As a div. of the bor. of Wandsworth, Clapham returns one member to Parliament. Pop. 60,540.

The sensational case known as the Clapham Common Murder originated in the finding of the mutilated body of Leon Beron, an elderly Russian, many years resident in the East End, under some bushes on Clapham Common, Jan. 1, 1911. A ticket-of-leave man, Stinie Morrison, was charged with the crime, and convicted at the Old Bailey, the capital sentence being commuted.

CLAPPER BRIDGE. Name given to the cyclopean bridges of unhewn granite spanning many of the brooks on Dartmoor. They are not of Neolithic origin, but were constructed by tinners in the Middle Ages. The finest remaining specimen spans the East Dart at Postbridge, in the centre of the moor.



Clackmannan. Map of the smallest of the Scottish counties

CLAPTON. District of N.E. London. A ward of the borough of Hackney, it lies N. of Homerton, 4 m. N. of Liverpool Street station, L.N.E.R. Part of the locality is known as Clapton Park. The Salvation Army have their Congress Hall in Lynsott Road.

CLAUQUE (Fr. hand-clapping). Word applied to professional applauders or claqueurs, engaged to promote the success of a theatrical performance. The claque is an established business institution dates from about 1820, when an Assurance des succès dramatiques (Insurance for dramatic success) was founded in Paris, to supply claqueurs to all the theatres.

CLARE. Market town of Suffolk. On the Stour, 25 m. from Bury St. Edmunds, it has a station on the L.N.E. Rly. It was evidently in Anglo-Saxon times a border stronghold between the peoples of Suffolk and Essex. A castle was built here, and the earls of Clare or Clarence took their title from the place. There are remains of the castle and of a priory. The church is of the 15th century, with an older tower, restored in the 19th century. The market cross was pulled down in 1838. Market day, Mon. Pop. 1,340.

CLARE. County of the Irish Free State, in the prov. of Munster. Between Galway Bay and the river Shannon, it has an area of 1,330 sq. m. The Aran and other islands lie off the coast. The county is studded with small lakes. The river Fergus empties into the Shannon. In Galway Bay and Ballyvaghan Bay are oyster beds. Railway communication is provided by the Gt. Southern Rlys. The largest towns are Ennis (co. town), Kilrush, and Kilkee. Anciently known as Thomond, Clare received its present name in 1276. Pop. 95,064.

Another Clare is an island in Clew Bay, Ireland. It belongs to co. Mayo and has a lighthouse on its N. extremity. Its area is 4,000 acres.

CLARE (1194-1253). Italian saint. Her name was Chiara Scifi, and she was born at Assisi, July 16, 1194. She came under the influence of S. Francis about 1212, and took the vows of the Franciscan order. She thus became the first of the nuns, sometimes called after her the Poor Clares. For them a house was found at S. Damiano, close to Assisi, and over this Clare presided until her death, Aug. 11, 1253. She was canonised in 1255. See Francis, S.



S. Clare, founder of the religious order called the Poor Clares. From a painting by Vivarini, in the Accademia, Venice.

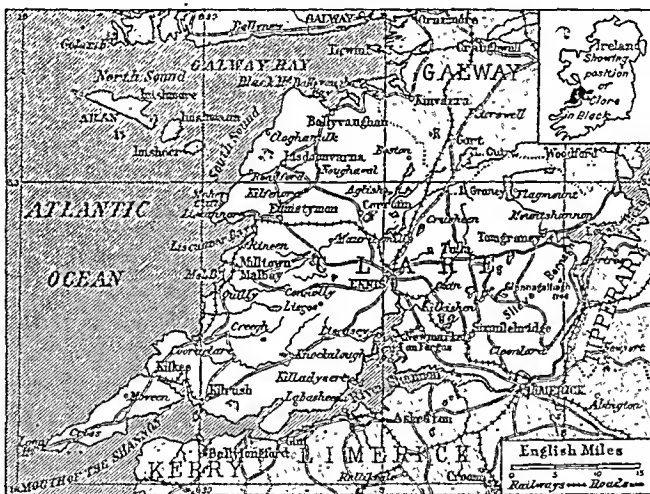
CLARE, EARL OF. English title. Given to a follower of William the Conqueror soon after 1066, it remained with his descendants until the last earl was killed at Bannockburn in 1314. From 1564 to 1768 it was held by the Holles family. The second earl founded Clare Market, London, about 1657. This disappeared when Kingsway was made.

In 1795 John Fitzgibbon (1749-1802) was made earl of Clare. He was lord chancellor of Ireland and had a great deal to do with the passing of the Act of Union, 1800. He died Jan. 28, 1802, and the title became extinct when his younger son died in 1864.

CLARE, JOHN (1793-1864). British poet. The son of a labourer, his life was spent in casual employment and poverty. In 1820 the publication of his Poems Descriptive of Rural Life and Scenery brought him transient fame. From 1837 till his death at Northampton, May 20, 1864, Clare was confined as insane. His first venture was followed by The Village Minstrel, 1821; The Shepherd's Calendar, 1827; and The Rural Muse, 1835, his best work.



John Clare, British poet. After Hilton.



Clare. Map of this Western maritime county of the Irish Free State

CLAREMONT. District in Surrey, 14½ m. S.W. of London by the Southern Rly. The mansion was erected by Sir John Vanbrugh in the early 18th century, and reconstructed by Lord Clive in 1768. It was bought in 1882 for the duke and duchess of Alhany. After the death of Sir W. Corry, who had acquired the mansion at Claremont, the estate was sold for building purposes.

There is a suburb of Perth, Western Australia, on the Swan River, called Claremont. Pop. 6,300.

CLARENCE, DUKE OF. English title borne by several princes. It is a variant of Clare, a town in Suffolk, where the powerful family of Clare had a castle. In 1362 Lionel, son of Edward III, was made duke of Clarence, his wife being the heiress of the Clares. Henry IV's son Thomas was made duke in 1412. Like Lionel, he left no sons, and again the title became extinct. In 1461 George, a brother of Edward IV, was made duke of Clarence, but after his violent death in 1478 the title was



Albert Victor, Duke of Clarence. Downey.

long in abeyance. It was revived in 1789 for William, the son of George III, who became King William IV, and again in 1890 for Albert Victor (1864-92), eldest son of Edward VII, then prince of Wales. See Clare.

Clarence House is the London residence of the duke of Connaught. It stands immediately W. of St. James's Palace, and was built in 1825 for the duke of Clarence, afterwards William IV. Later it was tenanted by the duchess of Kent, Queen Victoria's mother.

Clarenceux or Clarencieux is the title borne by one of the three kings of arms of the English Heralds' College. The office was first instituted by Henry V.

CLARENDON. Village near Salisbury, Wiltshire. One of the early English kings built a palace here, of which there are some remains, and this accounts for the name given to the Constitutions and Assize of Clarendon. Henry II founded a priory here.

The Constitutions of Clarendon were a code of sixteen laws issued by Henry II in 1164, their main object being to curtail the privileges of the clergy. They were the cause of the quarrel between the king and Becket.

CLARENDON. Printing type with a narrow and heavy face, some varieties of which are known as Egyptian.

This line is set in Clarendon.

CLARENDON, EARL OF. English title borne by the families of Hyde and Villiers. In 1661 it was given to Edward Hyde, the lord chancellor, and it remained with the Hydes until the 4th earl died in 1753. He had a sister, Jane, wife of the earl of Essex, and their daughter married Thomas Villiers (1709-86), a younger son of the earl of Jersey. The pair inherited the estates of the Hydes, and in 1776 Thomas was made earl of Clarendon. The title has since been held by his descendants. The family seat is The Grove, Watford, and the earl's eldest son is called Lord Hyde.

George William Frederik Villiers, 4th earl of Clarendon (1800-70), was ambassador to Madrid 1833-39 and lord lieutenant of Ireland 1847-52. A leading Whig, he was foreign minister for three periods, 1853-55, 1865-66 and 1868-70. He died Jan. 27, 1870. His descendant George, the 7th earl (b. 1877), chairman of the British Broadcasting Co. 1927-30, was in 1930 appointed governor-general of S. Africa.

CLARENDON, EDWARD HYDE, EARL OF (1608-74). English statesman and historian. He was born at Dinton, near Salisbury, Feb. 18, 1608. Called to the bar, 1625, he was returned as a member of the Short Parliament, and then of the Long Parliament in 1640. As the Puritans became more aggressive, Hyde joined Falkland and the moderates, who supported church and crown.

In 1643 he was the king's chancellor of the exchequer. During the Commonwealth he was the ablest and wisest of Charles II's council, and in 1658 was formally made lord chancellor. At the Restoration he returned with the king to act as his first minister for seven years, being made earl of Clarendon in 1661. In 1667 Charles demanded his resignation of the chancellorship, his enemies framed an impeachment, and the king advised him to leave the country. He spent the last seven years of his life in exile, completing his History of the Great Rebellion and writing an autobiography. His daughter Anne became the wife of the duke of York, later James II.

Clarendon died at Rouen, Dec. 9, 1674, and was buried in Westminster Abbey. His



Edward Hyde, Earl of Clarendon. After a portrait in the Bodleian.

History was first published at Oxford, 1702-4 (ed. W. D. Macray, 1888), and from the profits of the copyright the Clarendon Press at Oxford was established.

Clarendon Code is the name given to four Acts, chiefly the work of Edward Hyde, earl of Clarendon, passed after the restoration of Charles II in 1660. Their object was to ensure the supremacy of the Anglican Church and the humiliation of the Puritans, and to correct the irregularities which, during the Commonwealth, had crept into the Church.

CLARENS: Village of Switzerland, on Lake Geneva, 3½ m. by rly. S.E. of Vevey. It was immortalised by Rousseau in his *Nouvelle Héloïse*. Byron lived here in 1816.

CLARET (Fr. *clairret*; Lat. *clarus*, clear). Bordeaux wine, made in Gironde, France. It is a light table wine, slightly acid, and containing from 10 p.e. to 14 p.e. of alcohol. Clarets are classified under five main heads or *crus* (growths).

CLARINET OR **CLARIONET**. Wood wind instrument of cylindrical form with bell-shaped lower end, and having single reeds. The clarinet acts like a "stopped" pipe, and its compass is an octave lower than an open pipe of similar length (e.g. hautboy). There are three varieties, in C, A and B flat. The tone of the clarinet family is sombre and full below, mellow and rich in the middle, and brilliant in the upper notes. The B flat clarinet, used in numbers, is the chief soprano voice of the full military band. In the orchestra, clarinets are commonly used in pairs, and in varying keys.

CLARION (Ital. *clarino*). Musical instrument. It is a trumpet of high range, hence the use of the word for a loud clear call. It also means an organ reed-stop of 4 ft. pitch.

CLARK, FRANCIS EDWARD (1851-1927). Founder of the Christian Endeavour movement. Born at Aylmer, Quebec, Sept. 12, 1851, he entered the Congregational ministry. Clark organized the Society of Christian Endeavour at Portland, Maine, 1881, and was president of the United Society of Christian Endeavour from 1887, and of the World's Christian Endeavour Union from 1895. He died May 25, 1927. See *Christian Endeavour*.

CLARKE, CHARLES COWDEN (1787-1877). British author. Born at Enfield, Dec. 15, 1787, he became a bookseller and then a music publisher. In 1828 he married Mary Victoria Novello (1809-97). He won fame by lecturing on Shakespeare and other dramatists, and she by her Concordance to Shakespeare's Plays, 1845. Clarke died March 18, 1877, and his widow on Jan. 12, 1897.

CLARKE, SIR EDWARD GEORGE (b. 1841). British lawyer. Born in London, Feb. 15, 1841, he was the son of a jeweller. Called to the bar in 1859, his defence of one of the accused in the Penge case in 1877 placed him in the front rank as an advocate. In 1880 he was elected Conservative M.P. for Southwark at a by-election, and 1880-1900 was M.P. for Plymouth; in 1900, partly owing to his opposition to the S. African war, he retired from Parliament.

Clark was solicitor-general 1886-92, but held no other political office. In Jan.-June, 1906 he was M.P. for the city of London. He was knighted in 1886. Consult his *The Story of My Life*, 1918.



Sir Edward Clarke, British lawyer
Elliott & Fry

CLARKSON, THOMAS (1760-1846). English anti-slavery advocate. He was born Mar. 28, 1760, and educated at Cambridge. His preparation for the prize Latin essay of 1785, on the question whether it is right to make men slaves against their will, determined his future career. Having gained the support of William Wilberforce and other philanthropists, he travelled up and down the country collecting evidence for a parliamentary committee. He died Sept. 26, 1846.

CLARY (*Salvia selarea*). Perennial herb of the order Labiatae. A native of S. Europe, the lower leaves are stalked, heart-shaped, and wrinkled; the upper ones are stalkless and clasp the square stem. Above these are bright red bracts which set off the bluish-white flowers. Another European species (*S. verbenacea*) is known as wild clary. Its flowers are blue-purple.

CLAUDIANUS (c. A.D. 400), more commonly known as Claudian. Last of the Latin poets. Born probably at Alexandria, he came to Rome about 395. His most considerable work is an unfinished epic, *On the Rape of Proserpine*. He also wrote panegyrics on Stilicho and Honorius. His work is erudite, but is lacking in true poetic feeling. Consult Claudian, the Last of the Roman Poets, T. Hodgkin, 1875.

CLAUDIUS I (10 B.C.-A.D. 54). Roman emperor. A son of Drusus and nephew of Tiberius, born at Lugdunum (Lyons), Aug. 1,



Claudius I, Roman Emperor
Bust in Vatican Museum, Rome

10 B.C., he was regarded as of somewhat weak intellect. He was 50 years of age when the soldiery acclaimed him emperor after the murder of Caligula. At first he ruled wisely, but fell under the influence of his unscrupulous freedmen Pallas and Narcissus, who with his wife, Messalina, became the real rulers. Messalina was put to death in 48. His fourth wife, Agrippina, was strongly suspected of having poisoned him with a dish of mushrooms. Claudius was a man of literary tastes and composed several historical works. His name was also associated with the construction of the great Claudian aqueduct.

Claudius II (d. A.D. 270), the Roman emperor surnamed Gothicus, was of Illyrian origin, and succeeded Gallienus as emperor, 268. He died at Sirmium in Pannonia, 270.

CLAUDIUS, APPIUS. Roman general and statesman, called Cæcus, because he became blind in his old age. During his censorship in 312 B.C. he began the Appian Way (q.v.) and constructed the first aqueduct. He was considered by the ancients the founder of jurisprudence and grammar.

Another Appius Claudius was one of the decemvirs of ancient Rome. His tyrannical behaviour made him generally hated, and public indignation reached its height when he abducted Virginia, daughter of the centurion Virginius, and the father killed his daughter to save her from dishonour. The incident is described in Macaulay's *Lays of Ancient Rome*.

CLAUSEN, SIR GEORGE (b. 1852). British painter. Born in London of Danish parents, he was elected A.R.A. in 1895, and R.A. in 1903. Two of his pictures, *The Girl at the Gate* and *The Gleaners Returning*, were pur-

chased by the Chantrey Bequest and are in the Tate Gallery. He is the author of *Six Lectures on Painting*, 1904; and *Aims and Ideals in Art*, 1906. He was knighted in 1927.

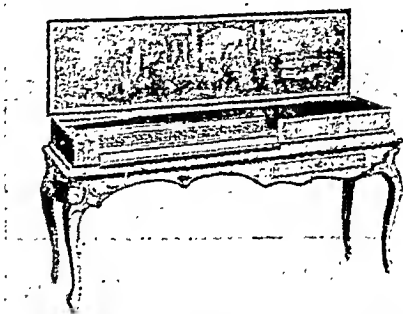


Sir George Clausen
British painter

CLAUSEWITZ, KARL VON (1780-1831). Prussian soldier and writer. Born at Burg, June 1, 1780, he entered the Prussian army. After seeing active service in the Prussian and Russian armies, in 1818 he became director of the War Academy at Berlin. In 1830 he was made inspector of artillery. He died of cholera at Breslau, Nov. 18, 1831.

The remarkable reputation of Clausewitz rests on his teaching and writing on war, and more than anyone else he was the creator of the Prussian and the later German army.

CLAUSTROPHOBIA (Lat. *claustrum*, bar, barrier; Gr. *phobos*, fear). Name given to a morbid fear of being in a confined space, such as a room or railway carriage. This is a symptom frequently associated with obsessional neurosis or neurasthenia (q.v.).



Clavichord. Example from the Wit Collection at Leipzig

CLAVICHORD (Lat. *clavis*, key; *chorda*, string). Obsolete keyed instrument of simple mechanism, and a predecessor of the piano-forte. In it the strings, of brass or steel wire, were struck from below by a metal "tangent," which not only set the strings in vibration, but also stopped off the length required. It was a favourite with composers, notably J. S. Bach.

CLAVICLE (Lat. *clavicula*, little key). Name for the collar-bone. This extends from the sternum or breast-bone to the point of the shoulder, where it articulates with the acromion process of the scapula or shoulder-blade. Fracture of the clavicle is common, the break being most often at the outer end of the middle third of the bone. Treatment consists in bringing the broken ends of the bone into apposition, and securing the arm and shoulder firmly in their normal position by bandages.



Clavicle. Sectional diagram showing a fracture of the collar-bone

CLAVIE, BURNING THE. Ancient New Year's Eve (Old Style) custom, observed notably at Burghhead on the Moray Firth, Scotland. The clavie—a tar-barrel in which is a 4 ft. long fir pole surmounted with barrel staves—is lighted and carried round the fish-curing yards and then deposited on a hilltop stone receptacle prepared for it.

CLAW. Hard, horny appendage at the extremity of the toes in many mammals, birds, and reptiles. It corresponds to the nails in the primates and the hoofs in the ungulates. As a rule the claws are sharp in climbing

animals and blunt in those that spend their time on the ground. The pincers of the crustaceans differ widely from true claws.

CLAY (old. Eng. clæg). Term denoting earths which are plastic when wet, and become stone-like if baked to redness. They are formed of small particles derived from the decomposition of various rocks, chiefly felspathic, and emit a characteristic odour. True clay substance, composed essentially of hydrated aluminium silicates, is in nature invariably mixed with impurities. When ordinary clay is fired to 300° C. or more it can never become plastic again. Boulder clay is the result of glacial drift. Most brick-clays contain chalk or sand. When more than 5 p.e. of lime is present it becomes marl; when mixed with sand it is called loam. Loess is a calcareous and sandy clay deposited by wind which covers large areas in central Europe.

Clay slate is a rock, composed primarily of compact clay, changed by the action of heat or pressure or both to a hard fissile mass. It is developed extensively around granite masses in Cornwall and Devon, where it is known locally as killas. See China Clay.

CLAY, HENRY (1777-1852). American statesman. He was born in Virginia, April 12, 1777, and became speaker of the lower house of Congress in 1811. The pressure he brought to bear upon President Madison went far to force him into the declaration of war against Great Britain in 1812. Three years later Clay was one of the commissioners who arranged the terms of the treaty of Ghent which closed the war. He was an unsuccessful candidate for the presidency in 1824, 1832 and again in 1844. Clay died at Washington, June 29, 1852.



Henry Clay,
American statesman

CLAY CROSS. Urban district and market town of Derbyshire. It lies in the centre of a large coal and iron district, 5 m. S. of Chesterfield on the L.M.S. Rly. Market day, Sat. Pop. 8,685.

CLAYMORE (Gael. claidheamh mor, great sword). Broad sword, two-edged and sometimes requiring two hands to wield it, used by the Scottish Highlanders. The name is also applied to the basket-hilted broad sword introduced in the 16th century and carried by officers of Highland regiments. See Sword.

CLAYTON-LE-MOORS. Urban district of Lancashire, England. On the Leeds and Liverpool Canal, 5½ m. N.E. of Blackburn, it has calico-printing works and cotton mills. Its station is Accrington on the L.M.S. Rly. Pop. 8,756.

CLEARING HOUSE. Institution where companies and firms in the same line of business, having numerous and complicated transactions with each other, mutually adjust or clear their accounts. Thus, by setting off one against another, and paying only the balance, much labour is saved. The most important are the various clearing houses maintained by bankers and rly. companies in London. See Bank.

CLEARING NUT (Strychnos S. Clare, Lam.). Seed of a tree of the order Loganiaceae. The fruit consists of a single seed from a pulpy pulp. The natives of India use

the seed for rhnhing the inside of their earthenware pots before filling them with water from pond or stream. The impurities in the water sink to the bottom as a result of the albumen and casein contained in the seed.



Clearwing, the Lunar Hornet moth

CLEARWING MOTH. Name of a group of moths, somewhat resembling Hymenoptera and Diptera. Their wings are more or less destitute of scales and semi-transparent. Fourteen species are recognized as British. See Moth.

CLEAT. Nautical term for a double hook used for making ropes fast without tying them by a knot. They are of different shapes, and are placed in various parts of a boat. A thumb cleat is a small piece of wood affixed to a spar so that a rope can be bent around it. A comb cleat resembles a small double-arched bridge.



Cleat. Comb cleat for making ropes fast without using a knot

CLEATOR MOOR. Urban district and market town of Cumberland. It stands on the Ehen, 4 m. S.E. of Whitehaven, on the L.M.S. Rly., in a coal and iron mining district. Market day, Sat. Pop. 8,299.

CLEAVERS or GOOSE GRASS (*Galium aparine*). Annual wayside weed of the order Rubiaceae. A native of Europe, N. Africa, Asia, and the temperate parts of N. and S. America, it has a slender brittle stem, 6 ft. or 7 ft. in length, whose four angles are covered with hooks, as are the lance-shaped leaves. The small white flowers are succeeded by bristly purple fruits, which cling to clothing or the fur of quadrupeds.



Cleavers or Goose Grass

CLECKHEATON. Market town of Yorkshire (W.R.). Formerly an urban district, in 1915 it was formed, with Gomersal and Liversedge, into the urban dist. of Spennborough. It is 5½ m. S.E. of Bradford on the L.N.E. and L.M.S. Rlys. It has woollen, flannel, and machinery manufactures. Market day, Sat. Pop. 12,537.

CLEE. Chain of hills in Shropshire, extending 10 m. in a N.E. direction from Ludlow. The principal summits are Brown Clee (1,790 ft.) and Titterstone Clee (1,749 ft.). Dhu stone, locally Jewstone, a black, igneous paving rock, is quarried, and coal is mined.

CLEETHORPES. Urban district and watering place of Lincolnshire. It stands on the Humber estuary, 3 m. S.E. of Grimsby, on the L.N.E. Rly. There is a wireless station. At the village of Clee, 1 m. to the W., is a church dating in part from Saxon times. It is built of rubble, with large quoins at the angles, and has a Norman nave. Pop. 31,000.

CLEF (Lat. clavis, key). Sign of the pitch of musical notes. There are three clefs in use

—namely, G or G clef, F or C clef,

C or Bass clef.

The C clef is used in various positions for medium voices or instruments. The clefs are related in pitch as shown. See Stave.



CLEMATIS (Gr. klematis, brushwood). Hardy and half-hardy climbing plant of the order Ranunculaceae. Many species are natives of Britain. About 100 sorts are in cultivation, and the flowers are white, pink, claret, purple, and yellow. Clematis vitalba, or Traveller's Joy, is a native of British hedgerows. C. viticella is the parent of most of the climbing Clematises seen in gardens, and it is easy of cultivation.



Clematis,
Garden variety

CLEMENCEAU, GEORGES EUGÈNE BENJAMIN (1841-1929). French statesman. He was born at Château de l'Auhraie, Fesle, in La Vendée, Sept. 28, 1841. The son of a doctor, he was educated at Nantes and in Paris. Between 1866-70 he studied social conditions in England and the U.S.A., where he married an American lady, Mary Plummer. After some years' experience in local government, in Feb., 1876, he was returned to the French Chamber, where he won the nickname of The Tiger by overthrowing ministry after ministry. Rejected by the electorate in Aug., 1893, he spent more than nine years in journalistic and literary work, gaining prominence by his efforts to secure a fair trial for Alfred Dreyfus.



Georges Clemenceau,
French statesman
Henri Manuel

Clemenceau became a senator for the department of the Var, joined the cabinet of M. Sarrien, March, 1906, as minister of the interior, and succeeded him on Oct. 23, as premier. Having brought about the separation of Church and State and introduced valuable social reforms, he resigned July 20, 1909. A keen critic of successive governments during the opening years of the Great War, he again became premier with the inflexible resolve to secure victory for the Allies, in Nov., 1917. He secured the appointment of Marshal Foch as generalissimo, and presided over the Peace Conference in Paris.

Clemenceau was elected to the French Academy, and in the French Senate, Nov., 1918, a bill was passed providing that in every mairie in France there should be engraved on the walls a statement that, together with the armies of France and Marshal Foch, "citizen Georges Clemenceau had deserved well of his country." Resigning office in Jan., 1920, he was succeeded by M. Millerand; was nominated for the presidency in succession to M. Poincaré, but withdrew his candidature. He died Nov. 24, 1929, and was buried in his native place.

As a journalist he was no less conspicuous than as politician. He founded La Justice, Le Bloc, L'Aurore, and L'Homme Libre, for some time during the war called L'Homme Enchaîné, and contributed to many journals. An excellent swordsman and a good shot, he fought several duels.

His novel Les Plus Forts (1898) was published in English as The Strongest, 1920, and in that year he published Au pied du Sinaï. Shortly before his death he published In the Evening of My Thought, and in 1930 his Grandeur and Misery of Victory, first published serially in The Daily Telegraph, appeared. Consult The Tiger, George Adam, 1929; Clemenceau, Jean Martet, 1930.

Clemens, SAMUEL LANGHORNE (1835-1910). Real name of the American author better known as Mark Twain (q.v.).

CLEMENT. Name borne by fourteen regular popes and two anti-popes, the latter calling themselves Clement VII and VIII. Except Clement I, known as Clement of Rome (q.v.), the first three were not notable.

Clement VII, pope from 1523-34, was noted for his policy of procrastination in connexion with the divorce of Henry VIII of England. Clement IX, an Italian, pope from 1667-69, arranged a compromise with the Jansenists, brought about the peace of Aix-la-Chapelle between France and Spain, 1668, and sought to defend Crete against the Turks. Clement XII, a Florentine (1730-40), issued the first papal decree against freemasonry. The reign of Clement XIII, pope from 1758-69, was occupied in efforts to defend the Jesuits.

CLEMENT OF ROME (d. c. A.D. 99). Bishop of Rome. As Clement I he is third pope in the list of Roman pontiffs after S. Peter. First mentioned in the 2nd century, Hegesippus (writing about A.D. 160) makes A.D. 90-99 the period of his reign. One of the 4th century legends makes Clement a martyr of the Crimea, where, attached to an anchor, he was thrown into the sea. S. Cyril, when in the Crimea c. A.D. 865, found some bones and an anchor in a mound which were brought to Rome and buried in the basilica of S. Clement. The anchor is the common emblem of S. Clement, who has always been venerated as a martyr, his festival being kept on Nov. 23.

CLEMENT'S INN. One of the old London Chanecery Inns. It was situated between S. Clement Danes Church, Strand, whence its name, and Clare Market. Formerly attached to the Inner Temple, its original buildings no longer exist, but its name survives in chambers let to the general public. Its history goes back to the 15th century, but with the other inns of chanecery its existence as a legal society ended in the 18th century.

CLEON (d. 422 B.C.). Athenian demagogue at the time of the Peloponnesian War. A tanner by profession, he opposed Pericles, and afterwards became leader of the party opposed to peace with Sparta. He was chiefly responsible for the atrocious decree to put the whole of the adult male population of Mitylene to death when that town revolted from Athens in 428. In 422 Cleon was defeated by Brasidas in a battle near Amphipolis in which both commanders were slain.

CLEOPATRA (69-30 B.C.). Queen of Egypt. On the death of her father, Ptolemy XIII Auletes, 51 B.C., she was appointed joint ruler with her younger brother. Three years later she was ousted from the throne, but was reinstated by the intervention of Julius Caesar. For a time the great Roman yielded to her fascinations, and she is believed to have borne him a son named Caesarion. In 41, when Mark Antony and Octavian were partitioning the Roman world between them, Cleopatra visited Antony, who fell under her spell. In 32 Octavian declared war upon Cleopatra. Antony met Octavian's fleet, commanded by Agrippa, at the battle of Actium (Sept. 2, 31). During the battle Cleopatra was seized with panic and took to flight; the lover left the fight to follow his mistress, and Agrippa's victory was

complete. Antony, on a report that she was dead, slew himself, and Cleopatra died by her own hand, according to an improbable



Cleopatra's Needle, Victoria Embankment, London

story, from the bite of an asp. The name Cleopatra's Needles is given to two red granite obelisks erected by Thothmes III at Heliopolis in Egypt (about 1475 B.C.), and removed to the Caesareum at Alexandria under Augustus (12 B.C.). One—68½ ft. high and weighing 108 tons—was in 1878 brought to London and placed on the Victoria Embankment. The other—69½ ft. high and weighing 200 tons—was set up in Central Park, New York (1879). See Obelisk.

CLEPSYDRA (Gr. kleptein, to steal; hydor, water). Instrument for measuring the passage of time by the regulated flow of water.

The time was noted by the descent or ascent of a float on the water, on a dial with a hand governed by the float. The clepsydra was used in the Athenian law courts to limit the speaker's time, and was introduced into Rome in 159 B.C.

CLERESTORY or **CLEARSTORY.** That part of a structure which is above and "clear of" the roofs of other parts and has windows in its walls. A clerestory is thus the antithesis to a blind storey or triforium. In church architecture it constitutes the upper division of the nave, choir, and transept. The type of window varies from the circular to the lancet.

CLERK, SIR DUGALD (b. 1854). British engineer. Born at Glasgow, the son of a machinist, he was trained as a civil engineer.

He was director of engineering research to the Admiralty, and filled other positions during the Great War. Inventor of the Clerk cycle gas engine, he was knighted in 1917.

CLERKENWELL. District of London, within the met. bor. of Finsbury. Named from a holy well where the parish clerks

performed miracle plays, it grew up round the priory of S. John of Jerusalem, of which the gateway remains. S. John's Church has a crypt dating from 1140. Northampton Institute, built in 1897, is one of the largest polytechnics in London. Finsbury Town Hall and public library and the offices of the Metropolitan Water Board are in Clerkenwell. Mount Pleasant, the headquarters of the parcel post, occupies the site of the house of correction. Clerkenwell is a centre of the watch-making industry. Pop. 37,121.

CLERK-MAXWELL, JAMES (1831-79). British physicist. Born in Edinburgh, June 13, 1831, he was educated at Edinburgh and Trinity College, Cam-

bridge. When he returned to Cambridge in 1871 as first professor of experimental physics, he was recognized as one of the greatest authorities on pure physics. A paper read before the Cambridge Philosophical Society in Dec., 1855, foreshadowed his great work, *A Treatise on Electricity and Magnetism*, 1873. Clerk-Maxwell brought the kinetic theory of gases to a point at which it remains identified with his name. His theoretical work on electric waves suggested the experiments which have been since developed into a system of wireless telegraphy. He died at Cambridge, Nov. 5, 1879.

CLERMONT-FERRAND. City of France. Near the Allier river, 112 m. W. of Lyons, overlooked by the Puy-de-Dôme mountain, it was originally two towns, Clermont and Montferrand. It is an important junction, a market for the produce of Auvergne, and has iron and steel industries. The cathedral of Notre Dame dates in part from the 13th century. The Romanesque church of Notre Dame du Port, founded in the 6th century and restored in the 12th, has a long vestibule in front, fine sculptured capitals, and a black image of the Virgin. There is a university and several colleges.

Clermont was the Clarus Mons of the Romans. Several ecclesiastical councils were held here, notably that at which Urban II ordered the first crusade in 1095. Pop. 111,701.

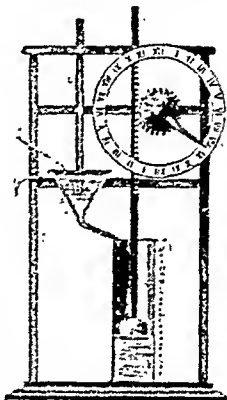
CLEDON. Urban dist. and seaside resort of Somerset. It is on the Bristol Channel, 15 m. W. of Bristol by the G.W.R. Cledon Court, a 14th century mansion, was the home of the Hallams. Henry Hallam, the historian, and his son Arthur, Tennyson's friend, were buried at S. Andrew's Church. Market day, Wed. Pop. 6,503.

CLEVELAND. Moorland district of Yorkshire (N.R.), extending from Yarm on the Tees to Whitby. It gives name to a celebrated breed of horses, but is chiefly important for its deposits of ironstone, which supply the iron-working industry of Middlesbrough. Cleveland Dyke, a notable relic of volcanic activity, crosses the district.

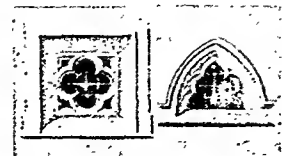
CLEVELAND. Largest city of Ohio, U.S.A., and county seat of Cuyahoga county. At the mouth of the river Cuyahoga, on the S.



James Clerk-Maxwell, British physicist



Clepsydra. Type of water clock, dating from 300 B.C. Into A from B ran a supply of water, regulated by a vertical conical stopper, BD, waste water overflowing through the pipe I. Water flowed from A into F, raising a floating piston E, actuating a hand on the clock face



Clerestory. Two examples of clerestory windows. See above



Cleveland, Ohio. The public square of this American city on Lake Erie



Cleopatra. Figure and seal from relief sculpture at Denderah, Egypt

shore of Lake Erie, 375 m. E. of Chicago, known from its broad, tree-lined streets as the "Forest City," it is one of the leading ports on the Great Lakes and an important rly. centre and market for ore and fresh-water fish. Notable buildings include the city hall, county court house, museum of art, public auditorium and public library, federal building, and federal reserve bank. It is the seat of the Western Reserve University. Cleveland has large iron and steel works, oil refineries, and motor vehicle works. Pop. 922,864.

CLEVELAND, BARBARA VILLIERS, DUCHESS OF (1641-1709). Mistress of Charles II of England. Daughter of William Villiers, 2nd Viscount Grandison, in 1659 she married Roger Palmer, who was created earl of Castlemaine, 1661. She became intimate with Charles II not later than May, 1660, and for the next ten years her influence with the king was considerable. Barbara was created duchess of Cleveland in 1670, but lost her lover's favour about 1674. She died at Chiswick, Oct. 9,



Barbara Villiers, Duchess of Cleveland
After 1674

1709. By Charles who was the founder of the Fitzroy family, and her sons became dukes of Cleveland, Grafton, and Northumberland.

On the death of the duchess, her son Charles Fitzroy became duke of Cleveland. The title became extinct in 1774 on the death of Charles's son William. In 1833 William Henry Vane, Baron Barnard, was made duke of Cleveland, he being descended from a daughter of the 1st duke. The title again became extinct when the 4th duke died in 1891.

CLEVELAND, JOHN (1613-58). An English poet. He was educated at Christ's College, Cambridge, afterwards becoming a fellow of S. John's. He was a considerable scholar, and soon, the Civil War looming, became known as a follower of the king. He left Cambridge for Oxford and was judge-advocate of the royalist forces at Nevark in 1646. He lived a wandering life for the next nine years, and, imprisoned for three months, 1655-56, was released on a personal appeal to Cromwell. He died in Gray's Inn, April 29, 1658. Of his satires and poems, *The Rebel Scot*, a fierce and stinging satire on the surrender of Charles I, is best known.

CLEVELAND, STEPHEN GROVER (1837-1908). President of the U.S.A., 1885-89 and 1893-97. Born at Caldwell, New Jersey, March 18, 1837, he was called to the bar in 1859. In 1884 Cleveland was selected by the Democrats as their candidate for the presidency. With James G. Blaine as his opponent, he won after a violent contest, and set to work to carry out his promise to reform the civil service. He unsuccessfully advocated a reduction of the duties on raw material.



S. Grover Cleveland,
American president

tariff and of the duties on raw material. Defeated in 1888 by Benjamin Harrison, but re-elected in 1892, against the wishes of many of his own party, he forced the senate to repeal Sherman's silver-purchasing Act, and withdrew the treaty which sanctioned the annexation of Hawaii. In 1897, on the conclusion of his term of office, he retired from public life and settled at Princeton, where he died, June 24, 1908.

CLEW. The after lower corner of a sail, the forward corner being the weather clew. Clew garnets are ropes used to pull sails up to the yards so that they may be furled. Clewing up is pulling sails up by these ropes.

CLEWER. Two parishes, Within and Without, of Berkshire, forming part of the borough of New Windsor. Here is the Anglican sisterhood the Community of S. John the Baptist—established in 1849. Under its direction are a number of schools and colleges, orphanages, hospitals, etc.

CLICK BEETLE. Insect of the family Elateridae. They are often known as skip-jacks, from their ability to right themselves, when turned on their backs, by springing into the air. In doing this they make a slight clicking sound, hence their popular name. Their larvae are wire-worms. See Beetle.

CLIFDEN. Seaport and market town of Galway, Irish Free State. On Ardber Bay, 50 m. by rly. N.W. of Galway on the Gt. Southern Rlys., it is a wireless station.

The Irish title of Viscount Clifden has been borne by the family of Agar since 1781. The 5th viscount, who died without sons in 1899, was succeeded by a kinsman, Thomas C. Agar-Robartes, 2nd Baron Robartes, who became the 6th viscount. He had inherited the Cornish estates of his forebears, the earls of Radnor. The viscount's chief seat is Lanhedrock, Bodmin. His eldest son, Thomas Charles Agar-Robartes, M.P., was killed in action in the Great War, 1915.

CLIFFORD. Name of an English family, long powerful in the north of England, and now represented by Lord de Clifford and Lord Clifford of Chudleigh. The name is derived from the village of that name in Herefordshire. The barony of De Clifford, one of the oldest in England, after being held by the earls of Cumberland, passed through the female line to the Tuftons, the Southwells, and finally to the Russells, its present holders.

The British title baron Clifford of Chudleigh has been held since 1672 by the family of Clifford. It was conferred on Sir Thomas Clifford, who belonged to the Devonshire branch of the family, and from him the present baron is descended. The first baron became one of the confidential advisers of Charles II, and was one of the five who made up the Cabal. The family has always been Roman Catholic, and its seat is Ugbrooke Park, in Devonshire.

CLIFFORD, JOHN (1836-1923). British Nonconformist divine. He was born at Sawley, Derbyshire, Oct. 16, 1836. After some years in business, he completed his education at London University. From 1858-1915 he was minister at the Baptist Chapel, Praed Street, Paddington, and at Westbourne Park. A social reformer and Liberal, he was twice president of the Baptist Union, 1888-89; of the Baptist World Alliance, 1905-11. He was a



John Clifford,
British divine
Window & Grove

recognized leader of militant Nonconformity, championing the passive resistance movement. He died Nov. 20, 1923.

CLIFFORD, WILLIAM KINGDON (1845-79). British mathematician. Born at Exeter, May 4, 1845, he was educated at Trinity College, Cambridge, where he was second wrangler in 1867. A brilliant mathematician, his career was cut short by death, March 3, 1879, after he had been eight years professor at University College, London.

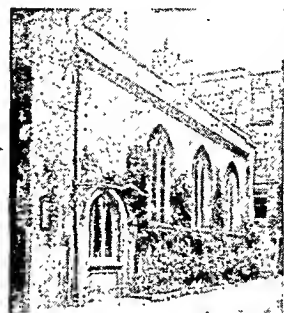
His wife, Lucy Clifford, was well-known as a novelist, writing under the name of Mrs. W. K.



William K. Clifford,
British mathematician
Emery Walker

Clifford. In 1883 she published *Anyhow Stories*; and in 1885 her first novel, *Mrs. Keith's Crime*, published anonymously, proved a distinct success. Her later volumes include *Aunt Anne*, 1892; *A Flash of Summer*, 1895; *A Woman Alone*, 1901; *Three Plays*, 1909; *Sir George's Objection*, 1910; *The House in Marylebone*, 1917; *Miss Fingal*, 1919. She also wrote several plays, including *The Searchlight*, 1913; *A Woman Alone*, 1914; and *Two's Company*, 1915.

CLIFFORD'S INN. Most ancient of the London inns of ebancery. At the rear of S. Dunstan's Church, it has entrances from



Clifford's Inn, London. The old Hall of the Inn, dating from 1767

Fleet Street and Fetter Lane. The message was granted to Robert de Clifford, 5th baron, 1310, was leased to law students by his widow in 1344, and bought by the Society of Clifford's Ian in 1618 for £600. The society was dissolved in 1902, and the property sold in 1903 to W. Willett, the London builder, for £100,000, of which £60,000 was devoted to legal education. The present hall, which dates from 1767, was saved from destruction by the Imperial Society of Knights Bachelor.

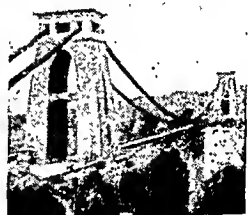
CLIFTON. Watering-place of Gloucestershire, a W. suburb of Bristol. It lies on the river Avon, which here passes through a gorge.

Brunel's suspension bridge (constructed partly of material from old Hungerford Bridge, Charing Cross, London) which spans the Avon has a length of 702 ft. and is 275 ft. above low water. It was opened in 1864. For upwards of 400 years Clifton was celebrated for its hot springs (Hotwells), but they no longer exist. Clifton has been the seat of a Roman Catholic bishopric since 1850. A notable feature is the Rocks Railway. Clifton Down and Durdham Down are public property. See Bristol.

The public school for boys, Clifton College, was founded by private persons in 1862, and incorporated by charter in 1877.

CLIMATE (Gr. klima, slope, clime). Average weather, or the total of the average meteorological phenomena characteristic of a given area. The meteorological elements which are observed are the temperature, pressure of the atmosphere, the quantity of rainfall, the direction and force of the winds, the duration of sunlight, and the proportion of the sky which is covered with cloud. The values obtained by the observers at stated times are averaged and form the basic material with which the climatologist deals.

The simple climatic elements refer to winds, rain, and sunlight. The consideration of these brings out the effect of variation in latitude: from the equator polewards a traveller journeys through a succession of climates which may be summarised thus: (1) trade winds: heavy tropical constant rains, small quantities of sunshine: on the polar side of this belt



Clifton suspension bridge, which crosses the gorge of the Avon

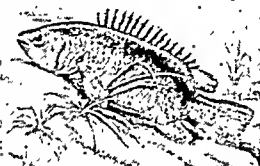
the rains become summer rains only and the sunshine increases; (2) the belt of calms: light summer rains or no rains at all, the sunniest areas in the world; (3) westerly winds: at first winter rains, then rain at all seasons, with decreasing hours of sunshine; (4) circumpolar winds without definite character. snow and little sunshine.

Recent work in meteorology has added considerably to our information concerning the upper layers of the atmosphere, and has brought to light new facts, the chief of which are: that above an elevation of about 30,000 ft. the temperature is constant at approximately -53°C ; that clouds do not occur above this elevation; and that the main causes of weather changes are in the layers of the atmosphere at about this level.

CLIMBING BOY. Name given to small boys formerly employed to climb up chimneys and sweep them. In Great Britain it is illegal for a child, if under 10, to be employed by a sweep; if under 16, to be apprenticed to a sweep; and if under 21, to climb a chimney or flue. The climbing boy figures in Charles Kingsley's *Water Babies*.

CLIMBING PERCH (*Anabas scandens*) Popular name for an Indian fresh-water fish.

It is about 8 ins. long, and has the power of travelling a considerable distance over land, and according to reliable evidence is also able to climb trees. See Perch.



Climbing Perch. An Indian fish which climbs the banks of streams

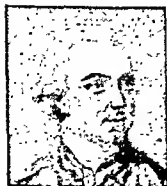
CLINIC (Gr. *klinikos*, connected with a bed). Strictly, a class or demonstration for medical students held at the bedside of the patient; also applied to an institution for medical treatment.

Clinical medicine is that branch which deals directly with the treatment of patients at the bedside. It is thus distinguished, for example, from preventive medicine, which aims at the prevention of disease. See Hospital.

CLINKER OR **CLINCHER**. Word used for a boat so constructed that the lower edges of the planks of which the hull is made overlap each other. Most small boats are built in this manner. Occasionally one finds them diagonally built, i.e. constructed of double planking crossed diagonally.

CLINOMETER. Instrument used in surveying to measure angles of inclination. In the simplest form a plumb-line is fitted with a pointer which moves over a graduated scale of angles. The instrument is mounted on a flat base which lies along the slope to be measured, and the angle is read off from the scale.

CLINTON, BARON. English title borne since 1299 by several families, and now by that of Hepburn-Stuart-Forbes-Trefusis. In 1794, after an abeyance, it was allowed to Robert George William Trefusis, who became the 17th baron. He was a descendant of the 12th baron, and his descendants still hold the barony. In 1867 the 20th baron took the additional names of Hepburn-Stuart-Forbes. The family estates are in Devonshire.



Sir Henry Clinton
British soldier
From an engraving by Davidoff

Sir Henry Clinton (c. 1738-95). British soldier, was the son of the Hon. George Clinton, governor of New York, 1741-51. He came to England, 1761, and he distinguished himself in the Seven Years' War. On the outbreak of

the War of Independence, 1775, he returned to America, and in 1778 succeeded Howe as commander-in-chief of the expedition which captured Charlestown, 1780; but the disastrous surrender of Cornwallis at Yorktown in 1781 caused him to resign. Clinton was governor of Gibraltar, 1794-1795.

His son, Sir Henry Clinton the younger (1771-1829), served in the Peninsular War, and commanded the 3rd division at the battle of Waterloo.

CLIO OR **CLEIO** (Gr. *klio*, to celebrate). In Greek mythology, one of the nine Muses. The province of epic poetry was at first assigned to her; later, she was commonly known as the muse of history. She is generally represented with a papyrus roll in her hand.



Clío, the muse of history in Greek mythology
From a statue in the Vatican

CLIPPER. Sharp-bowed vessel built for quick sailing. The name was first applied to the Yankee privateers known as Baltimore clippers, that came into use during the American wars. Clippers were employed later in carrying tea. Among famous clippers were the *Cutty Sark*, *Ganges*, *Lochce*.

CLITHEROE. Borough and market town of Lancashire. On the Ribble, at the base of Pendle Hill, 35 m. N. of Manchester on the L.M.S. Rly., it has cotton industries and lime and cement works. The grammar school was founded in 1554: the ancient church of S. Mary Magdalene has been reconstructed. There are remains of the 11th century castle of the De Lacys. The honour of Clitheroe is part of the duchy of Lancaster. Market day, Sat. Pop. 12,204.

CLIVE, CATHERINE OR KITTY (1711-85). British actress. She was born in London, the daughter of William Raftor, an Irish lawyer of good family. Gifted with a sprightly humour and possessing a fine, well-trained voice, she made her first appearance at Drury Lane in 1728 as a singing page in Nathaniel Lee's tragedy of *Mithridates*. In 1731 she married George Clive, a barrister, and from 1746-69 she was a member of Garrick's company. In 1769 she retired from the stage, and until



Kitty Clive,
British actress
After Halczen

her death, Dec. 6, 1785, lived near her friend, Horace Walpole, at Twickenham.

CLIVE, ROBERT CLIVE, LORD (1725-74). British soldier and administrator. Born Sept. 29, 1725, near Market Drayton, he went to India as a writer in the service of the East India Company. The rivalry between the English and the French was just beginning, and Clive, having taken part as a volunteer in the fighting, received his commission as an ensign in 1747. He scored a victory over the French leader, Duplex, by a sudden dash upon Arcot, the capital of the Carnatic, which with only a



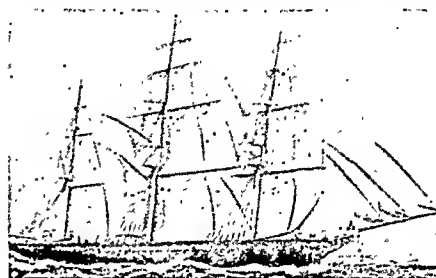
Lord Clive.
British administrator in India
After a painting in Government House, Calcutta

small force he seized and occupied (Aug. 31, 1751). He held at bay for seven weeks an army of 10,000 men, sent to recapture the place, then sallied out and routed the enemy, a victory which turned the tide of war.

Clive came home in 1753, returning to India as a lieutenant-colonel in 1755. His victory over the nabab of Bengal at Plassey (June 23, 1757) avenged the outrage known as the Black Hole of Calcutta and made Bengal, in effect, a British province. He went back to England in 1760, was elected M.P. for Shrewsbury, and made an Irish Peer in 1762. Knighted in 1764, in 1765 he returned to India, finally leaving it in 1767. After his return, having been fiercely attacked in parliament and in the press, and troubled with ill-health and melancholia, he died by his own hand, Nov. 22, 1774.

CLIVEDEN. Seat of Lord Astor in Buckinghamshire. It is charmingly situated among rocks and hanging woods on the Thames, 3 m. N.E. of Maidenhead and close to Dropmore. Lord Astor bought it from the duke of Westminster.

CLOACA (cluere, to cleanse). Latin word for a sewer. The system of sewers in ancient Rome was wonderfully complete, the largest

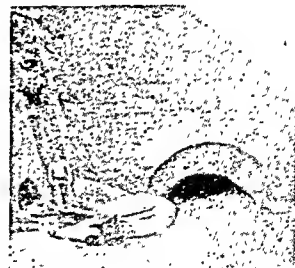


Clipper. The *Teapung*, one of the first clippers in the tea-carrying trade from China to England

and most notable being the *Cloaca Maxima*, 12 ft. high and 10½ ft. wide, and nearly half a mile in length. It still serves its original purpose, and is generally in an excellent state of preservation. These sewers were probably constructed during the regal period. In republican times they were under the supervision of the censors, but during the empire under that of a special board of officials.

CLOCK.

Mechanical contrivance for measuring time by means of a regulated motion. The fundamental time-measure is afforded most obviously by the sun's motion, as shown on a sun-dial. The desire to measure the hours after sunset led to the introduction of mechanical devices. Among the ancient Egyptians, Greeks, and Romans the water clock, or clepsydra (q.v.), was used. The first clocks were made in the 13th century. They were as a rule large "turret clocks"; the dials had no minute hands.



Cloaca. One exit of the *Cloaca Maxima*, a 6th cent. B.C. Roman sewer

The essential features of a modern clock are the driving power and the escapement. The driving power in large clocks is a weight attached to a rope coiled over a barrel. The escapement is a rocking part which clicks in and out of a toothed wheel, allowing the weight to fall slowly, and this moves a train of wheels, which drives the clock bands.

A clock jack is an automaton which strikes a bell on the outside of a clock at regular intervals. Jack the Smiter, an oaken effigy, mounted in Southwold Church in the 15th century, is extant, but unused. Other famous examples are at Exeter, Norwich, Oxford, Rye, and York.

ELECTRIC CLOCKS. Electricity is applied to the working of clocks in various ways. Self-wound clocks are independent clocks kept in motion by electric power, or by the influence of magnetic attraction on the pendulum or balance wheel. Electrically synchronised clocks are independent as regards motive power, but are subject to the electrical control of a distant master clock. Electrically operated dials are used in large institutions where it is desirable that all clocks should show the same time without individual adjustment. The master clock, which may be electrical or not, sends an electrical impulse through the system at regular intervals, and the hands of each dial are then moved by a step-by-step magnetic apparatus.

The Clockmakers' Company is one of the London City Livery Companies. It was incorporated in 1631. In 1873 it deposited a collection of ancient clocks, watches, watch movements, etc., together with its library of works on horology and watch-making, in the Guildhall, the collection of the Rev. H. L. Nethropp being added in 1894.

CLODD, EDWARD (1840-1930). British scientist. Born July 1, 1840, Clodd was from 1872 to 1915 secretary of the London Joint Stock Bank. A student of folk-lore and of human origins, he soon became known by his scientific writings, in which he set forth a materialistic conception of the universe. His books include: *The Story of Creation*, 1888; *The Story of Primitive Man*, 1895; *Pioneers of Evolution*, 1897; and *Animism, the Seed of Religion*, 1905. Clodd's *Memories* appeared in 1916, and he died March 16, 1930.

CLOG. Wooden-soled boot, with uppers of leather. The uppers of the clog are cut from stout kip or "split" leather and fastened round the outer edge of the wooden sole by a band of leather or webbing through which tacks are driven. Old boots are largely converted into clogs, the dilapidated inner and outer soles being removed and the leather tops

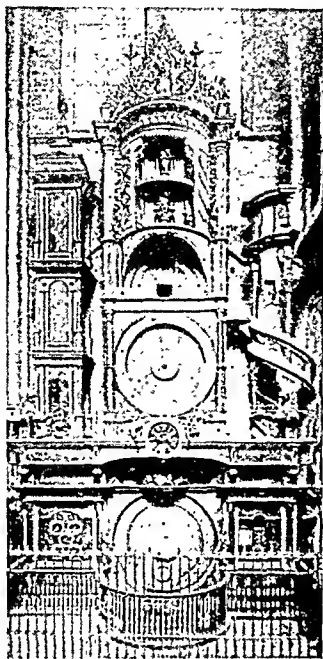


Clog. Lancashire clog with leather upper

refitted with clog soles. Beech and ash are the woods most in use, the former for soles intended for wear under wet conditions, and ash for dry country wear. In England clogs are worn, but to a diminishing extent, by women mill operatives and the children of the industrial population in Lancashire and Yorkshire, and in certain parts of Wales.

The Clog Dance originated in Lancashire. It is generally performed as a solo. The dancer wears wooden clogs, the quick toe-and-heel tapping providing the rhythm. The American clog dance originated with the negroes.

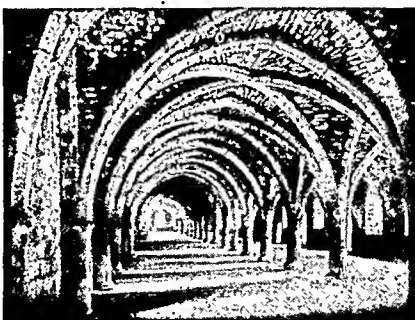
CLOGHER. Village of Tyrone, Northern Ireland. On the Blackwater river, 80 m. N.W. of Dublin, it is served by the Clogher Valley Light Rly. Formerly an important ecclesiastical city, it has an 18th century cathedral and a bishop's palace. Near the former is a stone, presumed to be the clogher, or "golden stone," after which the village is named. Pop. 200.



Clock. Famous astronomical clock in the cathedral at Strasbourg

CLOISONNÉ (Fr. cloison, partition). A kind of decorated enamel. The design on the porcelain or metal is outlined in metallic bands which are secured to the surface. The spaces between these bands are next filled with enamel powder or paste of the requisite colours, and the whole is melted into glass (vitrified) in the furnace. When the design is engraved or cut in the surface and the depressions are filled with enamel paste and fired, the resulting enamel is known as *champlevé*, a form largely affected in the West for jewelry, but not favoured in Oriental decorative schemes. Cloisonné enamel was famous in ancient Byzantine art, and fine examples are still produced by the Chinese and Japanese.

CLOISTER (Lat. *claustrum*, enclosed place). Square or rectangular covered way of a church or monastery enclosing an open court known as the cloister-garth. In monastic



Cloister. The 12th century cloisters of Fountains Abbey, near Ripon, Yorkshire

establishments the cloister generally formed part of the passage from the church to the chapter house or other adjacent buildings. As such it served as a place of recreation for the monks and was sometimes fitted up with cells or stalls or benches carved out of the walls.

CLONAKILTY. Urban district, market town, and seaport, co. Cork, Irish Free State. It stands on Clonakilty Bay, 33 m. by rly. S.W. of Cork. Market day, Fri. Pop. 2,770.

CLONCURRY, BARON. British and Irish title borne by the family of Lawless. Valentine Frederick, 4th baron (1840-1928), was a famous oarsman, and afterwards a noted shot and a keen horseman. In 1921 he became a senator of the Irish Free State. Cloncurry's sister was Emily Lawless (d. 1913), the novelist. On the death of his brother Frederick (1847-1929) the title became extinct.

There is a little town named Cloncurry in Queensland. Pop. 1,000.

CLONES. Urban district and market town of co. Monaghan, Irish Free State. It is 64½ m. by rly. W.S.W. of Belfast by the G.N.I. rly. There are abbey ruins and a round tower. Market day, Thurs. Pop. 2,365.

CLONMACNOISE. Village of the Irish Free State, famous for its eccles. remains. It is on the Shannon in King's county (Offaly), 8 m. from Athlone. The ruins include the remains of seven churches, two round towers, three crosses, a castle, and a palace. In the Middle Ages Clonmacnoise had an abbey, founded about 540, and one of the most famous of its time.

CLONMEL. Borough, co. town, and holiday resort of co. Tipperary, Irish Free State. It stands at the head of navigation on the Suir, 28 m. N.W. of Waterford, and is an important rly. centre. Market days, Wed. and Sat. Pop. 9,056.

CLOSE. Literally an enclosed place. It is used specially, however, for the precincts of a cathedral or monastery, the part reserved for the use of the clergy and other officials. The word is used for certain private pieces of land and in Scotland for the entry to a building composed of tenement houses.

CLOSE TIME. Period of time in which it is unlawful to take or kill certain kinds of fishes, birds, etc., usually those included in the term game. The object is to protect the animal in question during the breeding season.

In the United Kingdom the close time for partridges is from Feb. 2 to Aug. 31, and for pheasants from Feb. 2 to Sept. 30. The grouse is protected from Dec. 11 to Aug. 11. For nearly all wild birds, notably woodcock, snipe, and quail, there is a close time. Close times, although not legally enforced, are observed in practice for foxes, stags, otters, etc. As regards fish, there is a close time for salmon, this being usually from Sept. 1 to Feb. 1 for nets, and from Nov. 2 to Feb. 1 for rods.

This refers to England and Wales; in Scotland and in Ireland it varies from river to river, but must not be less than 168 days in the year. There is also a close time for trout, char, and other fresh-water fish, and for shell-fish. It is illegal in England and Wales to kill certain game, or to fish with nets, on a Sunday or Christmas Day. See Angling.

CLOSURE (Fr. *clôture*). Closing of debate before all the intending speakers have been heard. This was introduced by Gladstone into the British House of Commons in 1882, when the Irish members were especially obstructive. It permitted a member to move the closure, i.e. that the debate come at once to an end and the question be put to the vote. If a majority of members supported him, and numbered at least 200, the Speaker could forthwith order the vote to be taken. Later the number of necessary members was reduced to 100, and it was decided that a bare majority was sufficient. A more recent development is closure by compartments, which was introduced to prevent the discussion of an excessive number of amendments, and allows the Speaker to select those he thinks most worthy of consideration. See Commons, House of.

CLOTH. General term for any pliable fabric. Derived probably from a Teutonic root meaning "to cling," the word is used generally of any material made of animal or vegetable fibre, and specifically of a woollen clothing fabric.

The Clothworkers' Company is the twelfth of the London city livery companies. It was formed in 1528 by the incorporation of the Sheermen and Fullers. Pepys, the diarist, was master in 1677, and the chased silver loving cup presented by him is one of the treasures preserved in Mincing Lane, E.C. The old hall, bought by the Fullers in 1455, was partly burnt down in 1666. The present building was inaugurated in 1860. The company's benefactions include the establishment of a Technical School at Bradford in 1882.

CLOTILDE (475-545). French saint and queen. She became the wife of Clovis, king of the Franks, in 493. She was a Christian, and it was largely owing to her that her husband adopted that faith. After his death in 511 she retired to the abbey of S. Martin, at Tours. Her festival is kept on June 3.

CLOUD. Fogs or mists formed at some distance above the ground and composed of tiny water particles floating in the air. Like fogs or mists, clouds can be produced only by the cooling of masses of air containing water vapour. In most cases the condensation occurs on minute solid dust particles; but it has been proved that water vapour may be condensed upon ions of the air itself.

Cirrus (wisp), stratus (sheet), and cumulus (heap) clouds may be described as the three primary types of clouds. To these may be added the shapeless black mass known as the nimbus or rain cloud. Intermediate types are described by combining these words, e.g. cirro-cumulus, strato-cumulus, and so on.

A cloud-burst is the sudden precipitation of a large amount of rainfall or hail in a very short space of time. Such rain splashes are not uncommon in Britain during summer.

CLODBERRY (*Rubus chamaemorus*). Creeping shrub with herbaceous erect flowering stems, a native of N. Europe, Siberia, and N. America. It is about 8 ins. high, terminating in a single white flower. The leaves are roundish, heart-shaped, with lobed margins. The fruit is like a mulberry, but is of an orange-red tint and of more agreeable flavour.

CLOUDED LEOPARD (*Felis nebulosa*). Large wild cat, found in India, Malay, and the E. Indies. A handsome animal about 6 ft. in length, with long tail, it lives in trees and feeds on small birds and mammals.

CLOUET, FRANÇOIS (c. 1510-72). French painter. Also called Jehannet or Janet after his father Jean Clouet (1486-1541), court painter to Francis I, he was born at Tours and succeeded his father in the royal favour and offices in 1541. He died Dec. 22, 1572. He used simple colours, drawing on ivory, vellum, or wood. Of the various paintings attributed to him the portraits of Charles IX and Elizabeth of Austria, both in the Louvre, are among the best. Pron. Cloo-ay.

CLOUGH, ANNE JEMIMA (1820-92). First principal of Newnham College, Cambridge. Born at Liverpool, Jan. 20, 1820, the sister of Arthur Hugh Clough, her childhood was spent in America with her parents. Returning to England in 1836, she was engaged in educational work. She was in 1871 appointed head of the first house for women students in Cambridge. This developed into Newnham Hall in 1875 and into Newnham College, with Miss Clough as its principal, in 1880. She died at Cambridge, Feb. 27, 1892.

CLOUGH, ARTHUR HUGH (1819-61). British poet. Born at Liverpool, Jan. 1, 1819, he was educated at Rugby and at Balliol College, Oxford. In 1853 he returned to England from America to take up a post as examiner under the Board of Education, which he held until his death from paralysis at Florence, Nov. 13, 1861.

Among his poems *Say Not the Struggle Naught Availeth* is perhaps the best known. Clough is commemorated in Matthew Arnold's *Thyrsis*.

CLOVE (*Eugenia caryophyllata*). Evergreen tree of the order Myrtaceae, a native of the Moluccas, but also grown in many hot countries. It is from 20 ft. to 40 ft. in height, with somewhat oval, pointed leaves. The pale purple flowers are gathered before they open, and dried in the sun. The volatile oil is found in all parts of the tree, but especially in the unopened flower buds. Most of the world's supply comes from Zanzibar and Pemba, hut Penang and Amboyna produce the best. See *Carnation*.



Clove. Flowering shoot of this aromatic tree

CLOVELLY. Village and holiday resort of Devonshire, on Barnstaple Bay, 11 m. W.S.W. of Bideford. Quaintly pretty, it lies in a well-woodedcombe. Its principal street is formed by a series of steps. Pop. 634.

CLOVER. Name given strictly to leguminous plants of the genus *Trifolium*, so called because the leaf consists of three leaflets. The flowers are crowded together into heads, and the corolla does not fall off when the seeds begin to form, but persists in a withered condition. Clovers are valuable as a forage crop or for haymaking. They also add to the store of combined nitrogen in the soil, owing to the presence in small swellings on their roots of bacteria that fix the nitrogen of the air.

Six true clovers are of agricultural importance; white or Dutch clover (*Trifolium repens*); red or broad clover (*T. pratense*); cow grass, usually a variety of the preceding (*T. pratense perenne*); Alsike or Swedish clover (*T. hybridum*); crimson or Italian clover (*T. incarnatum*); and yellow suckling clover (*T. minus*). Trefoil or yellow clover (*Medicago lupulina*) superficially resembles the last-named species, but is not a clover at all, being related to lucerne.

CLOVER WEEVIL (*Sitones*). This is one of a large group of minute beetles. They have the head produced in front to a long beak with the mouth at its extremity. Most are farm and garden pests in the larval state, and this species does much damage to clover crops.

CLOWN. Term originally applied to uncouth "clods" or rustics. It afterwards became the recognized appellation of a type of whimsical comedian who developed into the figure of English pantomime and of the circus. The most famous clown was Joseph Grimaldi. See *Harlequin*; *Pantomime*.

CLOYNE. Market town of co Cork, Irish Free State, 15 m. E.S.E. of Cork. It has a Roman Catholic bishopric, but the Anglican one was united to that of Cork in 1835. Opposite the 14th century cathedral is a round tower over 90 ft. high and 9 ft. in diameter. Market day, Thurs. Pop. 712.

CLUB (Scand. cf. *clump*). Association of persons having common interests or sympathies. In England social clubs became prominent in the literary life of London when the Mermaid tavern was the haunt of Elizabethan playwrights and poets. Later, clubs with literary associations met at coffee houses as well as at taverns.

The modern club, possessing premises of its own, dates back to the beginning of the 19th century. Admission to membership by ballot safeguards to some extent the best interests of any club. London clubland is centred in

Pall Mall. Another class of clubs are those for working men. Some are social or political, while others are benefit clubs, i.e. societies to which a weekly or other payment is made, and in return money is paid out for holidays, burials, clothing, or Christmas fare.

By a law passed in 1910 every club must be registered and particulars about its membership and objects sent to the clerk to the magistrates. Intoxicating liquor can only be sold to members for consumption on the premises and only during such hours as its sale is allowed in the district. There are heavy penalties for breaches of these regulations. Night clubs are a recent development.

Club-foot. Deformity of the foot. It is sometimes present at birth, but more often due to infantile paralysis. See *Foot*.

CLUMBER. Seat of the duke of Newcastle. About 2½ m. S.E. of Worksop, Nottinghamshire, it is included in the Dukeries (q.v.). The park has a circuit of 11 m. and an area of 4,000 acres. The mansion has a fine library, pictures, and other art treasures. It was built about 1772 and was damaged by fire in 1879.

The house was closed in 1929 and some of the pictures loaned to the collection in Nottingham Castle. It gives name to the Clumber spaniel. See *Spaniel*.

CLUNIACS. Name of a Roman Catholic religious order, so called from Cluny, a town situated 12 m. from Maçon, which was its place of foundation. Its members were the earliest reformed branch of the Benedictines, and ranked eventually as a separate order. Following the Benedictine rule, the Cluniacs wore the black habit, but their organization was on totally different lines. Cluny rose to a position of commanding eminence, reaching its height in the 12th century. It gave four popes to the church, and was a recognized centre of learning in Christendom.

The abbey church of Cluny, until the construction of S. Peter's at Rome, was the largest church in Christendom. The Hôtel de Cluny, the Paris house of the abbots, is now a museum. The order in the 16th century had some 2,000 houses throughout Europe.

CLUSTER. Group of stars in close physical connexion, and often threaded with strands of nebulous matter. Clusters are classified as either irregular or globular. A familiar example of the irregular cluster is the Pleiades; the six stars visible to the naked eye are multiplied by a telescope into hundreds, and by prolonged photographic exposure into thousands. They are of various degrees of brightness. The globular cluster is roughly spherical in shape, and its members often present either a remarkable uniformity in brightness or a methodical gradation in this respect. There is in general a condensation of the globular cluster towards the centre. See *Constellation*; *Stars*.

CLUSTER CUP (*Puccinia*). Genus of parasitic fungi of the order Uredineae. The species are polymorphic, i.e. appear under several different forms on different host-plants. Many cultivated plants suffer more or



Clover. Flowers and leaves of red clover. Above, three heads of the wild white clover, showing how the florets turn down after pollination



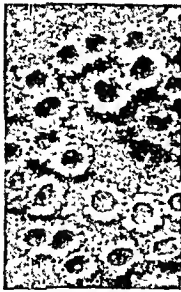
Cluniac. Dress of the Order
From an old engraving



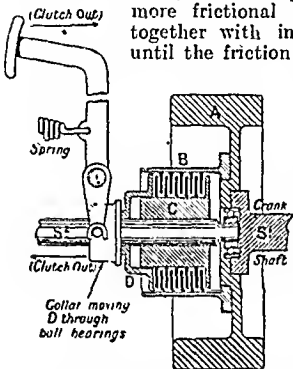
Arthur Hugh Clough.
British poet

less from the activities of these parasites, including hollyhock, mint, chives, gooseberry, anemone, pinks, barberry, and the cercals.

CLUTCH. In mechanics, an arrangement whereby one revolving part can be engaged with, or disengaged from, another part revolving about the same axial line. In the positive or dog type of clutch a collar sliding endways on, and revolving with, a shaft is made to engage with a fixed collar on another abutting shaft, or with the slide of a loose pinion or pulley on the same shaft. Both the driving member and the driven one have teeth projecting from them, which interlock when the clutch is engaged. The friction clutch is a more elastic method of engagement, and comprises one or more frictional plates pressed together with increasing force until the friction overcomes the resistance of the driven element. The coil clutch tightens on an internal drum when its free end is pulled by a lever, and the expanding type of clutch works on much the same principle as the expanding brakes of a motor car.



Cluster-cup. Much magnified example of this fungus on leaf of the common daisy



Clutch. Multiplate type. Flywheel, A, with casing, B, bolted to crankshaft, S'. Friction plates in drum, C, mounted on driven shaft, S', are engaged with plates mounted on casing, B, by pressure of spring forcing cup, D, inwards. Plates are separated and engine disconnected by pressure on pedal

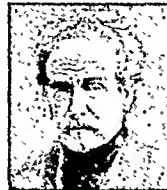
Lanarkshire, flows past Bothwell, Lanark, Hamilton, Glasgow, and out to form the Firth of Clyde. Its chief tributaries are the Medwin, Mouse, N. Calder, S. Calder, Kelvin, and Leven on the right; and on the left the Duneaton, Douglas, Nethan, Avon, and Cart. Near Lanark are the falls—Bonnington Linn, Corra Linn, Dundaf Linn, and Stonebyres Linn. Its length is 106 m. From Glasgow the Clyde is one of the most important highways in the world, and on its banks are some of the great ship-building yards. The largest vessels can ascend its channel as far as Glasgow.

The Firth of Clyde is generally regarded as beginning at Dumbarton, and extends for 65 m. to Ailsa Craig. It receives the waters of the Garnock, Irvine, Ayr, Doon, Girvan, and

other rivers, throws off several sea-lochs, and contains Arran, But, the Cumbræes, and other islands. Among its ports, besides Dumbarton, are Port Glasgow, Greenock, Ardrossan, Irvine, and Ayr. In 1930 a government committee examined proposals for a Clyde-Forth ship canal.

The valley of the upper Clyde is called Clydesdale, from which the duke of Hamilton derives the title of marquess. It is famous for its orchards and coal and iron mines, and gives name to a breed of cart horses. See Horse.

CLYDE, COLIN CAMPBELL, 1ST BARON (1792-1863). British soldier. Born at Glasgow, Oct. 2, 1792, the son of a carpenter named MacIver, he was educated by his mother's brother, Colonel John Campbell, who procured him an ensigncy in the 9th Regt. in 1808, whereupon he took the name of Campbell. He served in the Peninsular War, in China, 1842, and in India, 1848-49. In 1849 he was knighted. In 1854 he went to the Crimea at the head of the Highland brigade, which he led at the battles of the Alma and Balaclava. On the outbreak of the Indian Mutiny in 1857 he went to the East, and as commander-in-chief brought the mutiny to an end. For this he was rewarded with a peerage in 1858. He died Aug. 14, 1863.



1st Baron Clyde, British soldier

In 1920 James Avon Clyde, M.P. for West Edinburgh (1909-20) and lord advocate (1916-20), took the title of Lord Clyde on being made president of the court of session.

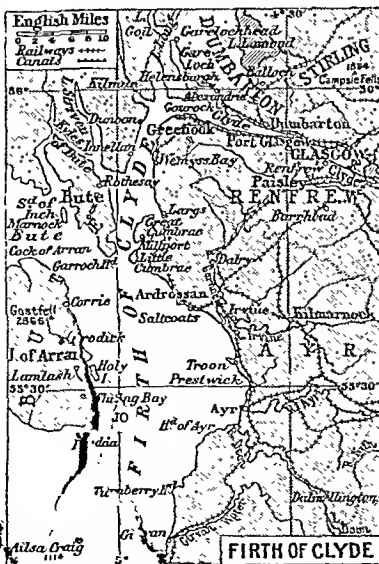
CLYDEBANK. Burgh of Dumbartonshire and Renfrewshire. It stands on the right or N. bank of the Clyde, 6 m. from Glasgow. Ship-building and engineering are the most important industries. It has stations on the L.N.E. & L.M.S. Rlys. Pop. 48,600.

CLYNES, JOHN ROBERT (b. 1869). British politician. Born at Oldham, he worked in a cotton factory as a boy. He joined the trade union movement at an early age, and in 1891 was appointed



John R. Clynes, British politician

organizer of the Gasworkers' and General Labourers' Union for Lancashire. In 1906 he was Labour M.P. for N.E. Manchester, and he retained his seat at subsequent elections. In July, 1917, he was chosen parliamentary secretary to the Food Ministry, and a year later succeeded Lord Rhondda as Food Controller and became a privy councillor. He resigned office in Nov., 1918, when the Labour Party withdrew from the Coalition. He was Lord Privy Seal and deputy leader of the House in the first labour government, Jan.-Nov., 1924, and when the second labour government was formed, became Home Secretary in June, 1929. Consult From Millboy to Minister, E. George, 1918.

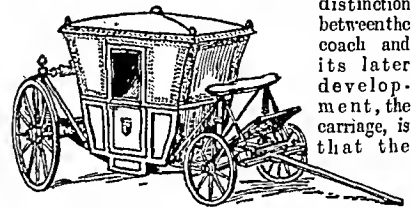


Clyde. Map of the Firth, or estuary, of the Clyde, on which are several of the chief Scottish ports

CLYTAEMNESTRA, more correctly **CLYTAEMNESTRA**. In Greek legend, wife of Agamemnon (q.v.), king of Mycenae. On the return of her husband from the Trojan War she murdered him. The murder was subsequently avenged by her own son Orestes (q.v.).

CNOSSUS. Largest town in the island of Crete, on the N. coast, S.E. of the modern Candia. It was famed as the residence of Minos (q.v.). Cnossus has attracted great notice as the centre of a pre-Hellenic civilization, attested by excavations. Researches have shown the existence in Crete of a very early, original pictorial system of writing, developed later into a linear alphabet, in which each sign may have represented a syllable. The clay tablets on which it appears consist chiefly of business documents. See Aegean Civilization; Crete.

COACH (Old Fr. coche; Hungar. kocs). Large enclosed four-wheeled carriage, first made in the Hungarian village of Kocs. A distinction between the coach and its later development, the carriage, is that the



Coach. Type of vehicle used in the early 18th century

roof of the former is part of the body framework, and that of the latter a canopy erected on iron or wooden bars. At first the coach was reserved for royalty and persons of high quality. By 1605 it had become common in England. The royal state coach, heavily gilded, with room for standing footmen at the back and drawn by six or eight horses, is still used in royal processions, and the state coach of lord mayors is of the same character.

The Coachmakers' Company is one of the London City livery companies. Incorporated in 1677, its hall in Noble Street, E.C., was acquired from the Scriveners' Company about 1720, and rebuilt in 1841 and 1870.

COACHING. The term used for the running or driving of a coach. The first stage coach in England ran from Coventry to London in 1659, and up to the early 19th century coaching was the most popular way of travelling. The Four-in-Hand Club, inaugurated



Coronation Coach, built about the time of George III in 1856, and the Coaching Club, 1872, are two prominent driving institutions

COADJUTOR (Lat. co-, with; adiutor, aider). Term applied in the Roman Catholic Church to one who has been appointed to assist a bishop who is incapacitated by age or infirmity. See Bishop.

COAGULATION (Lat. coagulare, to cause to curdle). Setting or solidification which takes place in various animal and vegetable fluids on exposure to air or a high temperature. When blood is allowed to stand after being drawn from the body it becomes thick, or coagulates.

COAL. Coal includes those solid, combustible materials of vegetable origin which occur in a fossil state. Ordinary or bituminous coal usually consists of glistening black portions, called bright coal, mixed with dull black fibrous parts, called mineral charcoal or mother of coal, showing imperfect woody structure. Bituminous coal is classed as steam, house, gas, and manufacturing. Other varieties are brown coal or lignite, with a distinct woody structure; cannel coal, amorphous, black, and easily ignited; anthracite, stone-like, and not readily ignited.

All coals contain carbon, hydrogen, oxygen, and nitrogen, which form the combustible portion, and some incombustible material called the ash. The carbon percentage is highest in anthracite, and lowest in brown coal. Coal occurs in beds—the seams and veins of the mines—amidst lacustrine, estuarine, and marine strata. The beds occur from a few inches to many feet in thickness, and, mingled with dirt layers, possess a united thickness amounting to several hundred feet. All coals originated in cellulose, the main constituent of plant tissue.

Coal beds are found in British coalfields lying at all angles from a horizontal to a vertical position. The bed or beds may occur in a basin (syncline) with the coals inclined towards the centre of the basin. Less commonly the coals dip from off the crest of a saddle (anticline), the inclination being greatest on the flanks of the fold. The coals lie at considerable depths, and many shafts now exceed 3,000 ft. in depth. In no part of the world has coal been found in rocks older than the Devonian. From the Carboniferous period upwards to the Quaternary, each of the stratified formations, either in one part of the world or another, contains coal either as true coal or as lignite. In all countries the best coals occur in the Carboniferous formation. See Mining.

ECONOMIC ASPECT. The importance of coal in economic life became particularly evident during the Great War, when the British industry came under Government control. In 1919, following a series of demands by the Miners' Federation, the Government appointed a commission to inquire into the conditions prevailing in the industry, particularly as to wages and hours of labour. Mr. Justice Sankey was appointed chairman, and the recommendations embodied in the commission's reports were carried into effect. In March, 1921, financial decontrol of the mines took place. This was followed by a three months' strike, after which a settlement was made on the basis of profit sharing.

From 1921 to 1925, owing partly to the French occupation of the Ruhr, the coal trade enjoyed a fair amount of prosperity. But this was followed by a period of extreme depression, relieved by financial assistance from the Government, and in March, 1926, a royal commission, under Sir Herbert Samuel,

issued a report upon the situation. This declared against further financing from public funds, and recommended wage reductions, amalgamations, research, profit sharing and other schemes. The Government accepted the report, but the miners refused it, and a strike lasting from May 1 to Nov. 30 ensued. Negotiations then resulted in district settlements and a return to work.

The number of persons employed in coal production in Great Britain in 1929 was given as 929,172. In July, 1929, the Mines Department issued a statistical summary relating to the first quarter of that year. It was shown that the industry as a whole had made a profit amounting to ninepence per ton.

In 1929-30 the Labour Government introduced a measure to reform the industry by securing amalgamations and reducing hours of labour. It also provided for marketing schemes and a quota system for limiting output. The bill was fiercely attacked by the Opposition, and on one occasion the Government were defeated on the quota scheme. However, it passed its third reading in the House of Commons on April 3, 1930.

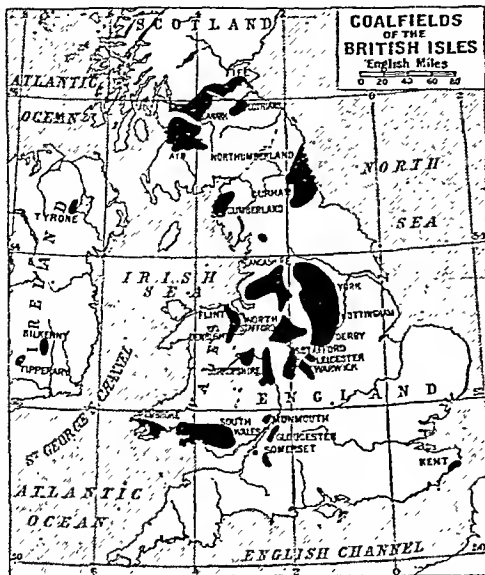
COALBROOKDALE. Town and district of Shropshire. It lies on the Severn, 11 m. S.E. of Shrewsbury on the G.W.R. The iron and limestone supply the great iron-works, founded in 1709 by Abraham Darby, but the coal seams are nearly exhausted.

COAL GAS. Gas used for purposes of illumination and fuel. In Great Britain it is obtained chiefly by the distillation of coal. See Gas.

COALITION (Lat. co-, with; alacere, to grow up). In domestic politics a ministry composed of members of two or more political parties. Examples in British history are the coalition between Fox and North in 1783, the ministry formed of Whigs and Peelites under the earl of Aberdeen in 1852, and that formed by the Conservatives and Liberal Unionists in 1895. In May, 1915, the Unionists joined the Liberals in a coalition ministry under H. H. Asquith, to carry on the Great War, and in Dec., 1916, Lloyd George became the head of one which lasted until 1922. There was, during the war period and later, a coalition in Canada under Sir Robert Borden.

COALPORT. Village of Shropshire famous for its pottery. In 1751 a factory was established at Caughley, also in Shropshire, where an excellent type of porcelain was produced. Coming into the possession of John Rose, the works were removed to Coalport in 1814, and have continued there since. Coalport vases are noted for their fine shapes, delicate scenery and figure paintings, and rich colours.

COAL TIT (PARUS ATER). Small bird of the tit family, fairly common in many parts of Great Britain. Its general colour is drab, with lighter underparts, and the head is black. It is a valuable bird to the gardener, as it eats caterpillars and destructive insects.



Coal. Map showing positions of the chief coal-mining districts of the British Isles

COALVILLE. Urban dist. of Leicestershire. It is in a rich coal-mining district, 5 m S.E. of Ashby-de-la-Zouch, on the L.M.S. Rly. Market day, Fri. Pop. 20,467.

COAST. The shape and character of coastlines are determined by the action of the sea and of other agents of denudation and transportation; by the uplift and depression of the land, and by differences in the character of the rocks. If the coast consists of loose or soft materials the waves themselves will readily eat into it and wash away fragments. Hard rock is cut back by stones and pebbles, which are hurled against cliff faces. Extensive masses of rock are thus undercut and eventually fall.

Above high-water mark the ordinary agents of weathering are at work. In highly jointed rocks dipping seawards, large blocks will readily fall on the beach, and produce overhanging cliffs, while where the rocks dip landwards, the loosened blocks cannot fall until they are undercut. Hard strata, being less readily eroded, tend to form headlands or promontories, while the softer measures are more easily cut back and form gulfs or bays.

For protection the coast is armoured with a wall of masonry, concrete, or timber; and with hanks of shingle collected by harriers, called groynes, huilt out more or less at right angles to the coast. The purpose of groynes is to raise the surface of the foreshore, by trapping the shingle, sand, and other matter which the currents roll along the beach.

COAST GUARD. Force which grew out of the preventive service, whose principal activities were directed against smuggling. These duties still devolve upon the coast guard in association with the revenue authorities. The coast guard was transferred from Treasury to Admiralty control in 1858, and to the Board of Trade in 1923. The force is a reserve for the navy, from which it is entirely recruited.

For coast guard purposes Great Britain and Northern Ireland is divided into districts, each with a naval captain in charge. The coast guard attends to the protection of fisheries and wild birds, the manning of signal stations, and reports movements of warships and of vessels in distress.

COATBRIDGE. Burgh of Lanarkshire. It is 9 m. E. of Glasgow on the L.N.E. and L.M.S. Rlys., and is the centre of the Scottish iron smelting industry. Its development is due to the establishment of the Gartsherrie Iron-works in 1830. Pop. 44,300.

COATES, ALBERT (b 1882). Anglo-Russian musician. Born in St. Petersburg, April 23, 1882, he was the son of a British merchant and a Russian mother. In 1911 he was appointed chief conductor of the Imperial Opera, St. Petersburg (Leningrad), where his opera *Sardanapalus* was produced, 1916. In 1919-20 he conducted orchestras in London, and from 1921-25 he was in the U.S.A.



Coast Guardsman in the uniform which was introduced in 1923



Coal Tit. A common British bird with a black cap.

COATES, JOHN (b. 1865). British tenor singer. Born at Gillington, near Bradford, Yorks June 29, 1865, he made his first appearance as a singer at the Savoy Theatre, London, in 1894. He sang in grand opera as Faust in 1901. He has sung in America, Australia, South Africa, and Germany, and with the Moody-Manners, Becham and other opera companies in Great Britain.

COATES, JOSEPH GORDON (b. 1878). New Zealand statesman. Born at Matakoho, the son of a farmer, he entered the House of Representatives in 1911. Having served in France from 1917-19, he was made minister of justice on his return to New Zealand. Other departments of state, including railways, public works, and the post office, were placed under his control, and in 1925 he became prime minister as successor to W. F. Massey. At the general election of Nov., 1928, his party was in a minority, and he resigned.



Joseph Gordon Coates, N. Zealand statesman

COATI OR **COATIMUNDI** (Nasua). Carnivorous mammal related to the racoon, found in S. America and Mexico. Distinguished by its long, flexible snout and long tail, the coati lives in troops in the trees, feeding upon birds, lizards and fruit.

COATS. Scottish family of thread-makers at Paisley. James Coats was one of those who brought the industry into the town in the later 18th century, and under his sons, Peter (1808-90) and Thomas (1809-83), the business grew enormously. It was turned into a public company in 1890, as J. & P. Coats.

Both brothers were Baptists, a fact commemorated by the beautiful memorial church at Paisley, of which town they were great benefactors. Peter, who was knighted, left a son, James, who, in 1905, was made a baronet, and was succeeded in 1913 by his son, Sir Stuart Coats, a Conservative M.P. from 1916-22, and a Roman Catholic. The eldest son of Thomas Coats, Thomas Glen-Coats (d. 1922), was made a baronet in 1894, and was long the chairman of the company. From 1906-10 he was a Liberal M.P. His younger brother George (1849-1918) was made Baron Glentanar in 1916.

COATS LAND. Part of Antarctica, S. of the Weddell Sea and N. of Prinz Luitpold Land, in lat. 74° 1' S. and 22° W. It was discovered by Dr. Bruce, 1903, and named after his patrons, the brothers Coats.

COBALT. Elementary metal. Its symbol is Co; atomic weight, 58.94; atomic number, 27; specific gravity, 8.50; and melting point, 1,500° C. It is of a grey colour with a touch of red; hard and unaffected by water. Its chief ores are smaltine, or tin-white cobalt, essentially cobalt and arsenic; cobaltine or cobalt glance, also arsenical but containing sulphur; cobalt pyrites, in which the metal may be associated with manganese, iron, and copper; skutterudite, cobalt and arsenic; and cobalt bloom. All these ores are contained by mispickel and most nickel ores.

The great source of the metal is the district of Cobalt in Northern Ontario, where it occurs in large percentages with nickel in rich silver ores. Payable ores of cobalt are found also in Missouri (U.S.A.), New Caledonia, Belgian Congo, and Germany. Cobalt is used in preparing certain alloys of copper, and in making pigments for colouring pottery

and has other artistic uses. Smalt, the beautiful blue pigment, is made from cobalt ore.

COBALT. Mining town of Ontario, Canada. On Cobalt Lake, about 330 m. N. of Toronto, it is served by the C.N.R. The major portion of the town was rebuilt after a fire in 1912. It owes its existence to the rich silver and cobalt mines around it. Pop. 4,449.



Frances Power Cobbe, British philanthropist

rage, and she actively promoted the Matrimonial Causes Act, 1878, which enabled magistrates to grant judicial separations. She wrote several theistic books. She died April 5, 1904.

COBBETT, WILLIAM (1762-1835). British author and politician. Born at Farnham, Surrey, March 9, 1762, he spent his early years working on his father's farm. In 1791 he began his career as journalist in Philadelphia. Returning to England in 1800, he started in Jan., 1802, Cobbett's Weekly Political Register; and in 1803 the Parliamentary Debates, transferred in 1812 to Hansard. His collection of State Trials was begun in 1809. From 1804 Cobbett became the unsparing critic of the Government, and an ardent reformer. Sentenced in June, 1810,



William Cobbett, British politician
From an engraving by Bartolozzi

to two years' imprisonment and a fine of £1,000 for an article in the Register condemning military flogging, he came out of prison financially ruined. In 1818 he issued his Grammar of the English Language. In 1832 Cobbett was elected member for Oldham to the reformed Parliament. He died June 18, 1835. His most popular book is Rural Rides, 1830.

COBDEN, RICHARD (1804-65). British politician. The son of a Sussex yeoman, he was born at Heyshott, near Midhurst, June 3, 1804, and at fifteen became a clerk in his uncle's office in London. In 1828 he set up on his own account, selling cotton goods on commission, and in 1832 settled in Manchester as a calico printer. He was soon associated with John Bright and Charles Villiers in the crusade for free trade. In 1846 the repeal of the corn laws was carried, and Peel with truth declared that the success of the measure was due to Richard Cobden. He was elected in 1847 for the W. Riding of Yorkshire, which he represented for 10 years.

Cobden denounced the Crimean War and the Chinese War of 1857, and with Bright and other leaders of the Manchester school lost his seat in Parliament at the election of that year. Two years later he was returned for Rochdale without opposition. In 1860 he negotiated a commercial treaty with France.

Cobden's neglect of his own affairs in the pursuit of public duty had ruined him financially in 1845, but a subscription on his behalf raised £80,000; and another subscription in 1860 brought in £40,000. He died in London, April 2, 1865. In 1928 Dunford House, Heyshott, Sussex, long his residence, was opened as the headquarters of the Cobden Memorial Association.

The Cobden Club was founded in 1866 in memory of Richard Cobden. The headquarters are 69, Victoria Street, S.W.1.

COBHAM OR **CHURCH COBHAM.** Parish and village of Surrey. It is on the Mole, 19 m. S.W. of London on the Southern Rly. The church contains fine brasses. Pop. 5,103.

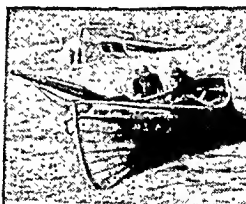
COBHAM, VISCOUNT. English title borne since 1718 by the families of Temple, Grenville, and Lyttelton. In 1714 Sir Richard Temple of Stowe was made Baron Cobham, and four years later a viscount. His sister, Hester, wife of Richard Grenville, succeeded to these titles, and in 1749 was made countess Temple. In 1889 the viscountcy passed to the eldest male descendant of the 1st viscount's 3rd sister, Christian; this was the 5th Baron Lyttelton, who became 8th Viscount Cobham.

COBHAM, SIR ALAN JOHN (b. 1894). British airman. Born May 6, 1894, after a brief commercial career he took up aviation, and served in the R.A.F. in the Great War. On being demobilised he entered civil aviation, joining the De Havilland Aircraft Co., and did much aerial photography. He made a number of long-distance flights, Belgrade-London; Europe, N. Africa, Egypt, London-Rangoon and back. In 1926 he flew from London to Cape Town and back, also England to Australia and back (see illus. p. 27), and in 1928 from London to Cape Town and back. He received the K.B.E., 1926. He wrote several works dealing with his flights.



Sir Alan Cobham, British airman
Chaloner

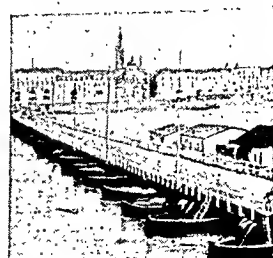
COBLE (Welsh caubal). Fishing boat used on N.E. coast of England. Its distinguishing features—flat bottom, high prow, stern either square or sharp, rudder often several feet deep, and sometimes triple keel



Coble. A small flat-bottomed fishing boat

—have been developed for heavy seas. A smaller boat used by salmon-fishers is also called a coble.

COBLENZ. City of Prussia, capital of the Rhine province. It stands at the junction of the Rhine and Moselle, hence its name, from Latin confluentes, flowing together. Opposite, on the right bank of the Rhine, is Ehrenbreitstein. Coblenz is 58 m. by rly. from Cologne.

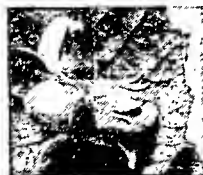


Coblenz. Bridge of boats, 485 yds. long, across the Rhine

In the older part of the city are the 12th century Romanesque church of S. Castor, the Liebfrauenkircho with Romanesque towers;

the Kaufhaus, or merchants' hall, restored in the 18th century, the Schöffenhaus, a museum; the old palace of the electors of Treves, called the Burg, containing the municipal picture gallery; and the house in which Metternich was born. In the modern part of the town is the palace, erected by the elector of Treves in the 18th century. There are some fine bridges across both rivers and a bridge of boats across the Rhine. The old bridge over the Moselle dates from about 1340. In Dec., 1918, under the terms of the armistice Coblenz was occupied by American troops, who in 1923 were replaced by French. Pop. 58,322.

COB NUT. Cultivated variety of the hazel. It is easily raised from seeds and suckers, particularly in Kent, as it flourishes best in a well-drained soil, which the chalk subsoil of that county provides. Filberts and hazels are varieties of the same genus, distinguished only by the fact that many of them have been grafted on a Southern European variety known as the Constantinople hazel.



Cob-nut. Cultivated variety of the hazel

COBRA. Genus (*Naja*) of large venomous snakes found in Africa and S. Asia. They are able to inflate the skin of the neck into a kind of hood when excited; in one species this hood bears black markings resembling a pair of eye-glasses. There are some ten species, one of the best known being the black cobra of India. In length it occasionally exceeds 6 ft., and the king cobra is sometimes 14 ft. long. It feeds largely on other snakes, but also takes birds' eggs and small mammals. It is one of the most deadly of all snakes.

Cobra was the name of a British destroyer. On Sept. 18, 1901, she sank in the North Sea and 67 lives were lost. A relief fund started in aid of the survivors formed the nucleus for the Naval Disasters Fund.

COCA (*Erythroxylon coca*). Shrub of the order Linaceae, a native of Bolivia and Peru. It forms a bush 6 ft. or 8 ft. in height with oval leaves about 2½ ins. long. The small



Coca. Leaves of the bush from which cocaine is derived

greenish flowers are produced in clusters of three or four from between the leaf-stalk and the stem. Its leaves contain the alkaloid cocaine. For some centuries the leaves have been used as a masticatory to stimulate the nerves and enable the user to endure continued fatigue. Its prolonged use, however, is harmful.

COCAINE. An alkaloid derived from the leaves of *Erythroxylon coca*. Preparations of cocaine and its salts are used in medicine to produce local anaesthesia for the purpose of performing small operations. Weak solutions may also be applied to ulcers and fissures to relieve pain. An overdose of cocaine may produce acute poisoning, while chronic poisoning may occur in those who are victims of the cocaine habit, which may be started by taking the drug to relieve toothache or nasal catarrh. If long persisted in, the habit may lead to melancholia or mania. A dose slightly larger than usual may prove suddenly fatal. If the patient can be broken of the habit, complete recovery will probably occur. See Anaesthesia; Drug.

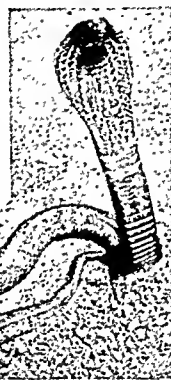
COCCO, TARO, OR EDDOES (*Colocasia antiquorum*). Perennial plant of the order Araceae. It is a native of the East Indies, but is cultivated throughout the tropics and in S. Europe as a food plant. It has a tuberous root-stock, from which the large oval heart-shaped leaves arise directly on long stalks. The simple flowers are borne on a club-shaped spadix. The leaves and corn are protected by a very acrid principle, but this is dissipated by thorough cooking, so that the young leaves are used like spinach, and the starchy corn provides material for making bread.



Cocco. Leaves and root-stock of this East Indian plant

COCCOLITH (Gr. *kokkos*, grain, berry; *lithos*, stone). Minute, elliptical disk-shaped body which occurs in vast numbers in deep-sea deposits. They are supposed to have been detached from the surface of globular organisms named *eocospheres*, which probably belong to the calcareous algae.

COCHIN. Native state of India, on the S.W. coast. The ruler is a maharaja and is entitled to a salute of 17 guns. The capital is Ernakulam. Area 1,418 sq. m.; pop. 979,080.



Cobra. Poison-spitting black cobra, a native of South Africa

The town of Cochin is the chief port of the Malabar district of Madras. About 90 m. S. of Calicut, it occupies the N. end of a strip of land separated from the mainland by a system of lagoons or backwaters. Pop. 20,637.

COCHIN CHINA. French colony in S.E. Asia, forming the S. portion of French Indo-China. Bounded on the N. by Cambodia and Annam, it has an area of about 26,500 sq. m., mainly in the hot, marshy jungle of the delta of the Mekong. The colony is under a governor. The colonial council consists of 24 members, and one deputy is sent to the French Parliament. Cochin China is very fertile. Rice is the staple product. River and sea fishing is an important industry. Saigon, the capital and chief commercial centre, and Cholon have rice mills, saw mills, and soap factories. There are wireless stations at Cap St. Jacques and other places. The people are mostly Buddhist Annamites, but most of the trade is in the hands of Europeans and Chinese. Pop. about 4,000,000, of whom about 17,000 are Europeans. See Indo-China.

COCHINEAL. Scale insect (*Coccus cacti*) and the famous dye which it yields. The insect feeds on several kinds of cactus. The use of cochineal as a dye is now superseded by aniline compounds, except for soldiers' uniforms and for colouring confectionery. The insect is cultivated in Honduras and the Canary Islands.



Cochineal insect. *Coccus cacti*

COCHRAN, CHARLES BLAKE (b. 1872). British theatrical manager. Born at Lindfield, Sussex, Sept. 25, 1872, he appeared in 1890 on the stage in New York. About 1900 he returned to London, where he staged *The Miracle at Olympia* and promoted important wrestling and boxing contests, as well as entertainments of other kinds, earning the title of

"the world's greatest showman." He became manager of various theatres, and from 1926 was manager of the Albert Hall. In 1925 he wrote *The Secrets of a Showman*.

COCKADE (Fr. *coquarde*). Rosette of black, white, or coloured material. A very old ornament, worn in hats and turbans, it formed part of the uniforms of the military and court retinue. In France the white cockade of the Bourbons, the Red of the Terrorists, and the Tricolor of the Republicans became celebrated.

COCKATOO. Family of the zoological order Psittaci, which includes the parrot tribe. They are natives of Australia and adjacent islands. Cockatoos are distinguished by the crest of feathers on the head.

Most are white, often tinged in parts with yellow or red; but the largest is entirely black in plumage. The finest is Leadbeater's Cockatoo of S. Australia. In this species the crest is finely coloured with vermillion and yellow, and the underparts are of a beautiful rose pink.



Cockatoo. The sulphur-crested species of this Australasian bird

COCKATRICE. Fabulous reptile. Its breath was supposed to be fatal to anything it touched. In heraldry a cockatrice is a beast with head, shoulders, and legs of a cock, and the body, wings, and tail of a wyvern.

COCKAYNE OR COCKAIGNE. Fabled land of luxury, idleness, and especially of good living, referred to by ancient British, French, and Italian writers. Attempts have been made to prove that cockney, applied to London and Londoners, is a form of the same word.

COCKBURN, SIR ALEXANDER JAMES EDMUND (1802-80). British lawyer. Born Dec. 24, 1802, he was called to the bar in 1829. Liberal M.P. for Southampton, 1847, he was solicitor-general 1850, and attorney-general 1852-56. In 1856 he was made chief justice of the Common Pleas, and in 1859 lord chief justice. He represented the British Government at the Alhambra arbitration, 1872. He died Nov. 20, 1880. Pron. Co-burn.



Sir Alex. Cockburn, British lawyer. Painting by A. D. Cooper

Cockburn Channel is the passage between Clarence Island and the mainland of Tierra del Fuego, Chile.

COCKCHAFER (*Melolontha vulgaris*). Brown beetle peculiarly destructive to vegetation. Several allied species are common both on the Continent and in Great Britain. In its adult stage, which lasts for only a few weeks, it attacks the leaves of trees. The eggs are laid in the ground, and the larvae, fat white grubs, feed upon the roots of grasses and cereals, and exist in this stage from three to five years.



Cockchafer, a beetle very destructive to vegetation

COCKER, EDWARD (1631-75). English engraver and writing master. He is said to have introduced the first English copy-book

with model sentences, etc. He published several works on penmanship, and was the author of Cocker's Arithmetick, 1678, which gave rise to the phrase According to Cocker, i.e. correct. It was long a standard work.

COCKERMOUTH. Urban dist. and market town of Cumberland. It lies at the confluence of the Cocker and Derwent, 32 m. S.W. of Carlisle by the L.M.S. Rly. In its ruined castle Mary Queen of Scots was imprisoned in 1568. It has a grammar school and was the birthplace of Wordsworth. Market day, Mon. Pop. 4,838.

COCKER SPANIEL. The smallest of all spaniels, this dog weighs from 20 to 25 lb. His head is cleanly chiselled, ears lachrymal, long, and set on low, clothed with long, silky hair; the coat all black, black and white, or roan. The tail should be carried in a line with the back. The coat should be flat and silky, never waved or harsh. It derives its name from its use in woodcock shooting. See Spaniel.



Cocker Spaniel, a small sporting dog which makes a good companion

COCKFIGHTING. Pitting one gamecock against another, sometimes designated cocking. The sport goes back to very ancient times. Cockpits discovered in Cornwall show that they were in existence in Britain before the Roman period. In the United Kingdom the passing of the Prevention of Cruelty to Animals Act in 1849 put an end to public exhibitions of cockfighting; but mains (the term for several fights between different pairs of cocks) are still brought off secretly. Birds are specially bred and reared for fighting



Cockfighting, an ancient and now illegal sport. Scene in a cockpit as depicted by Hogarth

The name cockpit is also given to a room in a warship assigned to the wounded. In aeronautics the cockpit is the compartment in the fuselage of the aeroplane which accommodates pilot and crew. See illus. p. 28.

COCK LANE. London thoroughfare bnking Snow Hill with Giltspur Street, E.C. It was the scene, Jan.-Feb., 1762, of the imposture known as the Cock Lane Ghost, in which certain mysterious noises were shown to be caused by a girl, Elizabeth Parsons, moving a board concealed in her bed.

COCKLE. Bivalve mollusc of the genus Cardium, of which there are many species. Cockles are found in the sand about low-water

mark and in estuaries, and Cardium edule is used for food. The shell is deeply ribbed and the long foot enables the mollusc to jump.

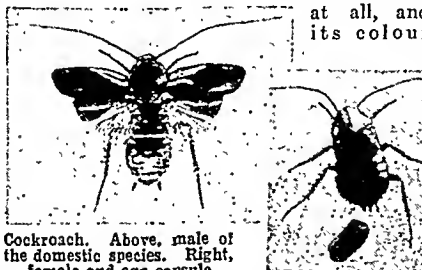


Cockle. Cardium edule, the edible cockle

London in the early part of the 19th century. The chief were William Hazlitt, Leigh Hunt, Keats, and Shelley.

COCK OF THE ROCK (*Rupicola crocea*). Bird found in the northern parts of S. America. The cock is of brilliant orange colour, and the feathers of the head form a fine crest; but the hen is of quite dull colour.

COCKROACH (Span. cucaracha). Family of the Blattidae, of the genus Orthoptera, or straight winged insects. Some six species are found in Great Britain, three of them importations. The domestic species which is usually known as the "black beetle" is not a beetle at all, and its colour



Cockroach. Above, male of the domestic species. Right, female and egg capsule

is reddish brown. The males have conspicuous wings, but in the female these are rudimentary. The eggs are deposited in a horny capsule, and the larva resemble the adult female in appearance.

COCLES, HORATIUS. Legendary hero of ancient Rome. When the Etruscan army under Porsena was about to attack the city, with two companions he stemmed the onrush of the army while the Romans demolished the bridge behind them. Horatius then swam safely to the As a reward he received as much land as he could plough in a single day. Pron. Cock-leez.

COCOA, or more correctly CACAO (*Theobroma cacao*). Small tree of the order Sterculiaceae, native of tropical America, but cultivated in many hot, moist countries. The leaves are pointed, oblong, and smooth. The flowers are produced in clusters direct from the trunk or from the larger branches, and consist of a rosy calyx exceeding the yellow corolla in size. These are succeeded by yellow oval-oblong fruits with tough rinds, about 8 ins. long. Within are five cells, each containing about a dozen large seeds, the cocoa beans or nibs, surrounded by pulp. In cultivation each cocoa plant yields from one to ten pounds of dry nibs annually.

In preparing cocoa for commercial purposes, the seeds or nibs are separated from the pulp, then sweated and slightly fermented. They are then dried and rubbed, and packed for export.

In the English process of manufacturing cocoa the beans are roasted in cylindrical pans revolving over open coke fires. The nibs are next ground to a liquid of a cream-like consistency. The fact that a liquid is produced is due to the large amount of oil (nearly 50 p.c.) in the cocoa bean. This liquefied chocolate is freed from its oil or cocoa butter by powerful hydraulic pressure. Cocoa was introduced into England about 1656. See Chocolate.

COCONUT PALM

(*Cocos nucifera*). Tall, graceful tree of the order Palmae. Attaining a height of about 50 ft., it is a native of the East Indies, but grows, however, on all coasts and islands of the tropics. Its leaves may be as much as 20 ft. long, divided into long, narrow, glossy segments. The flowers are borne in spikes, and consist of three sepals and three petals. The fruit is the familiar hard-shelled coconut, which is enclosed in a large elliptical three-sided envelope. Coir and copra are obtained from the nut. See Coir; Copra.



Coconut Palm, a useful tree, native of the East Indies

COCOON (Fr. cocon, small shell). Case or chamber, usually of silky material, constructed by the larvae of many Lepidoptera as a shelter in which to pass the resting or pupal stage. See Chrysalis.

COCOS OR KEELING ISLANDS. Group of about 20 small coral islands in the Indian Ocean, 700 m. S.W. of Sumatra, and 1,200 m. S.W. of Singapore. They have been annexed to Singapore since 1903. The islands were discovered by Captain Keeling in 1609. There is a wireless station. At Cocos Island the German cruiser Emden (q.v.) was sunk, Nov., 1914, by the Sydney. Pop. 1,009.

COD (*Gadus callarias*). One of the largest of the family of marine fishes which includes haddock, whiting, ling, and hake. It is found in comparatively shallow water, especially in the temperate seas of the northern hemisphere. The cod has conspicuous fins, a large mouth with the upper jaw longer than the lower, and a barbel on the chin. Usually from 2 ft. to 4 ft. in length, it sometimes attains 6 ft. It is greenish or olive-coloured on the back, with greyish underparts; but the colour and markings vary considerably. The flesh is somewhat coarse, but its nutritious quality, its abundance and cheapness, and the ease with which it can be preserved by drying or salting, make it of high economic importance.



Cod. A valuable food fish of the seas of the northern hemisphere

The oil extracted from cod liver is a valuable medicine, and isinglass is obtained. The chief cod fisheries are those of the North Sea and the shores of Newfoundland.

CODE. Word derived from the Latin codex, meaning wooden tablets covered with wax and formed into a book. In law it has come to mean any complete and systematic body of law, such as the Code Napoléon.

In education the code is the body of regulations issued every year by the Board of Education for England and Wales.

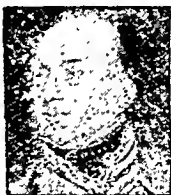
The word code also denotes systems of signals for the transmission of letters, numerals, punctuation marks, and conventional phrases by electric telegraph; and systems of cryptography for sending messages in secret form. See Cipher; Morse Code; Signalling.

CODEINE (Gr. kodeia, poppyhead). Alkaloid obtained from opium. It is given to relieve pain, though its action is much less powerful than that of morphine, and is also used to diminish glycosuria (sugar in the urine) in diabetes.

CODEX. Ancient MS. in book form. It developed after vellum was invented from the hinged wax tablet or diptych, and examples are traceable to the 2nd century B.C. The term is also applied to agave-paper or deerskin rolls bearing Mexican and Mayan pictographs; and to particular collections of Roman law, and to MSS. of the classical authors.

CODICIL (Lat. codicillus, little book). In English law, a sort of postscript to a will. It must be executed with the same formalities as to signature and witnesses. A codicil is generally used to effect some small alteration or addition to the provisions of the will (q.v.).

CODRINGTON, SIR EDWARD (1770-1851). British sailor. His fighting career began with the outbreak of the war with France. At Trafalgar he led the Orion; in 1814 his ship was with the force serving against the United States. He was knighted in 1815. Codrington was the admiral who led the allied fleets of Britain, France, and Russia against the Turkish fleet at Navarino in 1827. He became a full admiral before he died, April 28, 1851.



Sir E. Codrington,
British sailor
After Laurence

CODY, SAMUEL FRANKLIN (1861-1913). British aviator and inventor. Born in the U.S.A., he came to England in 1896, was naturalised, and became man-lifting kite constructor at Aldershot in 1906. The first man to fly in Great Britain and the maker of the first practical British flying machine, he flew in a machine of his own make for 27 mins. in Oct., 1908. He was killed in a flying accident, Aug. 7, 1913. See Aeronautics.

CODY, WILLIAM FREDERICK (1845-1917). American scout and showman. Born at Iowa, Feb. 26, 1845, as scout and guide in the U.S. army he served throughout the Civil War. During the construction of the Kansas Pacific Rly. Cody supplied the workmen with buffalo meat, hence his sobriquet of Buffalo Bill. Cody took part in many expeditions against the Indians. In 1883 he founded his great Wild West show, with which he toured Great Britain and Europe. Cody died at Denver, U.S.A., Jan. 10, 1917.



William F. Cody,
American scout
Vandyk

CO-EDUCATION. Education and training of the sexes together. There are now about 250 secondary schools in England and Wales in which both sexes are received. Some of these are on the dual method, in which the sexes only share the same teachers, and spend no further time together. In higher education all the modern universities are co-educational. Scotland and the United States have adopted the principle of co-education for much longer time, and more generally, than England.

COELENTERATA (Gr. koilos, hollow; entera, intestines). Phylum or sub-kingdom of the invertebrates, placed systematically between the sponges and worms, and distinguished by the identity of the body cavity and the alimentary canal. They are simply hollow tubes, the interior being a cavity for the ingestion of food. The exterior may have

appendages or tentacles, as in the hydra and the sea anemone; and it may secrete a calcareous external skeleton, as in the corals. The coelenterata are usually divided into three classes: hydrozoa, scyphozoa, etenophora.

COELOSTAT. Mirror, so mounted and adjusted on an axis which points to the Pole, and revolves at half the apparent diurnal motion of the stars, that the image of the sky reflected in it always shows the stars at rest. Thus a fixed telescope directed at the image in the moving mirror finds all the stars or any star in its field of view at rest.

COERCION ACTS. Various Acts of Parliament which had for their object the enforcement of law and order in Ireland. The best known are those passed by the Gladstone Government in 1881 and 1882, following the Phoenix Park murders. After the failure of the Home Rule bill another coercion bill was introduced by A. J. Balfour in 1887. This followed the lines of earlier Acts, and was instrumental in restoring order. After a year or two the need for it died away, although the authorities retained the power to put it in force if necessary. The Act passed in Aug., 1920, which set up special tribunals for the repression of crime in Ireland, was sometimes called a Coercion Act.

COFFEE (Coffea). Genus of evergreen trees and shrubs of the order Rubiaceae. It has opposite leaves and funnel-shaped tubular

flowers that are followed by a pulpy fruit somewhat like a cherry, containing within the pulp two seeds, the familiar "coffee beans." There are many species, and several are grown commercially, but the principal are the so-called Arabian coffee (C. arabica), really a native of Abyssinia, and the Liberian coffee (C. liberica), native of W. Africa. Under cultivation in different localities with hot climates these have yielded distinct varieties, usually known by the place-names of their origin: thus Java coffee, Ceylon coffee, Brazilian coffee, etc. About four-fifths of the world's annual crop is produced in Brazil. Coffee, usually considered an importation from Arabia, was first used as a beverage in Abyssinia, whence it reached Arabia at the beginning of the 15th century. It was not until the middle of the 17th century that it was introduced into England.



Coffee. The plant and berries

COFFEE HOUSE. House of entertainment, where coffee and other refreshments are provided. The first coffee house in London was opened in 1652 in S. Michael's Alley, Cornhill. For a century the coffee houses were a prominent feature of London social life. The frequenters of the coffee houses formed themselves into coteries, and each coterie made its headquarters at a particular house. Thus the St. James's, in St. James's Street, was the recognized whig resort; the Grecian, in Devereux Court, Strand, kept by a Greek, was devoted to learning.

City coffee houses were also frequented by business men who desired to obtain the latest news affecting their interests. See Baltic; Club.

COFFER. Form of chest most used in the early and Middle Ages for the storage of valuables. Made usually of oak, some were carved and painted; others were covered with leather, brocade, or painted canvas. The

best examples, in museums and private collections, are magnificently decorated pieces, the work of Italian craftsmen. See Chest.



Coffer. Italian 16th century wooden coffer, ornamented with carvings illustrating subjects from Roman history
By courtesy of the Victoria and Albert Museum

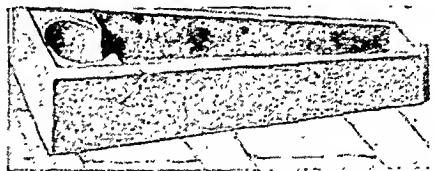
COFFER FISH (Ostracion). Marine fish of which there are more than twenty species, all found in the warmer seas. The body is covered with a mosaic of six-sided bony plates, hence the name. Only the fins and tail are capable of movement.



Coffer fish, Ostracion cornutus, also called the horned trunk fish

COFFIN (Gr. kophinos, basket). Casket or box in which the dead are placed before interment or cremation. The modern British coffin is usually of oak or elm, sometimes lined with lead, hexagonal in shape, with a brass name plate on the lid and other metal fittings. The first wooden coffins were doubtless bawn out of tree trunks. Stone, iron, lead, marble, and even glass have been used. Coffins did not come into general use until the beginning of the 18th century. The term coffin-ship was applied to unseaworthy vessels sent to sea before the introduction of the Plimsoll (q.v.) line. See Burial; Sarcophagus; also illus. below.

COGNAC. Town of France, in the dept. of Charente. It stands on the left bank of the river Charente, 30 m. W. of Angoulême. The church of S. Leger, with a Romanesque portal, dates in part from the 11th century, and there is a 15th century castle. The chief industry is preparing the special kind of brandy known as cognac. Pop. 18,876. See Brandy.



Coffin. Stone coffin, about 12th century, excavated on the site of Bermondsey Abbey. See above

COHERER (Lat. co-, with; baerere, to stick). Device for detecting electro-magnetic waves, consisting of two metallic electrodes in light contact. The contact is so delicate that virtually the circuit is open, but when an electro-magnetic wave passes the electrodes cohere. Branly invented his coherer in 1890. This consisted of a tube containing metallic filings loosely packed between two metal plugs. The passage of an electro-magnetic wave caused cohesion between the filings and the ends of the rods and completed the circuit. See Wireless.

COHORT. Strictly, the tenth part of a Roman legion consisting of 600 men. The term, like the English word corps, was loosely applied to bodies of men constituted for any definite military or police service. The word is derived from the Lat. cohors, meaning originally an enclosed space, and was afterwards applied to its contents.

COIF or **QUOIR** (late Lat. *cofia*, cap; Fr. *coiffe*). Term for any close covering for the head, such as a hood. A coif cap of white silk or lawn used to be part of legal dress and the distinguishing badge of serjeants-at-law; later it became the custom to wear a small black cap over the white coif.

COIL (Lat. *colligere*, to gather together). In electricity, a coil of wire used to create a magnetic field by passing a current through it. A bar of iron inserted in the coil becomes magnetised during the passage of the current. An induction coil is one in which an electric current passing through one coil (the primary) induces a current of higher or lower voltage in another (the secondary).

The choke coil and the transformer are types of coil each with a specific purpose, the first to reduce the intensity, and the second to change the voltage, of an alternating current. Both are used in broadcast receiving apparatus, which also gives use to coils of various other kinds. The aerial circuit is tuned by an inductance coil in conjunction with a variable condenser. Another method of tuning is provided by varying the magnetic coupling between a pair of coils, one in the aerial circuit, and one in a secondary circuit, respectively. Loading coils with more or fewer turns are brought into the circuit to increase the maximum wave-length to which it can be adjusted. See Condenser; Inductance; Wireless.

COIMBRA (anc. *Aeminium*). City of Portugal, in the prov. of Beira, capital of Coimbra dist. Picturesquely seated on the Mondego, 115 m. N.N.E. of Lisbon, it was the capital of Portugal for some 250 years, and is the seat of a university. Coimbra has two cathedrals, one dating from the 12th century, an episcopal palace, fine churches, and convents. The ruins of the monastery of S. Clara, and the Quinta das Lagrimas, Villa of Tears, where Inez de Castro was murdered, 1355, stand on the river banks. Six Portuguese kings were born at Coimbra, as was the poet Francisco Sa de Miranda, and, according to one tradition, Camoëns, who attended the university. Pop. 20,841.

COINAGE. Name given to the coins or metallic money in, or available for, circulation in a country. In the United Kingdom three metals or alloys of metals are used for the coinage, which is known as the imperial coinage. Sovereigns (20s.) and half-sovereigns (10s.) are coined in gold, while on special occasions, such as a coronation, coins for £5 and £2 are struck. Of silver coins the most frequent are the half-crown (2s. 6d.), florin (2s.), shilling (1s.), sixpence (6d.), and threepence (3d.). A certain number of crowns (5s.) and double florins (4s.) are also struck, while there have been silver pennies and twopenny pieces. The fourpenny piece was frequently coined in the past. There are three bronze coins in circulation: penny, halfpenny, and farthing. These coins were made of copper before 1860. All the common British coins date back to Tudor times or earlier, except the florin, introduced in 1849. Since the early years of the Great War gold coins have been withdrawn from circulation, their place being taken by treasury notes.

Canada and India has each its own coinage, but Australia and South Africa use British coins with special designs thereon. New Zealand and other parts of the Empire use British coins.

In the United Kingdom changes affecting the coinage are dealt with by proclamation.

The melting of gold and silver coia is prohibited. See Bank of England; Exchange; Mint; Money; Numismatics.

COINING. Illegal making or counterfeiting of coins. The laws against coining were codified in 1861, and supplemented by the Counterfeit Medals Act of 1883. By these laws offences are punishable by terms of imprisonment ranging from penal servitude for life to two years' imprisonment with or without hard labour.

COIR (Malay *kayar*, cord). Fibre from the husk of a coconut, exported principally from the tropical islands of the Indian and Pacific Oceans. The husks having been softened in water, the fibre is removed either by beating or by treatment on spiked drums. Coir fibre has great strength, and does not decay in damp surroundings.

COKE. Product of coal obtained by charring or dry distillation. Coke is to coal what charcoal is to wood; and both coke and charcoal are prepared by essentially similar methods. Coke for metallurgical purposes used to be made in the same way as common charcoal had been made from time immemorial, but this process was soon superseded by the introduction of the beehive coke oven.

The coke made in this oven is very hard, and therefore peculiarly suited for use in modern blast furnaces. The best qualities contain 80 p.c. of carbon with 8 p.c. of ash and 1.4 p.c. of moisture. The greater portion of metallurgical coke is, however, now made in kilns of different type, such as the Appolt (q.v.), Coppée, and Simon-Carvé. These do not produce coke equal in quality to that from the beehive oven, but they permit the recovery of gas, and of a number of other valuable by-products. An inferior form of coke is made on an enormous scale in the manufacture of ordinary gas for lighting and heating from coal. It is an important fuel, since it produces hardly any smoke when it burns.

COKE, SIR EDWARD (1552—1634). English lawyer. Born at Mileham, Feb. 1, 1552, he was called to the bar in 1578, became Recorder of Coventry, 1585, and of London, 1592.



Sir Edward Coke,
English lawyer.
After a portrait in
"Serjeants' Inn"

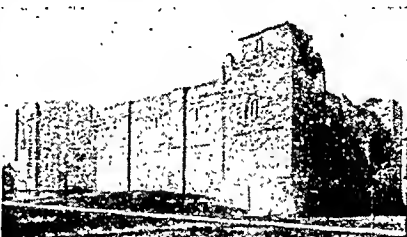
He was elected M.P. for Norfolk and Speaker of the House of Commons the same year, and in 1593 became attorney-general. Coke conducted the prosecution of Essex and Southampton, 1600; of Raleigh, 1603, and of the gunpowder plotters, 1605. In 1606, as chief justice of the Common Pleas, he opposed James I's exaggeration of the royal prerogative, and also negatived the king's claim to legislate by Proclamations. He was removed from the chief justiceship in 1616. As M.P.; Coke distinguished himself by his advocacy of the liberties of Parliament. He died Sept. 3, 1634. Consult Chief Justice Coke: His Family and Descendants at Holkham, G. W. James, 1920.

COLBERT, JEAN BAPTISTE (1619—83). French statesman. Born at Reims, Aug. 23, 1619, he entered the service of Mazarin in 1651. Mazarin recommended him to Louis XIV (1660), and Colbert was placed in charge of the national finances, then in ruinous disorder. By instituting a council of finance and by other measures he produced order out of chaos, and prosperity where disaster was threatening. Yet the huge national expenditure involved heavy taxation, for which Colbert was blamed, and he died Sept. 6, 1683, execrated by the people.

COLCHESTER. Borough, market town, and river port of Essex. It stands on the

S. bank of the Colne, 12 m. from the sea and 52 m. E.N.E. from London by the L.N.E.R. Interesting old buildings include the keep of the Norman castle, the largest in England, the ruins of the 12th century priory of S. Botolph, and the gateway of the 11th century monastery of S. John. In 1920 the castle was purchased for £8,000 by the town council, the money being provided by Lord Cowdray. The oyster fisheries of the Colne are municipal property. The bishop of Colchester is suffragan to the bishop of Chelmsford.

The Camalodunum of the Romans, Colchester retains many evidences of their occupation. The ancient walls still exist, and finds include tessellated pavements, inscriptions, pottery, coins, a steelyard and buckle, and two pieces of a gateway. The Roman street has been traced across the Castle Park, as well as an apsidal-ended chamber. The baths comprise one of the most notable Roman remains in S.E. England. Market day, Sat. Pop. 45,170.



Colchester Castle. The quadrangular Norman keep, the largest of its kind in England

COLCHESTER, CHARLES ABBOT, 1ST BARON (1757—1829). A British politician. Born at Abingdon, Berkshire, Oct. 14, 1757, in 1795 he became M.P. for Helston, Cornwall, and in 1800 introduced the first Census Act. He was chief secretary for Ireland, 1801, and Speaker from 1802—17, when he retired with a peerage. He died May 7, 1829. The title became extinct on the death of his grandson, the third baron, in 1919.

COLCHICINE. Alkaloid or active principle of *Colchicum autumnale* or meadow saffron. It is present chiefly in the seeds and bulb, both these parts of the plant being used in medicine. In any but minute doses, colchicine is a powerful poison.

COLD. Physical phenomenon, the opposite of heat. Considered formerly as possibly a positive quality, rather than as the absence of heat, it was only with the general acceptance of the dynamical theory of heat that cold came to be regarded as a negative condition dependent on the lessening of that vibration of molecules which produces heat. At the temperature of absolute zero —273° C., i.e. at the lowest possible degree of cold, it has been conjectured that all movements of molecules must cease. See Heat; Thermodynamics.

A person rescued after being overcome by cold should be placed in a cold room, wrapped in a blanket, and the surface of the body should be rubbed with the hand dipped in cold water. The temperature of the room should be raised gradually. Warm stimulating drinks, such as coffee, may be given.

COLD HARBOR. Village of Virginia, U.S.A., in Hanover county. It is 10 m. N.E. of Richmond, and was the scene, in 1864, of a series of sanguinary conflicts between the Federal troops under Grant and the Confederates under Lee.

GOLDINGHAM. Coast parish and village of Berwickshire, 3 m. N.W. of Eyemouth. It has ruins of an 11th century priory. Fast Castle, about 4 m. to the N.W., is the Wolf's Crag of Scott's Bride of Lammermoor. Pop. 2,830.

COLD STORAGE. Method of preserving perishable goods by keeping them in a sealed insulated chamber at a low temperature. Cold stores of large capacity form part of the equipment at the principal ports where refrigerated meat is received from abroad, and at meat markets. See Refrigeration.

COLDSTREAM GUARDS. British regiment of foot guards, said to be the oldest in the army. It originated in a unit which was placed under George Monk. Called Monk's regiment, it remained in Scotland until 1659, when the regiment spent three weeks, waiting on events, at Coldstream on the Tweed, and got its present name. The Coldstreamers fought under William III and Marlborough in the Netherlands, served in America and Spain, and lost heavily at Waterloo. They were in the Crimea and South Africa. The regiment had a wonderful record during the Great War. Its headquarters and record office are at Birdcage Walk, London, S.W.1.

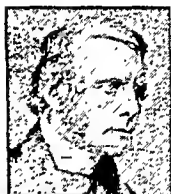


Coldstream Guards
regimental badge

COLE, MADAME BELLE (d. 1905). American singer. Born at Chautauqua, New York, she began her career as soloist in a New York church. In 1887 she came to England and sang at the Crystal Palace. Later she made tours through the U.S.A. and the British Dominions. She died in London, Jan. 5, 1905.

COLENSO. Village of Natal, S. Africa. On the Tugela, 15 m. by rly. S. of Ladysmith, it was occupied by the British on Feb. 20, 1900, in the S. African War. See Tugela.

COLENSO, JOHN WILLIAM (1814-83). British prelate and mathematician. Born at St. Austell, Jan. 24, 1814, at Cambridge he was second wrangler, and a fellow of S. John's. For a time master at Harrow, his name became known by his text-books on algebra and arithmetic. In 1853 he was made bishop of Natal. He remained there until his death at Durban, June 20, 1883. Colenso reached conclusions upon the Pentateuch which were regarded as heresy. In S. Africa the bishops declared him deposed, but the privy council decided against this, and Colenso remained.



John William Colenso,
British divine

COLEOPTERA (Gr. koleos, sheath; pteron, wing). Order of insects known as beetles. They are distinguished by the modification of the fore-wings into horny elytra of chitin, which serve as cases to cover the folded hind-wings. See Beetle.

COLERAINE. Urban dist., market town, and seaport of Londonderry, Northern Ireland. It is on the Bann, 4 m. from the sea and 61 m. N.W. of Belfast on the L.M.S. Rly. The linen industry, pork-curing, and salmon fisheries are important. Pop. 7,785.

COLERIDGE, JOHN DUKE COLERIDGE, 1ST BARON (1820-94). British lawyer. Born Dec. 3, 1820, a great-nephew of S. T. Coleridge, he became a barrister. In 1865 he was Liberal M.P. for Exeter, becoming solicitor-general in 1868. As attorney-general he conducted the crown's case in the Tichborne trial. Made chief justice of the common pleas and a baron, 1873, he succeeded Cockburn as lord



Baron Coleridge,
British lawyer

chief justice in 1880, holding that post until his death, June 14, 1894.

His eldest son, **Bernard** (1851-1927), 2nd Lord Coleridge, for a time a Liberal M.P., was made a judge of the high court in 1907.

Stephen William Buchanan Coleridge, born May 31, 1854, a younger son, became a barrister. He is best known as an opponent of vivisection and a writer on that and other subjects.

COLERIDGE, SAMUEL TAYLOR (1772-1834). British poet, critic, and philosopher. Born Oct. 21, 1772, at Ottery St. Mary, Devonshire, he was sent in 1781 to Christ's Hospital, where he began his long friendship with Charles Lamb. At Cambridge he offended the authorities by his Unitarianism and republican sympathies. He left without a degree. In 1796 he settled at Nether Stowey, where his friendship with Wordsworth began. After a visit to Germany he settled with the Wordsworths at Keswick. He lectured at the Royal Institution, London, in 1808, and in 1811-12 came the notable



S. T. Coleridge,
British poet

Portrait by W. Allston
in the Nat. Port. Gall.

lectures on Shakespeare and Milton. In 1816, to combat the opium habit, he put himself in the hands of Dr. Gillman, of Highgate. He died at Highgate, July 25, 1834. Among Coleridge's best-known works are *Remorse* (a tragedy), *Christabel*, *The Rime of the Ancient Mariner*, and *Kubla Khan*. Coleridge's eldest son, **Hartley** (1796-1849), published *Poems*, 1833, and *Worthies of Yorkshire and Lancashire*, 1836. Derwent, second son (1800-83), was first principal of St. Mark's College, Chelsea, 1841-64, and rector of Hanwell, 1864-80. He wrote a *Life of Hartley Coleridge*, 1849. Sara Coleridge, daughter of S. T. Coleridge (1802-1852), married her cousin, Henry Nelson Coleridge, with whom she edited her father's works.

COLERIDGE-TAYLOR, SAMUEL (1875-1912). British composer. Born Aug. 15, 1875, he studied at the Royal College of Music. His first distinctly successful composition was the music to *Hiawatha*, 1898. Other works include orchestral, chamber and piano music; also the incidental music to several plays by Stephen Phillips. He died Sept. 1, 1912. Consult *Life and Letters*, W. C. B. Sayers, 1915.



S. Coleridge-Taylor,
British composer

COLESBERG. Town of Cape Province, S. Africa. It is 4,407 ft. above sea level, 308 m. by rly. N. of Port Elizabeth, and 141 m. S. of Bloemfontein. The old wagon route to the Orange Free State passes through the town and crosses the Orange river, 18 m. distant, by a fine bridge. It was the scene of important operations during the S. African War (1899-1902). Pop. (white) 999.

COLET, JOHN (c. 1467-1519). English scholar and divine. Born in London, he was ordained priest in 1498, and was appointed dean of St. Paul's in 1505. In 1509 Colet founded and endowed St. Paul's School. A friend of Erasmus and Sir Thomas More, Colet stood for the New Learning. With More and Fisher he was averse from separation from Rome. He died Sept. 16, 1519.

Colewort (A.-S. eaulwyrht). Plant belonging to the cabbage family and one of the cultivated varieties of *Brassica oleracea*.

COLIC (Gr. kolikos, connected with the colon). Severe gripping abdominal pains of a paroxysmal character. The condition is

most frequently due to an attack of acute indigestion. The passage of a gall stone from the gall bladder along the bile duct leading to the intestines may give rise to agonising pain, constituting the condition known as biliary colic. Renal colic is due to the passage of a stone from the kidney into the ureter. For simple colic the best treatment is to administer a purgative. See Gall Stones.

COLIGNY, GASPARD DE (1519-72). Leader of the French Huguenots. Born at Châtillon-sur-Loing, Feb. 16, 1519, he served in the armies of Francis I and Henry II, and was made admiral of France in 1552. About 1557 he became a Huguenot, and the active leader of the Protestant party. After the death of Condé, Coligny assumed the sole command of the Huguenot forces, maintaining the contest until the peace of 1570. An unsuccessful attempt was made to assassinate Coligny on Aug. 22, 1572, and two days later he was murdered in the general massacre of St. Bartholomew's day.



Gaspard de Coligny,
French Huguenot

Odé de Coligny (1517-71), elder brother of the foregoing, was cardinal of Châtillon. Converted to Protestantism, he was deprived of his rank. He was poisoned by his valet, when in England seeking aid from Elizabeth, and died Feb. 14, 1571.

COLISEUM. Theatre of varieties, in St. Martin's Lane, London, W.C. Built in 1904, it is in the Italian style. A feature of the building is its specially built revolving stage. The famous amphitheatre at Rome is more correctly spelt Colosseum (q.v.).

COLITIS. Inflammation of the colon or large intestine. In simple ulcerative colitis the colon is enlarged and often the mucous membrane is extensively ulcerated. The course is usually chronic, lasting from two to four months. The symptoms are frequent diarrhoea, fever, wasting, debility, and increasing anaemia. The diet should consist mainly of peptonised milk; irrigation of the intestine is often highly efficacious. The cause is unknown. In mucous colitis shreds and strips of tenacious mucus are passed. The disease is often associated with severe neurasthenia, hysteria, or other forms of neurosis. Treatment consists in strict attention to diet, irrigation of the intestine with warm alkaline solutions, and relief of the associated neurasthenic condition.

COLLAR (Lat. collum, neck). Neck band of linen or other material, the neck part of a coat, a band of jewels, or, when speaking of armour, a defence of mail for the neck. The Romans used chin cloths, of which the wimples of the Middle Ages were a development. The ruff of the Tudors gave place to bands or falling collars about the end of the reign of James I. Neck cloths or cravats, the forerunners of the modern collar, succeeded the neck band during the reign of Charles II. In engineering, the term collar means (1) a rim or enlargement on an axle of a railway vehicle which resists a side thrust of the journal bearing; (2) a ring or round flange which bears upon or against another object, e.g. collars for pipe joints.

The collar bone is another name for the clavicle (q.v.).

COLLATERAL (Lat. com, with; lateralis, of the side, lateral). In law, relatives who are neither ascendants, such as parents, grand-



Gaspard de Coligny,
French Huguenot

After Clouet

parents, etc., nor descendants, such as children, grandchildren, etc. A brother, cousin, uncle, aunt, nephew, niece, are collaterals.

Collateral security, in English law, is a term applied to a security which is only in aid of an obligation, generally an additional security in reinforcement of the main security.

COLLECT (Lat. com, with; legere, to gather). Short prayer which precedes the reading of the epistle in the Mass of the Roman Catholic Church and the Holy Communion service of the Church of England. There is a collect for each Sunday and each festival.

COLLECTIVISM. Term for the collective and national ownership of the land and other means of production. It is practically a synonym for state socialism. The word was first used in *The Saturday Review*, May 8, 1880. See Socialism.

COLLEGE. Word used for an educational and occasionally for an ecclesiastical or other body. Thus the constituents of a university are colleges, while establishments for training teachers, army officers, clergymen, and others are usually called colleges. The Collège de France is a French state-supported academic institution. Among colleges of other kinds are the College of Physicians and the College of Arms.

In the ecclesiastical sense the word is used for the college of cardinals, and when speaking of a collegiate church, i.e. one which, although not a cathedral, has a college or chapter. The word is applied also to the actual building in which the college works, and at Oxford and Cambridge undergraduates live either in or out of college. College yells are the organized cries of students and graduates of American colleges and schools. See Cambridge; Oxford.

COLLEGE OF ARMS. Society incorporated and endowed 1483 by Richard III to attend the earl marshal's court and determine upon descents, pedigrees, escutcheons, and the like. The college is composed of the three kings of arms (Garter, Clarenceux, and Norroy), the six heralds (Windsor, Chester, Lancaster, York, Richmond, and Somerset), four pursuivants (Rouge Croix, Bluemantle, Rouge Dragon and Portcullis), and two extra heralds.

Their general duties are to attend the sovereign at the House of Lords, and on certain high festivals to the chapel royal; to make proclamations, marshal the proceedings at public processions, and attend the installation of the Knights of the Garter. They grant coats armorial to persons authorised to bear them. The original college was destroyed in the Great Fire, 1666. The present brick edifice in Queen Victoria Street, London, was built about 1669 by Sir Christopher Wren. See Arms; Heraldry.

COLLEONI, BARTOLOMEO (1400-75). Italian soldier. Born in 1400, he made a reputation in the wars between Milan and Venice, serving either side as suited his purpose. He is credited with having been the first to fit guns with crunions. In 1455 he became generalissimo of the Venetian forces. There is a statue to him at Venice.

COLLES'S FRACTURE. Fracture of the lower end of the radius, the bone on the thumb side of the fore-arm. The accident is most

often due to putting out the hand to break the effects of a fall. It is named after Abraham Colles (1773-1843), an Irish surgeon.

COLLEY, SIR GEORGE POMEROY (1835-81). British soldier. He entered the 2nd or Queen's Regiment in 1852. He saw service in Cape Colony, 1857-58, and in China, 1860. He then entered the Staff College, and was for a time professor. Appointed governor of Natal, in 1880 he commanded the forces in the first Boer War. He was killed at the battle of Majuba, Feb. 27, 1881.

COLLIE. Breed of Scottish sheep-dog. Renowned for its sagacity and intelligence, it was originally used wholly by shepherds, but during the 19th century came into favour as a companion. It should have a very long and narrow head, with sharp muzzle, small ears, and a heavy ruff round the neck. The long, bushy tail should be carried raised at the tip. In colour, black or tan, or the two combined, is preferred.

COLLIER, JEREMY (1650-1726). English divine. Born at Stow-cum-Quy, Cambridgeshire, Sept. 23, 1650, he was ordained in 1677. He was strongly against William III, refusing to acknowledge the monarch or the bishops who had accepted the Revolution. He was imprisoned in 1688 and 1692, and in 1696 was outlawed. In 1698 appeared his *Short View of the Immorality and Profaneness of the English Stage*. Collier also published an *Ecclesiastical History of Great Britain* (1708-14), sermons, and miscellaneous writings. He died April 26, 1726.

COLLIER, JOHN (b. 1850). British painter. The second son of Lord Monkswell, he was born in London, Jan. 27, 1850. He studied in Paris, under J. P. Laurens, and at Munich. He began to exhibit in London in 1874, and for many years his works were prominent at the Royal Academy. He was noted for his portraits.

COLLIER, JOHN PAYNE (1789-1883). Shakespearean critic. Born in London, Jan. 11, 1789, he was connected with *The Times* and *The Morning Chronicle* as reporter and critic. In 1842-44 he brought out an edition of Shakespeare, based in part on MS. corrections which he said he had found in a First Folio belonging to the earl of Ellesmere. In 1852 and 1853 Collier published *Notes and Emendations to the Plays of Shakespeare*, claiming to have obtained them from a Second Folio belonging to himself. Later the annotations in both folios were pronounced to be recent fabrications. He died Sept. 17, 1883.

COLLINGS, JESSE (1831-1920). British politician. Born at Lympstone, Devon, he settled in Birmingham, associated with J. Chamberlain, and in 1878 was mayor of the town. In 1880 he was M.P. for Ipswich. As a Liberal

Unionist he was M.P. for the Bordesley division of Birmingham, 1886-1918. Collings was prominent owing to his demand of "three acres and a cow" for the agricultural labourer. He died Nov. 20, 1920.

COLLINGWOOD. Town of Ontario, Canada. It stands on Georgian Bay, 90 m. N.W. of Toronto by the Canadian National Rlys., and is the eastern terminus for steamers on Lakes Huron and Superior. It has ship-building and steel works. Pop. 5,882.

COLLINGWOOD, CUTHBERT COLLINGWOOD, BARON (1750-1810). British sailor. Born at Newcastle-upon-Tyne, Sept. 26, 1750, he was only a child when he went to sea on a man-of-war. In 1779 he commanded the *Badger*. He co-operated with Nelson off the West Indies, 1783-86. He commanded the *Barfleur* on the glorious 1st of June, 1794, and was in the battle of Cape St. Vincent in 1797. At Trafalgar he led the second line on the Royal Sovereign. He was made a baron after Trafalgar (1805), and died at sea, March 7, 1810.

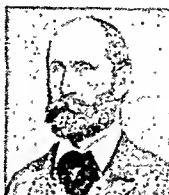
COLLINS, ARTHUR (b. 1863). British theatrical manager. Born in London, he began life in the office of his father, an architect, but in 1881 he was apprenticed to a scene painter at Drury Lane Theatre, of which he was stage-manager, 1887-96; and in 1897, after the death of Sir Augustus Harris, lessee and manager, retiring 1920.

COLLINS, MICHAEL (1890-1922). Irish leader and soldier. Imprisoned for his share in the Easter Rebellion in 1916, he was M.P. for S. Cork county in 1918. He organized the Irish volunteers and commanded the republican army. One of the signatories of the treaty, he was finance minister in the provisional government of 1922, and later commander-in-chief of the Free State army. He was killed in an ambush, Aug. 22, 1922.

COLLINS, WILLIAM (1788-1847). British painter. Born in London, Sept. 8, 1788, he entered the Royal Academy schools in 1807, and became R.A. in 1820. Between 1807 and 1846 he had 124 exhibits. He died Feb. 17, 1847. Of his two sons one, William Wilkie Collins, was the novelist, and the other son, Charles Allston Collins (1828-73), married Kate, Charles Dickens's younger daughter.

COLLINS, WILLIAM (1721-59). British poet. Born at Chichester, Dec. 25, 1721, he came to London in 1746, and a legacy in 1749 made him independent. With waning vitality Collins returned to Chichester, where he died, June 12, 1759. His finest poems are the *Ode on the Death of Thomson*, *Ode to Evening*, *The Passions*, and the ode beginning "How sleep the brave."

COLLINS, WILLIAM WILKIE (1824-89). British novelist. The son of William Collins, R.A., he was born in London, Jan. 8, 1824. He entered Lincoln's Inn and was called to the



Sir George Colley,
British soldier



Collie. Star o' Doon, a splendid example of this breed of sheep-dog



Jeremy Collier,
English divine



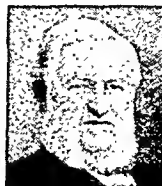
Lord Collingwood,
British sailor



Michael Collins,
Irish leader



William Collins,
British poet



Jesse Collings,
British politician
Windsor & Groves



Colleoni. Verrocchio's bronze statue of Bartolomeo Colleoni in Venice

bar, 1851. His first novel, *Antonina*, appeared in 1850. He collaborated with Charles Dickens in *No Thoroughfare*, and to *Household Words* and *All the Year Round*. Collins contributed his best work, notably *The Woman in White*, 1860; *No Name*, 1862; and *The Moonstone*, 1868. *Arncliffe*, 1866, and *The New Magdalen*, 1873, appeared in *Cornhill* and *Temple Bar*. He died in London, Sept. 23, 1889.



Wilkie Collins,
British novelist

COLLODION (Gr. kolla, glue). Colourless fluid obtained by dissolving pyroxylin in alcohol and ether, which dry up when exposed to the air, leaving a transparent film. It is used for photographic plates and in surgery.

Colloid cotton is nitrocellulose of rather low nitrogen content, completely soluble in nitroglycerine or ether-alcohol. It is largely used in the preparation of smokeless powders, blasting gelatine, artificial silk, etc.

COLLOID. Name given by Graham to substances having a very small power of diffusion, e.g. gelatin or starch. He found that while certain substances in solution diffused readily through a membrane, others did not. To the former class he gave the name crystalloids, since they were chiefly such substances as crystallise well. It is now recognized that substances may exist in both colloidal and crystalline state, and the terms are used to distinguish different conditions of matter. A colloid in the form of a solution is known as a sol; if in a solid medium it is termed a gel.

Two types of colloids are distinguished, reversible and irreversible, the former redissolving after drying, while the latter do not. Glue, albumen, and gum arabic are reversible, and colloidal metals irreversible. Colloidal silver salts are essential for photographic sensitised plates and papers. Colloidal solutions of mercury, gold, copper, and silver have a medicinal value not found in crystalloid form.

COLLUSION (Lat. con, with; ludere, to play). Term used in English divorce law to describe an arrangement made by husband and wife to get a divorce. If the court discovers that the petitioner and the respondent are merely trying to get rid of the marriage tie by arrangement, a divorce will be refused.

COLMAN. Name of many Irish saints, including: (1) The founder of the see of Dromore (c. 450-520). Festival, June 7. (2) Colman MacLenine, royal bard of Munster (c. 510-601) and founder of the see of Cloyne. Festival, Nov. 24. (3) S. Colman Elo, nephew of S. Columba. He was the first abbot of Muckamore and bishop of Connor. Festival, Sept. 26. (4) Colman, a native of Connacht (c. 605-676), a monk of Iona who became bishop of Lindisfarne in 661. Festival, Aug. 8.

COLMAN, GEORGE, THE ELDER (1732-94). British dramatist. Born at Florence, he was called to the bar in 1757. Garrick, who produced his successful comedy, *The Jealous Wife*, in 1761, early diverted his attention from the law, and with him Colman wrote *The Clandestine Marriage*. From 1767-74 he was manager of Covent Garden, and from 1777-85 of *The Haymarket*. He wrote and adapted a number of plays, and edited Beaumont and Fletcher and Ben Jonson. He died Aug. 14, 1794.

His son George (1762-1836), also a dramatist, was born Oct. 21, 1762. His first play

was produced at *The Haymarket* in 1784, and from 1789-1820 he was manager of *The Haymarket*. Of his plays *The Iron Chest* (1796), *John Bull* (1803), and *The Heir at Law* (1808) were the most popular. He died Oct. 17, 1836.

COLMAR. Town of France, in Alsace, capital of the dept. of Haut-Rhin. It is at the foot of the Vosges Mts. on the Lauch, a tributary of the Ill, 42 m. by rly. and canal S.W. of Strasbourg. Declared a free city in 1226, it was held by the French from 1673 till 1871, when it became German. It was returned to France in 1919. The town is the greatest cotton-spinning centre of Alsace. In the old part are houses of the 16th and 17th centuries, S. Martin's Church or cathedral, and the restored buildings of the old Benedictine convent of Unterlinden founded in 1232, and used as an art museum. Pop. 43,141.

COLNE. River of Essex. Rising in the N.W. of the county, it enters the North Sea at Mersea I. after a S.E. course of 35 m. The oyster beds are the property of the corporation of Colchester. Brightlingsea on the estuary is a yachting centre.

Another Colne, or Coln, rises near Hatfield and flows from Hertfordshire between Middlesex and Buckingham to Staines, where it joins the Thames. Its length is 35 m.

COLNE. Borough and market town of Lancashire. It is on a small tributary of the Calder, 344 m. N. of Manchester on the L.M.S. Rly. The chief buildings are the old church of S. Bartholomew, the grammar school, and the cloth hall. Its chief manufactures are printed calicoes and woven fancy goods. Slate is worked in the vicinity. Market day, Wed. Pop. 25,270.

COLNEY HATCH. District of Middlesex, in the N.E. part of the co. Its station, New Southgate, is on the L.N.E. Rly. Here is one of the largest of the County of London mental hospitals (opened 1851), with accommodation for over 2,000 inmates.

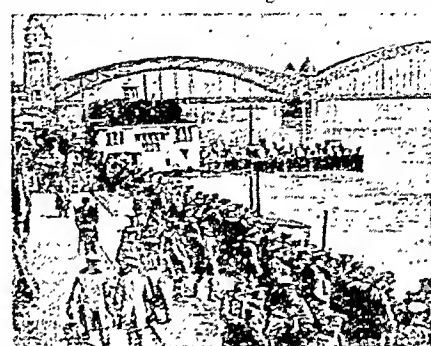
COLOBUS. Genus of monkeys found only in Africa and noted for their long, silky hair and tufted tails. The thumb is either absent or consists at most of a small tubercle. The skin is in demand for furs.

COLOGNE. City of Prussia, in the Rhine Province. Mainly on the left bank of the Rhine, it includes Deutz across the river and other suburbs. It is a great rly. junction and river port. Besides eau de Cologne, its manufactures include chocolate and machinery. Pop. 698,064.

The old town lies near the river. The newer parts are beyond the site of the old

fortifications. The cathedral, begun in 1248 but not completed until 1880, is one of the finest Gothic buildings in the world. Other famous old churches are the church of S. Maria im Capitol, S. Pantaleon's, Great S. Martin's, S. Andrew's, S. Gereon's, S. Ursula's, and S. Cecilia's. One of the finest modern churches is the Roman Catholic cathedral at Deutz. Among old secular buildings are the Gürzenich (partly used as the stock exchange), Rathaus, Templars' Lodge, and House of the Staple. Modern buildings include the library and archives, the post office, and the fine central station. There is a university.

Cologne owes its name to the Romans, who founded a colony here. Soon after 300 it had a bishop. He was made an archbishop in the 8th century, then one of the seven electors of the German king, and remained a great personage until the wide lands of his see were given to secular princes after 1101. Cologne joined the Hanseatic League 1201, and was made a free imperial city. In a short time the government passed largely into the hands of the trading guilds. During the 17th and 18th centuries Cologne's commercial



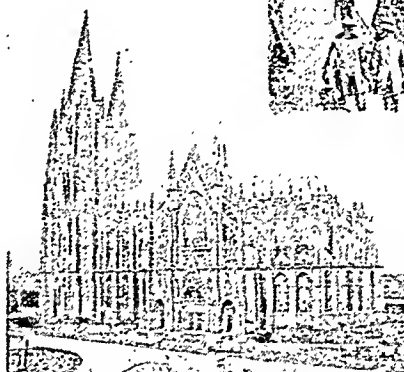
prosperity decayed, but, after being transferred to Prussia in 1815, the city recovered, especially after the formation of the German Empire in 1871. The first international Cologne fair was held in 1924.

Cologne was of great importance during the Great War. Its position and railway facilities made it one of Germany's chief military centres, and consequently it was bombed by Allied airmen. The terms of the armistice provided that the Allies should occupy the city and also a bridgehead with an area of 18 sq. m. on the other side of the Rhine. This particular area was allotted to the British. Cologne was the headquarters of the British army of occupation from Dec., 1918, until Dec., 1925, when it was transferred to Wiesbaden.

COLOMBES. Suburb of Paris. To the N.W. of the city, it is 5 m. from its centre, with which it is connected by tram and railway. It has a 16th century church, but the castle, in which Queen Henrietta Maria died, has disappeared. There is a stadium for international football matches and other athletic events, and a race-course. It is largely a residential town for Parisians. Near by is Bois Colombes, another town, with a population of 18,000, also a residential district. Pop. 32,271.



George Colman,
the younger



Cologne. 1. The cathedral. 2. British soldiers of the Army of Occupation (1919) on the quay



George Colman,
the elder



Colobus. Specimens of *C. guereza*, an African monkey

COLOMBIA. Republic of S. America. It is bounded N.W. by the republic of Panama, W. by the Pacific Ocean, N. by the Caribbean Sea, E. by Venezuela and Brazil, and S. by Peru and Ecuador. The area is estimated at about 462,000 sq. m. and the pop. at 6,617,000.

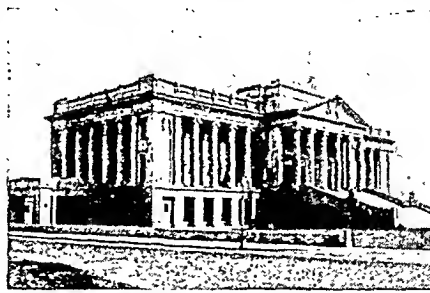
The W. part of Colombia is traversed by three great ranges of the Andes—the Western, Central and Eastern Cordilleras. To the east are immense plains. The N. section of these is covered with rank grass, flooded in the wet season, parched in the dry. The S. part is watered by the Amazon and Orinoco and their tributaries, and is dense tropical forest. The Eastern Cordilleras consist of vast plateaux; this is the most densely populated part of the republic and the climate is temperate. The coastal plains are hot and humid. The chief rivers are the Magdalena, Cauca, and Patia. Bogotá is the capital, other important towns including Medellín, Barranquilla, Cartagena, and Manizales.

The chief agricultural products are coffee, cotton, bananas, tobacco, and wheat and other cereals. The forests yield cedar, dyewoods, and medicinal plants. Mineral products include emeralds, platinum, gold, silver, copper, iron, coal, and petroleum. It is estimated that Colombia has the largest prospective oil field in the world. There are valuable pearl fisheries. The chief exports are coffee, bananas, and platinum. The mountainous character of the country makes the construction of rlys. and roads difficult. The rlys. consist of small lines linking up the towns with the rivers or the sea. Aerial ropeways are widely used. Aeroplane services are very highly developed. There is wireless communication with Europe and U.S.A. Spanish is the language of the country.

Originally under Spanish rule, Colombia gained its independence in 1819, when Simon Bolivar established the republic, consisting of what are now Colombia, Panama, Venezuela, and Ecuador. Venezuela and Ecuador withdrew in 1830 and Panama in 1903. Colombia is a member of the League of Nations. The president is elected by direct popular vote for

of Representatives of 113 members, who are elected for two years.

COLOMBO. Capital and chief port of Ceylon. The administrative and trade centre of the island, it is on the W. coast. It has one



Colombo. The new building for the Legislative Council, which was opened in 1930

of the largest artificial harbours in the world, covering over 600 acres, and is a first-class port and an important coaling station. The leading export is tea. The business quarter lies at the S. end of the harbour, where are the governor's residence, government buildings, and principal hotels. Farther on is the lake, and beyond it Victoria Park, the chief residential quarter, while between the lake and the sea is a narrow isthmus, Galle Face, where are promenades and recreation grounds. The two cathedrals, Christ Church and the R.C. cathedral, are near the harbour. The hall of the legislative council, opened in 1930, is one of the finest modern buildings in the East. The new university of Ceylon is situated in Colombo.

Colombo belonged to the Portuguese from 1517 to 1656, when it became Dutch. It has been British since 1796. Pop. 248,326.

COLON. Gold coin, named after Columbus, a monetary unit of Costa Rica. Its nominal value is about 1s. 10d., 10-45 colons equalling £1. It is divided into 100 copper cents, or 5, 10, 25, and 50 cent pieces in silver.

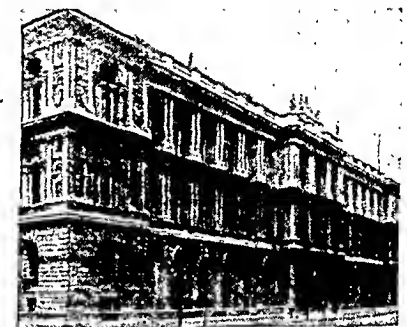
COLÓN. Coast town of Panama, Central America. It stands on the Caribbean Sea, at the W. end of the Panama Canal, 47 m. by rly. N. of Panama. Founded in 1850 by the builders of the Panama Rly., it was first called Aspinwall, after one of the builders, but was officially named Colón, after Columbus. Pop., with Cristobal, 32,000.

COLONEL. Officer of the British and other armies. The word comes from the Italian colonello, and was given because this officer originally led the colonello or little column at the head of the regiment. It is the rank between lieutenant-colonel and major-general, and is indicated by a crown and two stars. A new rank, colonel commandant, was instituted in 1920 in place of brigadier-general, which was temporarily abolished. Each regiment has also a colonel-in-chief, an honorary position to which a general officer or other person of distinction is appointed.

COLONIAL CONFERENCE. Name formerly given to the periodical conferences of representatives of the self-governing parts of the British empire. The first was held in 1887, and others in 1894 and 1902, all in London. The term now used

COLONIAL OFFICE. Department of the British Government which looks after the affairs of the colonies and dependencies, excluding India. Its head is a secretary of state, who is assisted by a parliamentary and a permanent under-secretary. Since 1925 he has also been secretary for Dominion affairs, but the Dominions Office, although under the same head and in the same building as the Colonial Office, is a separate department of state. It has also charge of all business relating to the Imperial Conference. See Civil Service.

COLONISATION. Act of founding a colony, i.e. of settling men and women in an unoccupied land, which becomes their home and a possession of the colonising country; or in earlier times the settling of men and women in a conquered country. A colonising race needs certain physical and mental qualities, and needs also to seek out a land which, from the climatic point of view, is suitable to it. White men, for instance, can never truly colonise the tropical parts of Africa. They are, however, the most suited of all for colonising



Colonial Office, Whitehall. Government offices built after the design of Sir Gilbert Scott, 1875

the temperate zones, and by them most of the colonising has been done.

The Phoenicians are generally regarded as the earliest colonists. Next came the Greeks, who sent out a steady stream of colonists who dotted the coasts of the Mediterranean with settlements and founded colonies on the shores of the Black Sea. Colonisation by the Romans was generally military in origin. Of modern nations, Great Britain ranks as the first colonising power of the world. See British Empire; consult also A Short History of British Expansion, J. A. Williamsou, 1929.

COLONNA. Name of a great Italian family. Prospero Colonna (1452-1523), soldier of fortune, fought for Charles VIII of France in the invasion of Italy, 1494-95, then entered the service of Spain against the French. He captured Milan from the French in 1521.

Pompeo Colonna (d. 1532), served as a soldier, and was ordained against his will. Created cardinal and vice-chancellor of Rome, he turned against the papacy and supported the Emperor Charles V. Pardoned and reinstated in 1530, he was made viceroy of Naples, 1532, where he died.

Vittoria Colonna (1490-1547), Italian poet, was born at Marino, near Rome. The daughter of Fabrizio Colonna, grand constable of Naples, she was betrothed at the age of five to Francesco Ferdinando d'Avalos, and was brought up in the house of his aunt, where Tasso and the intellectual men of the time were frequent guests. Her poems are either religious, addressed to her husband, Francesco Ferdinando d'Avalos, or inspired by his memory. She died Feb. 25, 1547.

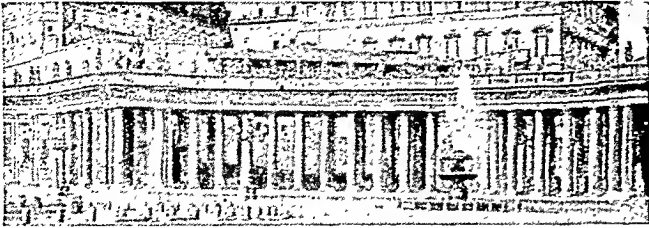


Colombia. Map of the South American republic traversed by the Andes and watered by the Amazon and Orinoco

four years. The legislative power is vested in a Congress of two houses, the Senate of 48 members, elected for four years, and the House

empire. The first was held in 1887, and others in 1894 and 1902, all in London. The term now used

COLONNADE. In Greek architecture, a range of columns, usually in one line, carrying an entablature. When in front of a building



Colonnade. North wing of the colonnade, built by Bernini in 1655, flanking the approach to St. Peter's, Rome. Behind is seen the Vatican palace

or court a colonnade is called a portico; when surrounding it, a peristyle. A range of four columns is called a tetrastyle, six a hexastyle, and so on. See Architecture; Column.

COLONSAY. One of the Inner Hebrides, Argyllshire. It was named after S. Columba, who founded a college here. It is 8 m. long and covers nearly 20 sq. m.

COLOPHON (Gr. kolophon, finishing touch). Device or inscription placed on the final page of a book or MS. giving place or date of publication or both, name of printer or author, and similar details. Colophons began to be superseded in the 16th century by title-pages, the name of the printer or printing office, placed now at the end of a book or on the reverse of the title-page, being called the imprint.

COLORADO. River of U.S.A. and Mexico. Known also as the Colorado River of the West, it is formed by the union of the Green river, which rises on Fremont's Peak in Wyoming, and the Grand river, coming from the Rocky mountains in Colorado. It flows through the dry plateau region of the S.W. to the head of the Gulf of California, and drains an area of 250,000 sq. m. Its length is estimated at 2,200 m., including its principal head-stream, the Green river. Of its many cañons the most remarkable is the Grand Cañon.

The Colorado river of Texas, or Eastern Colorado, rises in the W. of the state, and flows generally S.E. to the Gulf of Mexico. It is about 900 m. long, and is navigable to Austin, about 300 m. from its mouth.

The Colorado river of Argentina is formed by the Rio Grande and Rio de Barrancas. Rising in the Andes, it enters the Atlantic through two mouths between Bahia Blanca and Union Bay. Its length is about 550 m.

COLORADO. West-central state of the U.S.A. It has an area of 103,948 sq. m. The surface consists of a collection of ranges belonging to the Rocky Mountains in the W., a vast plain, almost devoid of trees, in the E., and a well-watered and wooded region of foothills in the centre. The mountain region is notable for its valleys, or "parks," which occupy the basins of dried-up lakes.

Colorado has a dry and healthful climate. There are mineral springs at Colorado Springs, Manitou, and other places. The numerous

Norte. and the Arkansas. A remarkable effect is produced by earth pillars and rock pinnacles, as in the Garden of the Gods, near Colorado Springs.

Agriculture thrives, and by irrigation much of the soil has been rendered cultivable. Gold, silver, copper, lead, zinc, coal, and petroleum are among the chief mineral products. There are 13,234,380 acres of national forests. Denver is the capital. Pop. 1,090,000.

COLORADO BEETLE or **POTATO BUG** (*Chrysomela* or *Doryphora decemlineata*). North American beetle, a great pest to potato crops. It is yellow in colour, with black spots and stripes, and less than $\frac{1}{2}$ in. in length.

COLORADO SPRINGS. City of Colorado, U.S.A., county seat of El Paso county. Nearly 6,000 ft. above sea level at the foot of Pike's Peak, it is 75 m. S.S.E. of Denver, on the Atchison, Topeka, and Santa Fe and other rlys. Its equable climate, magnificent scenery—the Garden of the Gods, the Cave of the Winds, and the Cheyenne Cañons—and the Manitou mineral springs have made it a favourite health resort. Pop. 30,105.

COLORIMETER. Apparatus for determining the depth of colour in a liquid against the tint of a standard solution. It consists of two glass tubes, one containing a standard solution, the other the solution to be tested. The latter is diluted with water until the tint is the same as that of the standard solution.

COLOSSAE. City of Phrygia, Asia Minor, on the Lycus, a tributary of the Macander. In the time of Herodotus it was a flourishing city, but declined with the rise of the neighbouring Laodicea. It was an early centre of Christianity, one of the epistles of S. Paul being addressed to its church.

COLOSSEUM, less correctly spelt **COLOSEUM**. Name of the larger of the two amphitheatres in Rome, of which considerable ruins still exist, the other being the Amphitheatrum Castrense, near the Lateran. The Colosseum was begun by Vespasian (A.D. 72) and completed by Titus (80). The building is oval, and constructed of large blocks of travertine. The exterior consisted of four storeys, three having arcades



Colosseum. Remains of the great amphitheatre in Rome built by the emperors Vespasian and Titus in the first century A.D.

rivers are all unnavigable, many flowing through gorges or cañons. The chief are the South Platte, Grand, and Rio Grande del

was used for gladiatorial and wild beast fights. Here many Christians met their deaths. See Amphitheatre; Rome.

COLOSSIANS, EPISTLE TO THE. One of S. Paul's Epistles. It seems to have been written about A.D. 60 from Rome, where S. Paul suffered two years' imprisonment. Having beard of errors among the Colossians, he writes to exhort them and their leader Archippus (4, 17) to be strong in the true faith.

COLOSSUS. Term applied in ancient times to statues of gigantic size. The most famous of all was the colossus of Rhodes, the statue of the sun-god Helios, which was included among the seven wonders of the ancient world. It was in bronze, the work of the sculptor Chares of Lindus, and stood about 100 ft. high, at the entrance of the harbour. It was completed in 280 B.C., and was overthrown by an earthquake about 60 years later. Other famous examples are the statues of Amenhotep III at Thebes. They are 70 ft. high. See illus. below.

Colossus was the name-ship of a class of three British battleships, Neptune and Hercules being the others. Completed in 1911, they were scrapped after the Great War.

COLOUR. Effect produced on the retina by the different wave-lengths of light. The colour of any object viewed by the eye is due to that object's idiosyncrasies in reflecting, selecting, and absorbing the rays of light which fall on it. Sunlight is made up of vibrations of light of innumerable variations in wave-length. When passed through a prism, it is seen that it is composed of a number of different kinds of pure light. The light emerges from the prism in classes of vibrations—violet, the smallest and simplest vibration, indigo, blue, green, yellow, orange, and red, in order.

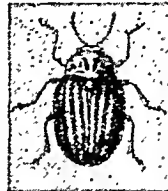
When this spray of colours falls on what may be called a red flower, the sensation of red is produced on the retina and senses, because the texture of the flower absorbs the violet, blue, and green rays and most of the yellow, but reflects and scatters the red rays. All opaque bodies reflect some of the light shed on them. A transparent body may allow all the colours to pass through it with equal facility, in which case it is colourless, or it may reflect some one or other of them back at its farther surface, in which case it appears to detach a colour.

COLOUR MIXING. Colours can be mixed so as to produce different colours, by which is meant that they produce a new physiological effect on the retina, or a new psychological effect on the senses. The primary colours of pigments are red, yellow, and blue; by combining these in proper proportion, all other hues may be obtained. The three

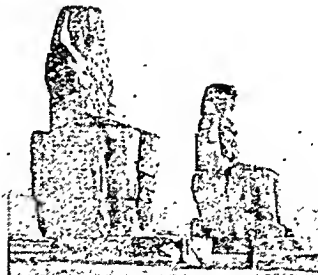
primary colours of the spectrum, i.e. coloured lights, are red, green, and blue-violet.

COLOUR PHOTOGRAPHY. This is the process of photographing objects in natural colours. Colour filters are used to split up the rays of light passing from the coloured object through the lens into three sets—red, green, and blue-violet—which are caused to act separately upon colour-sensitive plates. When a blue print is made from the red-sensation negative, a pink print from the green, and a yellow print from the blue, and the three transparent prints are superimposed in register, a colour-print is produced.

COLOUR PRINTING. In the three-colour process of colour printing, photo-mechanical plates are made from the blue, green, and red sensitive negatives obtained by photographing the original object (e.g. an oil painting). These plates are inked with yellow, red, and blue ink respectively, the paper being printed in turn from each plate.



Colorado Beetle. Pest to potato crops



Colossus. The Colossi of Amenhotep III at Thebes. See article above D. McLeish

COLOURS. Standards of British infantry. Each battalion has two colours, the King's and the regimental. The regimental colour of the first and second battalions of a regiment always bears the ancient badges, devices, distinctions and mottoes conferred by royal authority for services in war. All colours are of silk, and the dimensions are 3 ft. 9 ins. flying and 3 ft. deep on the pike exclusive of fringe. The ceremony of trooping the colours is performed annually by each regiment of the British army, the colours being borne through the ranks of the regiment drawn up on parade. Colours are not now carried on active service, but are deposited in churches, public buildings, or the dépôt. See Flag.

COLOURS. Term used in connexion with various sports. Playing members of cricket, football, and other clubs who are chosen to represent their institution or country in competitions with rival clubs are said to win their colours, and thereafter are entitled to wear the distinctive cap, jersey, or blazer which indicates membership of the representative eleven, fifteen, or, in the case of rowing, the boat. At Oxford and Cambridge the university colours are known as the blue. In horse-racing the distinguishing jackets and caps worn by the jockeys are called colours, each racehorse owner having his own. See Blue.

COLOUR SERJEANT. Rank in the British infantry next below that of regimental quartermaster-serjeant. It was abolished in 1913. The colour-serjeant wore a special badge to denote the origin of the rank, viz. that in 1813 certain serjeants were selected to guard the regimental colours in battle.

COLSTON, EDWARD (1636-1721). English philanthropist. Born at Bristol, he was educated at Christ's Hospital, London. From 1710-13 he was Tory M.P. for Bristol. His philanthropic undertakings were chiefly associated with Bristol, and included the foundation of almshouses and schools. He is commemorated by the Colston Hall, Bristol.

COLT, SAMUEL (1814-62). American inventor. Born at Hartford, Connecticut, July 19, 1814, he was for a time a lecturer on chemistry. In 1835 he took out his first patents for a revolving pistol, and in 1847 received his first contract for the supply of revolvers to the U.S. army. He died at Hartford, Jan. 10, 1862.

COLTSFOOT (Tussilago farfara). Perennial herb of the order Compositae. It is a native of N. Europe, N. Africa, N. and W.



Coltsfoot, stalk and flower

Asia, and Himalaya. In early spring its bright yellow flower-heads on long, scaly stalks are a familiar sight, before the heart-shaped leaves, with cobweb-like down on their under surface, appear. It is employed as a cough remedy, and the leaves are smoked by sufferers from asthma.

COLUGO or **COBEGO** (Galeopithecus). Flying lemurs of Malaya and the Philippine Islands. The skin of the neck and sides is extended so as to involve the legs and tail, thus forming a kind of parachute, by the aid of which the animal can take flying leaps of as much as 70 yards.

COLUMBA (521-597). Saint and abbot of Iona. Born at Gartan, co. Donegal, Dec. 7, 521, he was educated by S. Finian at Moville, where he became a monk. After founding monasteries at Derry and other places in Ireland, he departed to Scotland with a band of monks. In 563 he arrived at

Iona and founded the monastery which for more than a century was the ruling house of all the monasteries established by him and his disciples. Columba was the pioneer of Christianity in Scotland. His festival is kept on June 9, the day of his death. See Iona.

COLUMBIA or **OREGON.** River of N. America. Rising in British Columbia, on the W. slopes of the Rocky Mountains, it flows S. through some narrow lakes into the U.S.A. Passing through part of Washington state, it forms the boundary of Washington and Oregon, and falls into the Pacific. It drains an area of some 260,000 sq. m., and is about 1,350 m. long. Navigation is impeded by rapids and falls. It is one of the chief salmon rivers of the world.

COLUMBIA. District of the U.S.A., seat of the U.S. Government. Enclosed on three sides by Maryland, and bordered by the Potomac river on the S.W., it covers 69 sq. m., and is continuous with the city of Washington. The surface is hilly or undulating, with fertile valleys watered by the Potomac and Anacostia rivers.

The district originally covered 100 sq. m., the land being granted by Maryland and Virginia, but in 1846 the portion, about 36 sq. m., ceded by Virginia was restored to that state. It was established as the seat of government under Act of Congress, July 16, 1790. Government is by a board of three commissioners, appointed by the President of the U.S.A. Pop. 540,000.

COLUMBIA UNIVERSITY. Leading university of New York. It stands on Morningside Heights on the upper W. side of the city. Founded as King's College in 1754 by royal charter, it was reincorporated after the Revolution as Columbia College. Its many buildings include a fine library. It has a school of journalism, endowed by Joseph Pulitzer, and its medical work is carried on by the College of Physicians and Surgeons.



Columbine represented by Pauline Chase

Asia, and America, varying in height from 6 ins. to 2 ft., it has flowers white, pink, buff, blue, and purple. Many varieties are cultivated as garden flowers. The wild columbine of the woods is *Aquilegia vulgaris*.

COLUMBINE. (Lat. columbinus, dove-like). Traditional character in the Italian comedy or Commedia dell'Arte. Her prototypes are the cynical and impudent waiting-women in the plays of Plautus. In English pantomime Columbine is always the daughter of Pantaloon. The clown is in love with her, but Harlequin wins her affections.

COLUMBITE. Mineral, one of the rarer ores of iron. It occurs both crystalline and massive, disseminated in the gangue or rock body. In colour it is brownish black; it is opaque and brittle; fracture reveals iridescence. The mineral occurs in Bavaria, Bohemia, and the Urals in Europe, and in the U.S.A. columbite, which takes its name from Columbia, is the source of the metal formerly known as columbium, now as niobium (q.v.).

COLUMBUS. City and port of Ohio, U.S.A. The capital of the state and the seat of the state university, it stands at the junction of the Olentangy and Scioto rivers, 135 m. S.W. of Cleveland, and is served by the Baltimore

and Ohio and several other rlys. In the heart of a region rich in coal, iron, and natural gas, Columbus is an important rly., commercial and industrial centre. Iron founding and engineering are prominent industries. Pop. 292,822.

COLUMBUS, CHRISTOPHER (c. 1451-1506). Italian navigator. Born at Genoa, he followed his father's trade of weaver until about 1472,



Christopher Columbus. The oldest authentic portrait Uffizi Gallery, Florence

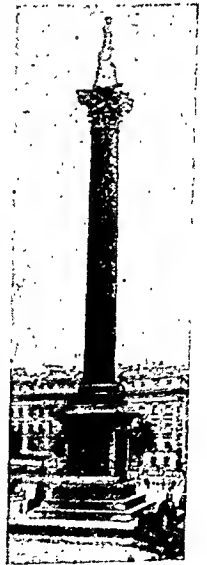
and in 1474-76 made a voyage to Cbio and another in the northern seas beyond Britain. From 1485-89 Columbus was in Spain endeavouring to win support for a voyage westwards. On Aug. 3, 1492, he set sail from Palos with three vessels and 120 men. On Sept. 6 he left the Canaries. After a voyage of five weeks, Columbus reached the Bahamas, taking possession in the name of Spain. After a brief stay, he left behind a garrison on the island of Española (afterwards San Domingo), and returned to Spain, Mar. 15, 1493.

Columbus was received with acclamation, and later in the same year returned with a much larger flotilla to what was to be known henceforth as the W. Indies. But he was not an efficient leader or governor, and could neither control his men nor dominate his colleagues. He was therefore sent back to Spain in 1500 as a prisoner by Bobadilla, who had been sent out to replace him. On his arrival he was set at liberty. In 1502 Columbus was sent on his last voyage to the west, in which he coasted Central America. He returned to Spain, arriving there in 1504. He died at Valladolid, May 25, 1506. His body lies in a special mausoleum at Seville.

Diego Columbus (1480-1526), eldest son of Christopher, was governor of the W. Indies from 1509-23. Ferdinand (1488-1539), was the natural son of Christopher and Beatriz Enriquez of Cordova. He was the author of a geography of Spain.

Bartholomew Columbus (d. 1514), elder brother of Christopher, visited England and France, 1489, seeking assistance for Christopher's voyage. He sailed for Española in 1494, becoming governor of the island. He died at Seville.

COLUMN (Lat. columna). In architecture, any body that supports another in a vertical direction. In its component parts the column consists of a base, shaft, and capital. Each of these has been fashioned in many different forms, and none more so than the shaft, which may be round, plain, or fluted, spiral, rusticated, or twisted. The columns employed in the three Greek orders, Doric, Ionic, and Corinthian, were sometimes made in one piece, but more often formed a series of drums. See Colonnade; also illus. p. 116.



Column. The Nelson Column, London

COLVIN, SIR SIDNEY (1845-1927). British scholar. Born in London, June 18, 1845, he was educated privately and at Trinity College, Cambridge. Fellow of Trinity in 1868, he was Slade professor of fine art, 1873-85, and from 1876-84 director of the Fitzwilliam Museum at Cambridge. In 1884 he became keeper of the prints and drawings at the British Museum. Knighted in 1911, he retired in 1912, and died May 11, 1927. He edited the Letters of R. L. Stevenson, 1899, new edition 1911.

COLWALL. Village of Herefordshire. It is 3 m. N.E. of Ledbury on the G.W.R. Elizabeth Barrett Browning resided there during her early life. There is a racecourse at Colwall Park. Pop. 2,043.

COLWYN BAY. Urban district and watering place of Denbighshire. It is 6 m. W. of Abergel, with a station on the L.M.S. Rly. It is situated in the midst of some of the finest Welsh scenery. Pop. 24,000.

COLZA OR RAPE OIL (F. *colza* or *colzat*). Brownish yellow oil obtained by crushing and pressing, or by dissolving, the seeds of rape (q.v.). It is used for burning in special lamps, and is employed in soap-making.

COMA (Gr. *koma*, lethargy). Condition of profound unconsciousness from which the patient cannot be roused. Its commonest causes are apoplexy and other diseases, prolonged exposure to cold, and poisoning by opium and other drugs.

COMB. Toothed instrument for disentangling the hair, or an ornament for the latter when dressed. Combs are made of ivory, tortoiseshell, bone, celluloid, or metal. They have been found in the tombs of the Egyptians, among Greek and Roman remains, and Saxon and British barrows have yielded some of bone and ivory.

The fleshy crest on the crown of the head of some birds, more especially those of the family to which the domestic fowl belongs, is known as the comb.

Combing is a process by which all fibre of less

than a certain average length is removed from textile fibres. Originally a hand process, combing is now effected by machinery.

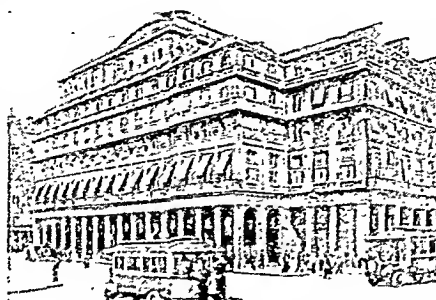
COMBE MARTIN. Village of Devonshire, 225 m. from London and 5 m. E. of Ilfracombe station on the Southern Rly. Its position amidst beautiful scenery has made it a popular resort. Pop. 2,004.

COMBUSTION (Lat. *comburere*, to burn). Chemical reaction accompanied by an evolution of light and heat. It is an oxidising phenomenon, and put in another way it is "the amount of energy given out when a definite amount of an element combines with oxygen."

When combustion is rapid, heat is given out quickly and is perceptible, but if the process is a slow one, such as in the rusting of iron, the heat of the reaction escapes into the surroundings and the rise in temperature is not noticeable. The expression spontaneous combustion is used when the heat generated by the slow combustion of a substance raises the temperature sufficiently high to cause ignition. See Heat; Thermo-dynamics.

COMÉDIE FRANÇAISE OR THÉÂTRE FRANÇAIS. French national theatre, in Paris. Originating at the command of Louis XIV in the fusion of Molière's troupe with two rival companies, it was inaugurated Aug. 26, 1680, and established as the Théâtre Français in 1689. Suppressed at the Revolution of 1793, the theatre was reorganized by Napoleon in 1812, since which date its constitution has been

several times modified. The building belongs to the state. The members of the company are known as associates.



Comédie Française, the French national theatre in Paris, founded in 1680 as the Théâtre Français

COMEDY (Gr. *komos*, revel-song). Originating in Sicily or Megaris, Greek comedy arose from the Phallie processions held at country festivals in celebration of the vintage. It was established in Athens in the time of Pericles, when the demagogues introduced the country sports of the lower classes into the city to give them an opportunity of attacking their political opponents with impunity. Personal satire, or caricature, was the distinguishing note of the Old Comedy.

With Aristophanes (fl. 427-388) this came to an end, and the Middle Comedy, of which criticism was the distinguishing note, came into being. After his death came the New Comedy, a comedy of manners, which essentially is the comedy of our own time. In this there is an admixture of sport and earnest, chance taking the place held in tragedy by destiny, and emphasis being laid on what is laughable in human character and situations. In a much later age Molière in France, and Congreve in England, were masters of comedy comparable to Aristophanes.

COMENIUS OR KOMENSKI, JOHANN AMOS (1592-1670). Czech educational reformer.

Born in Moravia, March 28, 1592, he was rector of the Moravian school at Prerau, 1614-16. In 1631 he published his *Janua Linguarum Reserata* (The Gate of Languages Unlocked), expounding a method of learning languages on the principle of placing the names of common objects in parallel columns in Bohemian, Latin, and Greek. Driven out of Lissa, he was bishop of the Moravian Brethren, he settled in Holland, and died at Amsterdam, Nov. 15, 1670.



Johann Comenius, Czech reformer

COMET. (Gr. *komētēs*, long-haired). Luminous heavenly body with a tail. Comets are of two kinds: those visible to the eye, and those

only seen by the watchers of the observatories. Of the latter kind some four or five cross the field of the searching telescopes every year. All comets as they appear are noted and their movements registered at Kiel Observatory; and from these movements the mathematical astronomers compute the comet's orbit and determine its origin.

The comet is itself supposed to be a shoal of meteoric fragments speeding through the solar system, and as yet neither coalesced into a solid body nor permanently attracted and attached to some great and stable planet.

Among the best known periodic comets are Halley's comet, with a period of about 76 years, which was discovered in 1682, and returned 1759, 1835, 1910; Encke's comet, with the shortest period of all, 3.3 years; and Biela's comet. See Astronomy.

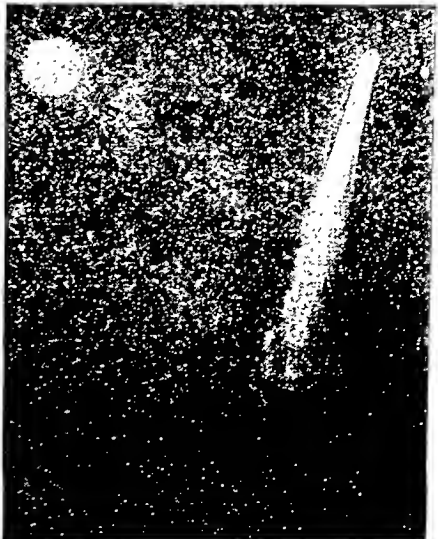
COMET. Name of one of the earliest British steamers. Built at Port Glasgow, 1811-12, she was 40 ft. long and had engines of 3 h.p. which operated paddles. The Comet plied between Greenock and Glasgow.

COMFREY (*Symphytum officinale*). Bristly perennial herb of the order Boraginaceae. It has large lance-shaped leaves and yellow or purple tubular flowers. It occurs by stream-sides and other wet places in Europe and W. Siberia. The tuberous-rooted comfrey (*S. tuberosum*), also a native of Europe, is smaller and more slender, with smaller yellow flowers. Prickly comfrey, a native of the Caucasus, is sometimes grown as a fodder crop.



Comfrey. Flower heads of this perennial herb

COMINES, PHILIPPE DE (c. 1447-1511). French historian. Born at Renescure, in Flanders, he passed his youth at the court of



Comet. Above, Halley's comet and Venus, photographed in 1910. Below, orbit of Halley's comet, which takes 76 years to accomplish its long journey

Courtesy of Union Observatory, Johannesburg

his godfather, Philip V. duke of Burgundy. He became chamberlain and councillor of the Burgundian Court, but in 1472 transferred his loyalty to Louis XI of France and became his chamberlain and councillor. On diplomatic missions he visited England, Spain, and Italy, but after the death of Louis, in 1483, his fortunes waned. He died at Argenton, Oct. 18, 1511. His Mémoires are of great value to historians. The first part deals with the history of France 1464-83. The second consists chiefly of notes on the wars of Charles VIII.

Comines is a small town on the river Lys, partly in France and partly in Belgium.

COMMANDANT (Lat. com-, together; mandare, to enjoin). In Great Britain, the title of an appointment to the control of a military educational establishment. In 1920 the rank of colonel commandant was introduced into the British army to replace the former title of brigadier-general.

COMMANDER. Officer in the Royal Navy ranking below a captain and above a lieutenant-commander, elevation to the rank and out of it being by selection

and not by seniority. Commanders are usually employed as executive officers (under the captain) in big ships, or in command of light cruisers, scouts, flotilla leaders, and destroyer divisions. A wing-commander in the R.A.F. corresponds to a commander in the navy, and is equivalent to a

lieutenant-colonel in the army.

Commander-in-chief is the designation given by the British government to the officer whom it appoints to command the land forces in a particular theatre of war.

Commander of the Faithful is the designation first assumed by the Caliph Omar I (634-644), and retained by his successors in the Caliphate. See Caliphate.

COMMEMORATION. Annual closing festival of the academic year at Oxford University. The proceedings include a Latin oration commemorating founders and benefactors, the conferring of honorary degrees, and the recitation of prize poems and essays. The corresponding festival at Cambridge University and at some American universities is called commencement.

COMMENDATORE. Title borne in Italy by a knight who ranks in his order below the knights grand cross. It was given originally to those members of certain orders of knighthood, the Knights Hospitallers, for instance, entrusted with the care of the order's property.

COMMISSARY (late Lat. commissarius). Ecclesiastical term for a deputy. It is commonly applied to a bishop who in diocesan matters is authorised to act for the bishop of that diocese during his absence. The term is frequently used in connexion with civil administration, as in France, for a superior police officer under the prefect of police.

COMMISSION (Lat. committio, I entrust). Word used in several senses, all having the same origin, that of a relationship of trust. In affairs of state it is used to describe the entrusting of an office to someone. Such is a commission in the army and navy.

A warship is said to be put in commission when she is ready to sail, her captain having received a commission for a certain purpose. Another use is for the commission of the peace, entrusting to certain men and women the duty of trying minor offenders. Judges and other high officials also receive the king's commission on appointment.

A like use is for a royal commission, a body of men and women appointed to inquire into a particular question, and for permanent bodies,

e.g. the Charity and Church Estates Commissions. There is also a prison commission.

Commission is also used for the practice in the United Kingdom of entrusting one of the great offices of state not to one man, but to a body of men. The Treasury and the Admiralty are cases in point. The chief representative of the self-governing dominions in England is called the High Commissioner. A commissioner for oaths is a solicitor who is allowed to take oaths.

COMMISSIONAIRE. Word derived from commission, and meaning primarily an attendant at an hotel, whose duty is to look after the luggage of the visitors. In England there is a corps of commissionaires, which finds employment for old soldiers of good character. The headquarters of the corps are Exchange Court, 419, Strand, London, W.C.

COMMITTEE (Lat. com-, with; mittere, to send). Name for a small body of men deputed by a larger to discharge certain duties. In most clubs and societies, philanthropic, sporting, and others, a committee of persons elected by the members manages their affairs, reporting once a year to a general meeting of all members. In parliamentary procedure the Houses of Lords and Commons go into committee when considering bills in detail. The two Houses also appoint committees, using the word in its more usual sense, as also do the various government departments. See Commons, House of.

The Committee of Imperial Defence originated in 1902 to provide an authority to deal with naval and military matters as one problem and to review the question of defence as it affected the Empire as a whole.

COMMODORE. Temporary rank in the British navy given to a captain while holding a special appointment of any kind, the duties of which are more important than those that would be ordinarily discharged by an officer of captain's rank. Commodores fly a swallow-tailed pennant. The principal officers of yacht squadrons are termed commodores.

COMMODUS, LUCIUS AELIUS AURELIUS. Roman emperor, A.D. 180-192, born at Lanuvium, Aug. 31, 161, son of Marcus Aurelius by the younger Faustina. On his father's death (March 17, 180), in Pannonia, Commodus concluded an inglorious peace and hurried back to Rome. His misrule and cruelty aroused public hatred, and the discovery that he intended to put the consuls-elect to death led to his murder.

COMMONER. In the United Kingdom one who is not a peer; at Oxford and Cambridge Universities an undergraduate who is not a scholar or exhibitioner. The name has also been used for a member of the House of Commons, as when Pitt was called the Great Commoner. See University.

COMMON GOOD. Name given in Scotland to the property owned by a royal burgh, the common property of the town. It consists usually of land and houses, and the income may be applied to purposes for which the money from the rates is not available.

COMMON LAW. Law which in its 1700 there were 513, to which 45 were added earliest inception consisted of customs and for Scotland in 1707. In 1800 a further 100

usages, and afterwards of principles enunciated by generations of judges when trying the causes which came before them. Sometimes common law is used to distinguish the law administered by the King's Bench Division from that administered by the Chancery Division, which is called equity.

COMMON PLEAS, COURT OF. English court of law. About the time of Henry II pleas of the crown were distinguished from common pleas, or private litigation. From the time of Edward I it had its own judges under a chief justice, its own rolls, and its own method of procedure. In 1873 the court became the Common Pleas Division of the High Court, and soon after was incorporated in the Queen's (now King's) Bench Division.

COMMONS. Name given in law to common land on which the inhabitants of a village have rights in common. It consists of two kinds—commons that have been taken over for the public generally by a local authority, and commons on which the lord of the manor and the manorial tenants retain their ancient rights or some of them. They are regulated by Acts of Parliament, which have given local authorities considerable powers over them. These bodies can take them over and manage them under the supervision of the Ministry of Agriculture.

The amount of common land in England and Wales is estimated at 1,500,000 acres. In Scotland, commons have almost disappeared, as an Act of 1695 gave power to divide the land among the persons who had rights thereon. The Commons and Footpaths Preservation Society, 71, Eccleston Sq., London, S.W., has done good work in preserving commons for the public. See Enclosures; Manor.

COMMONS, HOUSE OF. One of the two houses of the British, Canadian, and other Parliaments. The name was first used in the 14th century for the knights of the shire and representatives of the boroughs, who about that time began to act as a separate body, leaving the other members of parliament to form the House of Lords.

The members of the House of Commons have always been elected. The first electors were a few holders of freehold land, and the elections were conducted in haphazard fashion by the sheriffs. Gradually the right of voting was given to others until, in 1928, it was extended to include all men and women over 21 years of age. It is done by ballot, with safeguards against corruption and intimidation.

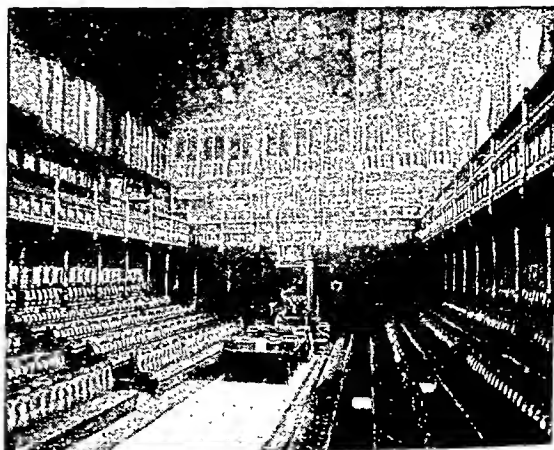
The number of members has varied. In



Commander. Sleeve badge of naval commander



Lucius Commodus, Roman Emperor
From a coin



Commons. Chamber of the House of Commons, looking towards the Speaker's Chair. The Government benches are on the left

were added for Ireland, and at 658 the total remained, in spite of the changes introduced in 1832. In 1884 the number was increased to 670, and in 1918 to 707, but in 1922, when parliaments were set up in Ireland, it was reduced to 615. Before 1918 membership was confined to men, but since then a few women have been elected. Members are elected for the duration of a parliament, which cannot be longer than five years and may be less. The 615 members are divided as follows:

England	492	Counties	300
Wales	36	Boroughs	241
Ireland	74	London	62
N. Ireland	13	Universities	12
	615		615

The Speaker presides over the House, his deputy being the chairman of committees. Its procedure is governed by an elaborate set of rules and precedents. Voting is done by walking into one or other of the lobbies, one for the ayes and the other for the noes, where the names are taken by tellers. The House has a leader, usually the prime minister, and his followers sit on the right of the Speaker's chair, members of the Government occupying the front bench. Opposite them are the members of the Opposition. There are no cross benches, so independent members sit below the gangway. The business of the House is arranged by the secretary to the treasury in conjunction with the other whips.

Since 1911, when the Parliament Act was passed, the House of Commons has been the dominant part of the legislature. Before this it had won the sole right to vote all money required for the nation's needs, but otherwise its legislative powers were shared by the Lords. In 1911, however, the power of the Lords was reduced. All measures passed by the Commons can now become law, in spite of the Lords, who, at the most, can delay them for two years. *See* Lords; Parliament.

Canada adopted the term House of Commons for the lower house of its legislature when this was founded in 1867. It consists of 245 members, the number varying automatically according to the populations of the various provinces. The representation of Quebec remains fixed at 65, while the other provinces each elect a number which bears the same proportion to its population as 65 does to that of Quebec. As in Britain, Canadian M.P.'s are paid.

COMMONWEALTH. Term meaning the common good or common weal, and used politically for forms of government in which this is the first aim. In a special sense it is applied to the period of English history between the execution of Charles I in Jan., 1649, and the restoration of Charles II in 1660. The official name of the federation of the states of Australia, formed in 1900, is the Commonwealth of Australia.

COMMONWEALTH BAY. Extension of D'Urville Sea, on the coast of Adélie Land, Antarctica, in lat. 67° S., long. 143° E. The bay contains Cape Denison, where the Australasian Antarctic expedition, 1911-14, established its headquarters.

COMMUNE. In modern France an administrative division or municipality. It is also the name given to the period March 18-May 28, 1871, when the commune of Paris attempted to replace the National Assembly at Versailles by an organization based on a federation of communes. When the victory at last fell to the government, the retiring Communists slaughtered prisoners and also destroyed public buildings. The victors were equally merciless.

COMMUNION, HOLY. The partaking by Christians of the sacrament of Christ's body and blood (Matt. 26; Mark 14; Luke 22; 1 Cor. 10). In the Church of England the term is used for the service of the Lord's Supper,

whereat holy communion is received. In the Roman Catholic Church, while the communion of the priest is an essential part of the service of the Mass, holy communion is frequently given to the people apart from the Mass (q.v.).

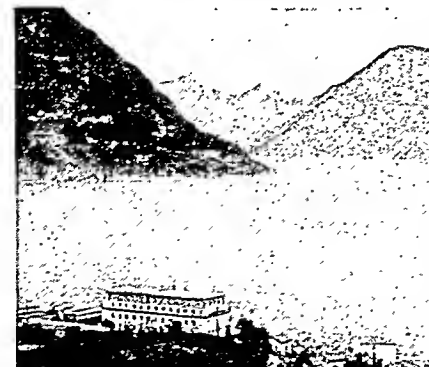
COMMUNISM. Organization of society on the basis of the common ownership of the means of production and of the goods produced. It differs from socialism in its theory of the state, in that it substitutes a federation of groups or small communities for the central government of social democracy. Anarchism differs from communism in denying even the right of the group or commune to legislate for its members without the consent of all.

Ideal communism has existed throughout the ages in the voluntary associations of certain Eastern sects, of the Buddhist and Christian religious orders, etc. Modern communism is founded on the basis of the Communist Manifesto, issued in 1848. The strength of the movement outside Russia varies greatly in different countries. A National Communist Party was founded in Britain in 1920. *See* Bolshevism; Socialism.

COMMUTATION (Lat. *com*-, with, mutare, to change). Act of exchanging one thing for another. The term is now more particularly applied to the payment of a large sum of money in order to cancel a periodical charge of any kind, e.g. an annuity. The commutation of a tithe is the process of turning a tithe, or a tenth of the produce, into a rent charge, a money payment charge on the land and paid by the landlord. This is done by virtue of the Tithe Commutation Act of 1836. The term is also used in algebra, in astronomy, and to describe the reduction in a criminal's sentence. *See* Tithes.

COMMUTATOR. Device attached to the armature of a dynamo whereby the current induced is collected in such a manner that the current flows continuously instead of as an alternating current. A cylinder formed of alternate sections of conducting and non-conducting materials is fitted on the armature shaft. Two metallic brushes press lightly upon the cylinder as it rotates. The conducting sections are connected to the armature winding, and the brushes are so arranged that, at the moment the current changes in direction, contact between a given section and one brush is broken, and established between the same section and the other brush. Commutators are also fitted to the armatures of motors. *See* Current; Dynamo.

COMMENUS. Family, probably of Italian origin, of landed proprietors in Paphlagonia, Asia Minor, which furnished a dynasty of East Roman or Byzantine emperors, 1057-1185. One of them, Alexius, founded an independent kingdom at Trapezus (Trebizond).



Como. View of the mountain-girt lake of Como, one of the most beautiful of the Italian lakes

COMO or **IL LARIO** (anc. *Laus Larius*). Lake of N. Italy in Lombardy. Formed mainly

by the Adda, which emerges at the S.E. end, it is divided by the promontory of Bellagio (q.v.) into two arms, the eastern being called Lago di Lecco. It lies 652 ft. above sea level, is some 31 m. long, from 1 to 2½ m. broad, and about 1,350 ft. deep; its area is 56 sq. m. It is enclosed by highlands and mts.

COMO (anc. *Comum*). City of N. Italy, capital of the prov. of Como. It stands at the S. end of an arm of Lake Como, 30 m. by rly. N. of Milan, and is one of the world's beauty spots. Como has a marble cathedral dating from 1396, altered and rebuilt; a Romanesque church, rebuilt 1265; a basilica dating from the 8th and rebuilt in the 12th century; the Broletto, now the town hall, completed 1215 (restored), and most of the town wall, with three towers. The museum housed in the Palazzo Giovinetti contains Roman relics. Pop. 36,000

COMORIN. Headland of India, in Travancore native state, forming the southern point of the peninsula. The temple of Kanniyambal, the virgin goddess, is a resort of pilgrims.

COMORO ISLANDS (Fr. *Iles Comores*). Group of islands at the N. end of the Mozambique Channel between Africa and Madagascar. A French protectorate since 1886, in 1914 they were made a colony under Madagascar. The chief islands are Great Comoro or Angaziya, Moheli or Mobilla, Anjouan or Johanna, and Mayotte. The islands are of volcanic origin and mountainous. The inhabitants are of mixed Malagasy, Arab, and Negro descent. Area, 790 sq. m. Pop. 119,305.

COMPANION OF HONOUR. British order. Created by George V, June 21, 1917, it consists of one class, is restricted to 50 members, and includes men and women equally. It is conferred for "conspicuous service of national importance," but confers neither title nor precedence. The badge of the order is an oval-shaped gold medallion, and is suspended from a earmine ribbon with a gold interlaced *bordure*.

COMPANY. Military unit in which infantry of the British Army are organized. In the cavalry and artillery regiments, however, the equivalent units are, respectively, the squadron and the battery. The strength of the company of British infantry has varied from time to time, immediately prior to 1914 being 3 officers and 120 men, but in that year the double company system was re-introduced and the battalion subdivided into four companies instead of eight, each company consisting of 6 officers and 221 men. The four companies are distinguished by the letters A, B, C and D. Each is divided into four platoons, and these are subdivided into sections. The company sergeant-major is the senior N.C.O. of the company.

COMPANY LAW. In English law a company may be described as an association of two or more individuals united for one or more common objects. It is an association whose members may transfer their interests or liabilities in, or in respect of, the concern, without the consent of all the other members. These companies, save only a few created by Act of Parliament or by royal charter, are joint stock companies. Their essential feature is that the liability of shareholders is limited to the amount of their shares. The law about them is contained in the Companies Act of 1862 and several later Acts, especially the important ones passed in 1908 and 1929. They must be registered at Somerset House, London, where they must file full particulars



Companion of Honour badge
By courtesy of
Messrs. Dean & Son

of their capital, etc. on which a stamp duty must be paid. They must adopt a memorandum of association and articles of association, which state what they can do, must add the word limited to their name, and make returns each year to the registrar at Somerset House.

Companies are divided into public and private. The latter have certain privileges, but also work under certain restrictions. For instance, the returns they make are less full, but on the other hand they cannot offer their shares to the public, nor have more than 50 shareholders. Every company must have a board of directors and must submit its accounts, at least once a year, to a meeting of shareholders.

A company comes to an end by liquidation or winding up. Sometimes this is voluntary, done to facilitate reconstruction; in other cases it is compulsory and is equivalent to bankruptcy. The winding up of a company is conducted by judges of the High Court and their assistants.

COMPASS, MAGNETIC.

Instrument by which a ship's course at sea is directed. Upon its dial are marked the four cardinal points, N., S., E., and W. These divide the compass into four quarters and each quarter is divided into eight points, making 32 points altogether. Each point is marked on the dial by the initial letter of its name, as S. for south, S.S.W. for south-south-west. A large arrow-head on the dial marks the N. point. The dial, or card, is fixed upon a needle, one end of which has been magnetised, and the needle is laid exactly N. and S. The needle in the ordinary way points to the magnetic N., and the variation from the true N. depends upon the particular place one is in, as well as on certain other external causes. The case containing the compass is called the binnacle.

A special form of magnetic compass is used on aircraft, and a gyroscopic compass is employed on both ships and aircraft. See Gyroscope.

COMPASS (Lat. com, with; passus, step). In music, the interval between the highest and the lowest notes of a voice, an instrument, or a composition.

COMPASS PLANT (*Silphium laciniatum*). Perennial herb of the order Compositae. A native of N. America, it has a tall bristly stem, and the upper leaves are cut into lance-shaped leaflets. The large flower-heads are yellow. The lower stem-leaves and the root-leaves stand erect, and on the open prairie so disposed that their edges point more or less N. and S.

COMPIÈGNE. Town of France, in the dept. of Oise. On the river Oise, near its junction with the Aisne, 52½ m. N.E. of Paris, it has a hôtel de ville with a belfry, and its chief churches are S. Jacques and S. Antoine. On the site of the old castle is the palace built by Louis XV. Joan of Arc was taken prisoner by the Burgundians at Compiègne in 1430. In the forest of Compiègne, between Choisy-au-Bac and Rethondes, Marshal Foch, on Nov. 8, 1918, presented to the Germans the armistice terms.

The name battle of Compiègne-Néry is given to an engagement fought between the British and Germans, Sept. 1, 1914. The British lost about 500 and the Germans 800 men.

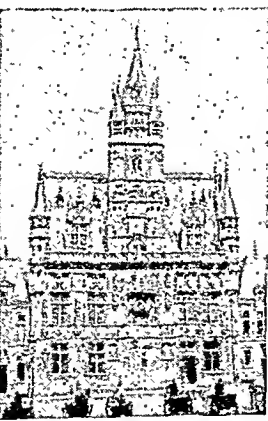
COMPLINE (late Lat. completorium). Roman Catholic evening office completing the daily canonical hours of prayer. The service originated with S. Basil in the 4th century. Compline is frequently sung as a Sunday evening service in R.C. churches.

COMPOSITE ORDER. One of the five orders recognized in Roman architecture. As used by the Romans it is an adaptation in a single capital of the Ionic and Corinthian orders of the Greeks. See Architecture.

COMPOSITION. Term used in English law. It means that an insolvent person, instead of paying his creditors in full, arranges to pay them all a rateable portion of their debts, e.g. 5s. in the £. A composition must be with all the creditors, and not with some. See Bankruptcy.

COMPOSITOR. One who sets up or composes type in a printing office. There are news (newspaper), book, and jobbing compositors, the last named being employed on what is called display work. Since the introduction of the monotype, the linotype, and other type-setting machines, the hand-setting compositor is engaged mainly on display work. The London Society of Compositors, registered as a trade union in 1894, has offices in 7-9, St. Bride Street, London, E.C. The principal institution for other parts of the United Kingdom is the Typographical Association, whose headquarters are in Manchester. See Printing.

COMPOUND. Term applied in chemistry to substances which can be resolved into two or more simpler substances. They are distinguished from mixtures in that the definite properties of their components have become lost. As an example, when iron filings and sulphur are mixed in a mortar both substances retain their properties and may be separated. If, however, the mixture is heated, combination takes place, much heat is evolved, and a compound—iron sulphide—is formed with characteristic properties different from those of the component substances. See Catalysis; Chemistry; Element.



Compiègne, France. The 16th century Town Hall, with its belfry

The air occupies less space, but when the pressure is relaxed recovers its original volume. Compressed air finds many applications in manufacturing operations, in chemical works,

glass-blowing, rock-drilling, riveting, pumping, and driving engines. Tools operated by compressed air are largely used in breaking open road surfaces ready for repair; air is supplied by a portable compressor worked usually by engines of the Diesel type

COMPRESSION (Lat. com, together; premere, to press). Term used in mathematics. A solid body is supposed to be subjected to uniform pressure all round it. Then the state of stress induced in the body will be one of uniform pressure, the same at all points, and the same in all directions round any point. There will be compression, the same at all points, and it will be proportional to the pressure. The amount of the compression can be expressed as p divided by k where p is the uniform applied pressure and k is the constant which is called the "modulus of compression."

The modulus of compression for steel is calculated as about 1.43×10^{12} dynes per sq. centimetre, or about 9,100 tons per sq. in.



Henry Compton, British actor

COMPTON, HENRY (1805-77). British actor, whose real name was Charles Mackenzie. Born March 22, 1805, he made his first appearance in London at the English Opera House on July 24, 1837, as Robin in *The Waterman*. During the next 10 years he played at various theatres, and from 1853-70 was a member of Buckstone's company at The Haymarket. He died Sept. 15, 1877.

His son Edward, born in London, Jan. 14, 1854, was also a well-known actor. He made his first stage appearance at Bristol, 1873, and eight years later organized the Compton Comedy Company, for many years a leading touring company. With Virginia Bateman he was the father of Miss Fay Compton, and the novelist, Compton Mackenzie (q.v.). He died July 16, 1918.



Edward Compton, British actor



Compton Wynates, in Warwickshire. A beautiful example of Tudor domestic architecture

Country Life

COMPTON WYNATES. Warwickshire seat of the marquess of Northampton. In a hollow between Edge Hill and Long Compton, and once moated, it was built by William Compton (d. 1529), who was knighted at the battle of the Spurs. A fine example of Tudor domestic architecture, it has a chapel with Tudor screen, great hall with gallery, many secret cupboards, and beautiful gardens. When the Parliamentarians took it in 1646 they laid the adjacent church, which was restored in 1663, in ruins. The manor was known formerly as Wineyate and Compton-in-the-Hole.

COMTE, ISIDORE AUGUSTE MARIE FRANÇOIS XAVIER (1798-1857). Founder of Positivism (q.v.). He was born at Montpellier,

Jan. 19, 1798. Auguste became a sceptic and republican at the age of fourteen. In 1816 he was expelled from the École Polytechnique, Paris, for taking the lead in a mutiny of the pupils.



Auguste Comte, French philosopher

In 1825 Comte married Caroline Massin, but the union ended in separation seventeen years later. He worked intensely at his philosophy of life, and in 1826 began a series of public lectures upon it, but his mind gave way, and his work was interrupted for some months. In 1828 Comte resumed the writing of his *Cours de Philosophie Positive*, which appeared during the years 1830-42. From 1848 to 1854 he worked at his *Système de Politique Positive*. He died Sept. 5, 1857.

CONCENTRATION (Lat. con, with; centrum, centre). Process used in metallurgy. Ore as it is brought to the surface from the mine is seldom ready for immediate smelting. As a rule, it must be sorted and the metalliferous portions separated from the worthless gangue, or rock. Sometimes picking over by hand is sufficient; generally the ore, broken small, is separated by a process in which reliance is placed on the difference between the specific gravity of those portions which contain the metal and the worthless rock.

CONCEPCIÓN. City of Chile. It is situated 7 miles from the mouth of the river Biobío. From Concepción to the sea the river is known as Concepción Bay, and contains three ports, Talcahuano, Penco, and Tome. Concepción is a commercial centre for the fertile province and does a considerable trade, especially through the naval station Talcahuano, with which it is connected by railway. Pop. 66,130.

CONCEPTION. Fertilisation of the ovum or female element by the spermatozoon or male element. In the human species this process is believed to occur in the Fallopian tube. After fertilisation the ovum travels to the uterus or womb, in which development into the infant organism occurs. See Annunciation.

CONCERTO. One of the forms of musical composition belonging to the sonata group. From the middle of the 18th century it was virtually an orchestral symphony, with a chief part for a solo instrument.

CONCHOID. Curve devised by Nicomedes (c. 150 B.C.), a Greek mathematician. It was used by him for obtaining by construction two mean proportionals between two given quantities. It is defined as follows: "If from a fixed point (the pole) straight lines be drawn intersecting a fixed straight line, and on these lines points be taken at a constant distance from their intersections with the fixed straight line, this succession of points will form a conchoid of Nicomedes, consisting of two branches."

CONCIERGE, LA. Ancient prison of Paris on the Île de la Cité (Isle of the City) in the Seine, forming part of the palais de justice or law courts. A section of it is now used for the detention of accused prisoners and for their preliminary examination before the president of the court of assizes. During the Revolution most of the prisoners were confined in the Conciergerie. Marie Antoinette's cell was converted into a memorial chapel, 1816, and destroyed in the rising of 1871.

CONCILIATION. Word used in industrial life for efforts made to settle disputes between employers and employed. Strictly speaking, conciliation is anterior to the more formal arbitration. There are conciliation boards in connexion with many of the great industries. See Arbitration; Labour; Strike.

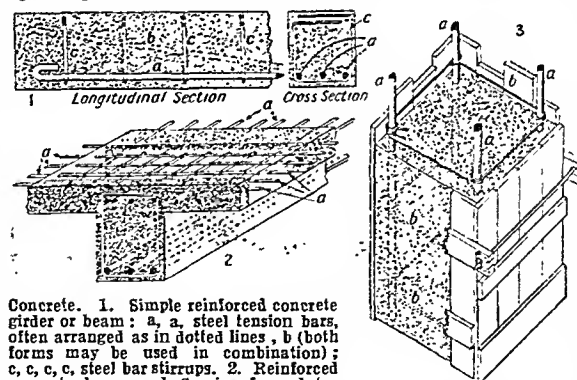
CONCLAVE (Lat. con, with; clavis, key). Term meaning a locked room or place in which cardinals assemble to elect a pope. It is also used for the body of cardinals assembled together for that purpose. The conclave dates back to 1271. It meets within a portion of the Vatican walled off for that purpose. All intercourse with the outside world is prohibited, and proceedings take place in absolute seclusion. On the 11th day the cardinals pass into the Sistine Chapel, where the voting takes place. The form of election is by secret ballot, and the candidate is chosen by a two-thirds vote. In Oct., 1928, it was announced that a palace for conclaves was to be built in the Vatican gardens. See Pope.

CONCORD. City of New Hampshire, U.S.A., capital of the State. It is on the Merrimac river, 75 m. N.W. of Boston. The Boston and Maine Rly. works are here, and granite is quarried. Pop. 22,167.

Concord, in Massachusetts, is the most ancient inland town in the state, and is noted for its associations with Emerson, Thoreau, Hawthorne, and other men of letters. Here took place an engagement at the outset of the War of Independence, April 19, 1775.

CONCORDANCE. Alphabetical index or dictionary of words or topics in a book or series of books. Examples are concordances to the Bible and the works of Shakespeare. See Clarke, C. C.; Cruden, A.

CONCORDAT. Agreement between Church and State defining the limits and powers of the ecclesiastical and civil authorities in matters where both are affected. It is commonly made by the pope on behalf of the Roman Catholic Church, but bishops have on two occasions in Portugal arranged concordats with the sovereign. The term is specially applied to the concordat of 1801, which re-established the church in France. This endured till Dec. 9, 1905, when church and state were again separated. See Vatican.



Concrete. 1. Simple reinforced concrete girder or beam: a, a, steel tension bars, often arranged as in dotted lines, b (both forms may be used in combination); c, c, c, steel bar stirrups. 2. Reinforced concrete beam and flooring formed together (monolithic formation); part of floor concrete removed to show arrangement and tying of steel reinforcement rods, a, a, a; beam as in 1. 3. Reinforced concrete column or pier in process of formation; part of wooden casing removed to show arrangement of steel bars, a, a, a, and steel ties, b, b, b. When concrete is set, casing is removed.

CONCRETE. Ordinary concrete is a composite mass of materials such as broken brick or stone fragments, gravel, and sand, bound together by an adhesive agent such as lime or cement, the whole being mixed with water. In modern practice the chemically active ingredient or matrix is nearly always Portland cement. One of the most extensive applications of concrete is in the construction of the underwater portions of breakwaters and dock walls. Concrete as a building material received a considerable stimulus after the Great War owing to the dearth of houses and the lack of bricklayers to build them in the ordinary way with the ordinary materials, and many systems were devised for constructing them in concrete with continuous walls, with blocks or slabs, or with precast members that could rapidly be put in place.

REINFORCED CONCRETE. This is called also ferro-concrete; it may be defined as "Concrete which is reinforced by metal so combined therewith that the metal will (a) be sufficient to take up all the tensile stresses; (b) assist in the resistance to shear; (c) assist in the resistance to compression where necessary." Concrete is about ten times stronger under compression than under tensile force. Steel, on the other hand, is strong against tensile and shearing forces, and this supplies the qualities in which the concrete is deficient. Reinforced concrete is the most adaptable of building materials, and has been adopted for every class of structure, especially for buildings of the warehouse class, and for harbours, docks, reservoirs, bridges of limited span, lighthouses, waterworks, retaining walls, and similar works. Adaptations of the principles of reinforcement are numerous, and include many patent fire-resisting flooring systems, piling, and foundations, and the use of expanded, perforated, or corrugated steel, or wire-mesh fabric for the reinforcement of walls, floors, and roadways.

CONCRETION. In geology, an aggregate of mineral matter around a centre. In rocks this is formed through the agency of water, and usually consists of nodules in which the centre is a small fragment of animal or vegetable substance. In some formations concretions form continuous beds, as in Magnesian limestone. Nodular forms are common in beds of clay-ironstone. Nodules of flint, common in the upper Chalk, are concretions of silica around such organisms as sponges and sea-urchins. Among minerals forming concretionary structure are calcite, marcasite, pyrite, and various forms of silica.

CONCUBINAGE (Lat. con, with; cubare, to lie). Union between a man and a woman legally less binding than marriage, the female partner being known as a concubine. She had not the same claim upon the man as had a wife, nor had their children the same rights of inheritance as had those of a wife. The institution was prevalent among the Jews from the time of Abraham, and was also recognized by the Romans and other peoples of antiquity.

CONDÉ. Town of France. It stands at the junction of the rivers Schelde and Haine, near the Belgian frontier. It is a mining town, and has a church with a curious tower. At the battle of Mons (q.v.) the left of the British army was stationed along the canal that runs between Mons and Condé. The town was in the possession of the Germans from Aug., 1914, to Nov., 1918. Pop. 4,702.

Condé gave its name to a famous French family, a branch of the Bourbons. This was founded by Louis de Bourbon (1530-69), who called himself prince of Condé. From him was descended another Louis de Bourbon, prince of Condé (1621-86), the soldier who is known as the Great Condé. By defeating the Spaniards at Rocroi in 1643 and gaining victories over the Bavarians, he made himself one of the great captains of his age. He crushed the Frondeurs, but later became their leader in a fresh rebellion. He then served the Spanish king in the Netherlands, but in 1659 he returned to France and led the French armies almost until his death, Dec. 11, 1686. The title



Louis de Bourbon, Prince of Condé

came in time to his descendant Joseph (1756-1830), who was murdered Aug. 29, 1830. -He was the last prince of Condé.

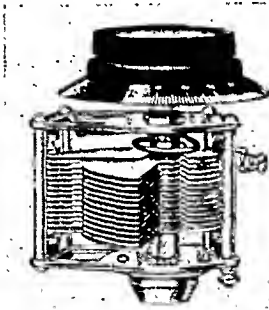
CONDELL, HENRY (d. 1627). Actor and Shakespearean editor. Shakespeare, Burbage, and Condell were members of the company of players known in Queen Elizabeth's time as the Lord Chamberlain's men, and on the accession of James I as the king's servants. To Condell, Burbage, and John Heming, Shakespeare bequeathed 26s. 8d. apiece to buy them rings, and, with Heming, Condell brought out the first collected edition of Shakespeare's works in a single folio volume in 1623. He was buried in the church of S. Mary, Aldermanbury, London, Dec. 29, 1627.

CONDENSER. Vessel in which vapours are cooled till they assume a liquid form. Cooling is effected by air, or, more commonly, by water. The condenser which receives the exhaust steam from a steam engine increases the efficiency of the engine by lengthening the expansion range of the steam.

ELECTRICAL CONDENSER. Apparatus for accumulating a charge of electricity. It consists of two or more conducting plates, A and B, separated by a non-conducting substance, C, known as a dielectric (q.v.). The charge may be supplied by an alternating current or from a static source, and is proportional to the capacity of the



condenser; the capacity is dependent on the size of the plates and the nature of the dielectric. The static form is the Leiden jar (q.v.). In both cases the seat of the charge, the energy store, is in the dielectric, which, on one theory, is put in a state of strain by the electromotive force applied.



Condenser. Variable air dielectric form with moving brass plates

apparatus is of this type. It consists of a set of metal plates between which, separated by an air space, a set of vanes may be brought by rotating a spindle. The more the vanes and plates overlap the greater is the capacity of the condenser. Mica or paper condensers of fixed value are also used.

CONDOR (*Sarcophagus gryphus*). Great vulture of the Andes. It is the largest of the American vultures, and restricted in geographical range to S. America. Its length exceeds 3 ft., exclusive of the tail feathers, and the span of its extended wings is about 8 ft. It feeds chiefly on carrion, but attacks goats, lambs, and young calves. When gorged with food the bird cannot rise without



Condor. One of the largest of the vultures and a native of South America

considerable running space. Condors roost in company on trees, but usually make their nests on the ledges of inland cliffs

Condor is also the name of a British gunboat commanded by Lord Charles Beresford at the bombardment of Alexandria in 1882.

CONDORCET, MARIE JEAN ANTOINE NICOLAS CARITAT, MARQUIS DE (1743-94). French revolutionist. He was born at Ribemont, near S. Quentin, Sept. 17, 1743. He espoused the cause of revolution, being elected deputy for Paris in the legislative assembly in 1791 and president in 1792. On account of his Girondist sympathies, in 1793 he was proscribed by the Convention, and took refuge with a friend in Paris for eight months. Leaving his hiding place and falling under suspicion, he was arrested and thrown into prison, where he died March 29, 1794.

CONDOTTIERI. Mercenaries of the 13th and 14th centuries who sold their services to Italian cities and states in exchange for licence to pillage. Several attained distinction, among them an Englishman, Sir John Hawkwood.

CONDUCTION (Lat. conducero, to lead together). Method of transmitting heat. Heat may be transferred (1) by radiation, without the intervention of matter; (2) by convection, i.e. by the actual visible transference of matter as in steam heating; (3) by conduction, without any visible motion of matter taking place. The heat may be pictured as travelling through a body as the warmer molecules heat the neighbouring colder molecules and so on. See Heat.



Cone. Volcanic cone of Vesuvius, built up by successive discharges of lava and ashes

ELECTRIC CONDUCTION. All substances may be roughly classed as conductors or non-conductors of electricity. In a conductor the electrification spreads all over the body if by any means one point of the body is electrified. In a non-conductor or insulator the electrification remains in the neighbourhood of the point where the electrification took place. Conductors are roughly divisible into (1) metallic conductors, (2) non-metallic conductors, (3) electrolytic conductors, and (4) gaseous conductors. The conductivity of metals increases with a rise in temperature, whereas that of other solids, e.g. carbon, decreases. The resistance of a conductor varies inversely as its sectional area, and directly as its length. The maximum strength of current

that a conductor will carry is decided not merely by its substance and sectional area, but by its shape and surroundings. Copper is most widely used as a conductor on account of its very low resistance, moderate cost, high tensile strength, and toughness. Iron is employed only for aerial telegraphic wires—which only carry weak currents, and may be of small diameter—and for electric railways in the form of conductor rails. The relative conducting powers of the principal metals for heat and electricity are:

Metal	Heat	Electricity
Silver	1,000	1,000
Copper	736	999
Gold	532	800
Aluminium	323	630
Zinc	280	299
Tin	152	154
Iron	119	155
Lead	85	88
Platinum	84	105
Nickel	—	79
Antimony	40	39
Mercury	13	25

See Cable; Electricity.

CONDUIT (late Lat. conductus, escort, canal). Artificial channel, aqueduct, tube, or pipe line for the conveyance of fluids, more particularly a masonry-lined channel, either open or closed, for the conveyance of water. Water conduits are usually lined with cement or brickwork, and sometimes constructed of reinforced concrete.

A conduit is also any pipe or tunnel constructed for the accommodation of gas, water and hydraulic mains, or telegraph and telephone cables. In electrical work a conduit is a subway or tube in which conductors are laid that carry electric current for operating railway or tram cars, and a system of tubing within a building which protects the wires for supplying electric current throughout.

CONE. In geology cones are of two kinds: alluvial and volcanic. The former are fan-shaped piles of detritus deposited by running water. Detrital material is dropped abruptly when the speed of the stream is checked. Coarser material is dropped first, the finer particles being carried on and spread out. This causes the formation of an apex pointing up the water-course, and a base which may be hundreds of miles broad.

Volcanic cones are formed by the explosive discharge of lava, ashes, and volcanic dust from an orifice in the earth's crust. The ejected material tends to accumulate most thickly round the rim of the vent, and to become thinner radially outward. The cones so formed are usually surmounted by cup-like hollows or craters.

CONE (Lat. conus). Female flowers and fruit of the pines, firs, larches, etc. (Coniferae). In the flower-cone a number of bracts are arranged spirally or in whorls around an axis, and in the axil of each bract there is a carpellary scale bearing two or more naked ovules. After the fertilisation of these, the scales enlarge and become woody, in the pines thickening at the free end, and form what is commonly known as a fir-cone. In the firs and spruces they are thin-sealed, and more cylindrical than conical, and in the cedars and cypresses almost round. In the junipers the scales become fleshy instead of woody, so that the fruits are popularly known as berries. The opening of the cone usually takes place during the prevalence of high winds, so that the seeds are carried far from the parent tree.

The cone flower is a genus of perennial herbs of the natural order Compositae, a native of N. America, with purple or violet flower-heads. From its elevated head its name is derived.

CONEY OR CONY (Gr. koniklos, rabbit). Name still used in English law for the rabbit. But it is more correctly applied to the hyrax (q.v.), probably the coney of the Bible.

CONEY ISLAND. Sandy island, forming part of New York City, U.S.A., and included in the borough of Brooklyn. A popular resort, it was named by emigrants from Ireland after the largest island on Lough Neagh. The westernmost of a collection of sand-bars fringing the S.W. shore of Long Island, it is 5 m. long, $\frac{1}{2}$ m. to over $\frac{3}{4}$ m. broad, and separated from the mainland by Gravesend Bay, Sheephead Bay, and Coney Island Creek. It has three beaches. Sea Gate, at the W. end of the island, is a residential quarter.

CONFEDERATION (Lat. con, with; foedus, a league). Name for a union of states retaining a large amount of independence. Such were the North German Confederation, 1867-71, and the earlier Confederation of the Rhine, set up by Napoleon. Switzerland forms a confederation, but it is now hardly correct to call the United States one, since during the 19th century the central government became much more powerful.

The states which seceded from the American Union in 1860-61, on the question of states rights, i.e. the right of each state as a sovereign body to terminate its connexion with the federal government, were known as the Confederate States. See American Civil War; British Empire; United States.

CONFESSION. Penitential declaration of sins made privately to a priest. The practice is obligatory in the Roman Catholic and Eastern Churches, and permissive in the Anglican communion. In the former the priest sits in one compartment of a structure known as a confessional, partitioned off from the penitent, who confesses to him through a lattice or grille. The priest is bound to preserve absolute secrecy concerning all sins confessed. The pardon declared by him is conditional on the contrition and amendment of the penitent.

CONFIRMATION (Lat. confirmatio, strengthening). Religious service administered as a complement to baptism. In the Anglican Church confirmation is one of the conditions of admission to communion, and the service consists of the public renewal of the baptismal vows by one who has come to years of discretion, and of the invoking of God's blessing by the laying on of the bishop's hands. In the Lutheran Church the main feature is a public profession of faith after an examination in Christian doctrine. In the Roman Catholic Church confirmation is one of the seven sacraments. In the Eastern Church it is called myron or unction, and there is no imposition of hands.

CONFUCIANISM. System of thought and life based on the teaching of Confucius. This name is the latinised form given by Jesuit missionaries to the man known among his own people as K'ung Fu-tsu, the philosopher Kung. Born 551 B.C. of good family, he was early in life appointed to important positions in the State. From 530-501 B.C. he devoted himself to teaching, gathering a growing band of disciples and giving much time to the collecting, editing, and publishing of the ancient writings of his country. In 501 B.C. he was appointed governor in his native state, Lu, and later chief criminal judge, but, disgusted with the way in which his country was governed, he resigned, and



Confucius. Chinese portrait of the philosopher

spent over 12 years wandering from land to land. In 484 B.C. he returned to his native province, and remained there until his death in 478 B.C.

The scriptures of Confucianism are the so-called Nine Classics, still regarded as the authoritative exposition of this religion, and, by the hulk of the people, as inspired. They embrace the Five Kings and the Four Books or Shus. The Five Kings are the chief standard writings of the Chinese, and are made the basis for conduct, private and political. Confucius is popularly regarded as the author, or at least the compiler of these, although only one can with certainty be ascribed to him. The Four Books or Shus, an abbreviation of the Books of the Four Philosophers, are less esteemed, but a Chinaman masters and memorises them before he attempts the study of the Five Classics.

Confucius taught that the regeneration of social and political order lay in a return to the good old days, and this was to be brought about by studying the sages of old. He himself taught no doctrine of God, of spirits, or of a future life. He considered religion a good thing for the people, because it promoted peace and order.

Every Chinese town possesses a temple in honour of the sage, and twice a year ceremonies are performed there by local officials, there being no dedicated priesthood.

CONGÉ D'ÉLIRE (Fr. leave to elect). Term used in the Church of England for the formal permission given by the sovereign to the dean and chapter of a cathedral to elect an archbishop or bishop. This election is merely a form, for the sovereign sends at the same time the name of the person whom his advisers have recommended for the vacant see. If the person named is not elected within twelve days, the crown appoints someone by letters patent. See Bishop.

CONGER (Leptocephalus conger). Large edible marine fish of the eel family. It is common off the coasts of Europe, including the Mediterranean, Africa, as far S. as St. Helena, Tasmania, and Japan. The female attains a length of over 6 ft., but the full-grown male is only 2½ ft. The larval state is a thin, transparent, ribbon-like fish, the morris. The mature congers repair to very deep water for spawning, after which they die. Full-size females weigh 60 lb. or more.

CONGLETON. Borough and market town of Cheshire. It stands on the Dane, on the L.M.S. Rly. and the Macclesfield Canal, half-way between Macclesfield and the Potteries. Its chief industry is silk manufacture. The Swan is a famous inn. Market day, Sat. Pop. 11,764.

CONGLOMERATE. Rock composed of consolidated gravel or shingle, in which the pebbles are rounded and water-worn. A local name is pudding-stone. It is distinguished from breccia, in which the fragments are angular. Varieties are named according to the nature of the contained pebbles or of the cementing material. Quartz conglomerates are the most abundant, but limestone conglomerates or breccias are also found.

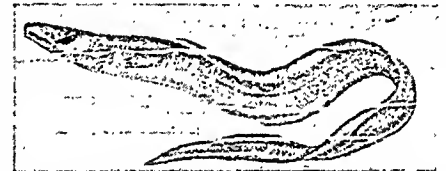
CONGO. River of Central Africa. It takes its rise in British territory on the S. slope of a plateau between Lakes Nyasa and Tanganyika, the Chambezi being generally regarded as its true source. The river issues from the swamp S. of Lake Bangweulu as the Luapula, and below Lake Mweru it is called the Lualaba. After Nyangwe, the point from which it is generally known as the Congo, it flows N. to the Equator, then N.W. and S.W., finally entering the Atlantic through an estuary 100 m. long. In its course of over 3,000 m. the Congo receives many tributaries, which drain an area of more than 1,300,000 sq. m.

The Congo was first made known to Europeans by the Portuguese discoverer, Diego Cam, who reached its mouth in 1484-85. Captain Tuckey, sent by the British Government, explored the estuary in 1818. The discoveries of Livingstone on the Luapula and Lualaba in 1867-71, and the later journey of Stanley in 1876-77, revealed the full extent of the river.

CONGO, BELGIAN. Belgian colony in central Africa. It has a small coastline at the mouth of the Congo. Its land frontier of some 6,000 m. faces French Equatorial Africa and the Anglo-Egyptian Sudan to the N.W. and N., Uganda and Tanganyika Territory to the E., and Northern Rhodesia and Angola to the S. The colony includes Ruanda and Urundi, formerly part of German East Africa, ceded to Belgium under a mandate of the League of Nations. Area about 910,000 sq. m.; pop. about 10,000,000, of whom some 20,000 are Europeans.

The country is a vast basin drained by the river Congo and its tributaries. Lying on both sides of the Equator, it has a tropical climate. Products include palm nuts, palm oil, white copal, rubber, cocoa, coffee, ivory, rice, and cotton. The forests yield mahogany and other valuable timber. Cattle are raised. The Katanga province is one of the world's chief producers of copper. Other minerals include gold, diamonds, tin, and radium. The capital is Leopoldville. The chief seaports are Banana, Boma, and Matadi. The chief river ports are the capital, Coquilhatville, Stanleyville, Ponthierville, Kindu, Kongolo, and Bukama.

Railway lines are being built to link the Katanga with the lower Congo and also



Conger. Large edible fish of the eel family. It sometimes attains a length of six feet

with Lohito Bay, via the Benguela Rly. There are regular air services between Boma and Elisabethville and other points, and there are several wireless stations.

The Congo Free State, as the country was originally called, was founded by Leopold II, King of the Belgians, in 1885, and was ruled by him as his personal property. It was transferred to the control of the Belgian Parliament, through the colonial minister, in 1908, and henceforth was known as the Belgian Congo. See Cape to Cairo Rly.

CONGREGATIONALISM. Religious denomination of English origin. The distinguishing features in the position maintained by Congregationalists or Independents, are as follows: (1) they recognize Jesus Christ alone as Head of the Church; (2) each individual church is composed of Christian believers who have accepted the doctrines of the New Testament as their standard; (3) each individual church is autonomous, and the seat of authority rests in the assembly of its members. It elects its own ministers and officers and manages its own affairs.

Independency was the outcome of the Reformation. Its original founder in England was Robert Browne, who protested against ecclesiastical settlement in the reign of Elizabeth, and organized separate churches on an Independent or Congregational basis. In 1831 the majority of the churches were formed into the Congregational Union of England and Wales, incorporated in 1902, and in 1919 nine districts or provinces were formed, each under a Moderator. In 1929 there were 4,621 churches and preaching stations in the British Isles, with 2,921 ministers.

CONGRESS (Lat. con, with; gradus, step). Literally, a meeting of any kind, but generally applied to assemblies of more than ordinary size and importance. It is the word generally used for international meetings, such as the Congress of Berlin (1878).

In a particular sense it is the name given to the supreme legislative body of the U.S.A. This consists of two houses, the Senate and the House of Representatives. The Senate consists of 96 members, two of whom are chosen by each state. The House of Representatives is elected by a popular vote, the states returning members in accordance with their population. There is an election every two years. The President can veto any legislation passed by Congress, but if they pass the measure again by a two-thirds majority of each house it becomes law.

CONGREVE, SIR WALTER NORRIS (1862-1927). British soldier. Born Nov. 20, 1862, he was a staff officer in the South African War and won the V.C. for his attempt to save the guns at Colenso, Dec., 1899. He distinguished himself on the Somme and later commanded the 7th Corps, which bore the brunt of the German offensive, March, 1918. Knighted in 1918, he took over the Southern Command in Dec., 1922, and became governor of Malta, 1924. He died Feb. 23, 1927. His son, Capt. W. La T. Congreve, V.C., fell in action, 1916.

CONGREVE, WILLIAM (1670-1729). English dramatist. Born at Bardsey, near Leeds, he came to London at the age of 20, and after studying law for a short time began to write for the stage. Congreve's early plays, *The Old Bachelor* and *The Double Dealer* (both, 1693), obtained immediate success. In 1695 appeared *Love for Love*, and in 1697 his tragedy, *The Mourning Bride*. *The Way of the World*, 1700, Congreve's last play, was a comparative failure and, annoyed by its reception, he vowed to write no more. He died Jan. 19, 1729. See *Comedy*.



William Congreve,
English dramatist
After Kneller

CONISBROUGH OR CONISBOROUGH. Urban district of Yorkshire (W.R.). On the Don, it is 5 m. S.W. of Doncaster by the L.N.E. Rly. There are limestone quarries. The castle, now in ruins, figures in *Ivanhoe*. Pop. 17,050.

CONISTON. Lake of Lancashire, known as Coniston Water. At the E. foot of Coniston Fells, 13 m. W. of Kendal, it is $\frac{1}{2}$ m. long, $\frac{1}{4}$ m. broad, 184 ft. deep and 147 ft. above sea level. To the N.W. lies the Old Man of Coniston, 2,635 ft. high, and on the E. bank is Brantwood once the residence of Ruskin.

CONISTON GRITS. These are a development in the English Lake district of a series of gritty rocks of Ludlow age belonging to the Silurian system. They are 4,000 ft. in thickness. The Coniston Limestones are the uppermost series of Ordovician rocks developed in the English Lake district, of the same age as the *Caradoc* series in Shropshire.

CONJUNCTIVITIS OR OPHTHALMIA. Inflammation of the conjunctiva or mucous membrane which lines the inner surfaces of the eyelids and is continued over the white of the eye. The symptoms of simple, acute conjunctivitis are pain, redness of the conjunctivae, and formation of a sticky secretion. Bathing the eye with a solution of boracic acid may cure mild cases. Severe cases may require treatment with silver nitrate or some of the organic salts of silver and astringents.

Acute purulent conjunctivitis is most often due to infection with the organism of gonorrhoea, and most frequently met with in the newly-born, when it is sometimes termed

ophthalmia neonatorum, the infection resulting from gonorrhoea in the mother. It has been estimated to account for as much as 30 p.c. of all cases of blindness in the United Kingdom. Midwives are now instructed in methods of cleaning the eyes immediately after birth. Other forms of conjunctivitis, termed granular, follicular, and phlyctenular, are each characterised by the appearance of minute growths on the inner surfaces of the eyelids.

CONJURING. Art of producing illusions. In ancient times magicians were supposed to possess supernatural powers and conjuring was largely used to take advantage of the credulity of the ignorant, to inspire awe and to bring terror to the evil-doer.

In modern times conjuring is practised as a form of entertainment, and may be described as the production of effects, apparently miraculous, by natural means. The chief branches of the art are sleight of hand, in which the magical appearance, disappearance, or change of an article is brought about by the dexterity of the hands; and illusions, usually produced on a large scale, and more particularly suited for the stage, as intricate and ingenious apparatus is generally used. There are also many experiments performed by conjurers in natural magic, where science is brought into combination with sleight of hand, and the up-to-date magician finds electricity and chemistry valuable aids to his art.

CONNAUGHT OR CONNACHT. Province of the Irish Free State. It comprises the counties of Galway, Leitrim, Mayo, Roscommon, and Sligo, and covers 6,610 sq. m. The surface rises from the E., where the Shannon forms part of the boundary, and becomes mountainous in the W. The coast is deeply indented, and contains well-sheltered harbours. Only two towns, Galway and Sligo, have more than 10,000 inhabitants. Connaught had its own kings before the English conquest of Ireland. After that the Burghs or Bourkes were the great family in the district.

Connaught Rooms is the name of a London assembly hall on the south side of Great Queen Street, W.C., used for banquets, balls, and similar functions. Connaught Square is a London square between Stanhope Place and Connaught Street, Hyde Park, W.

CONNAUGHT, ARTHUR WILLIAM PATRICK ALBERT, DUKE OF (b. 1850). British prince. Born May 1, 1850, the third son of Queen

Victoria, he entered the Army in 1868. In 1874 he was made duke of Connaught and Strathearn. He saw service in Canada, 1870, and in Egypt in 1882: from 1886-90 he had a command in India. In 1902 the duke was made a field-marshal, and in 1904 inspector-general. He was commander-in-chief in the Mediterranean 1907-9, and from 1911-16 he was governor-general of Canada. In 1921 he visited India to inaugurate the new legislative assembly. In 1879 he married Louise, daughter of Prince Frederick Charles of Prussia. She died March 14, 1917, leaving three children: Arthur, Margaret, crown princess of Sweden, who died May 1, 1920, and Patricia, who on her marriage in 1919 with the Hon. A. R. M. Ramsay took the title of Lady Patricia Ramsay. Consult *Life*, Sir George Aston, 1929.

CONNAUGHT, PRINCE ARTHUR OF (b. 1893). British prince. The only son of the duke of Connaught, he was born at Windsor, Jan. 13, 1893. Educated at Eton, he entered the army in 1901, serving with the 7th Hussars and 2nd Dragoons. In 1913, he married his

cousin Alexandra, duchess of Fife. He retired from the army in Dec., 1919, and from 1920 to 1924 was governor-general of S. Africa.

CONNAUGHT RANGERS. Formerly a British regiment, originally the 88th and 94th Foot. It was raised in 1793, and saw service in Flanders in that year. It participated in the taking of Seringapatam, 1799, and served in the Peninsular War, the Crimean War, and the Indian Mutiny. In the Zulu War of 1879 the 2nd battalion bore the brunt of the Kafir attack at Ulundi. During the South African War the regiment distinguished itself at the Tugela Heights and at Colenso. In the Great War it won further battle honours, in France, in Gallipoli, and the Balkans. The regiment, whose depot was at Galway, Ireland, was disbanded in 1922.



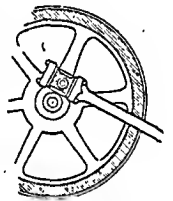
Connaught
Rangers' regimental badge

CONNECTICUT. One of the 13 original states of the American Union. It has an area of 4,965 sq. m. The surface is hilly and uneven in the W., traversed in the centre by the Connecticut river, in the W. by the Housatonic and the Farmington, and in the E. by the Thames. Hartford is the capital and New Haven the largest city. Pop. 1,380,631.

The Connecticut river is 370 m. long and enters the sea in Long Island Sound.

CONNECTING ROD. Part of an engine which converts the reciprocating, or up-and-down, motion of the piston into the circular motion of the crank-shaft. The small end of the rod is connected to the piston in such a manner that its other, big, end is enabled to follow the circular path of the crank-pin.

CONNEMARA. Western division of co. Galway, Irish Free State. A boggy and mountainous expanse with deeply indented coastline and numerous lakes, its scenery makes it a favourite resort. The chief heights are the Twelve Bens or Pins, in the Bunabola group, reaching 2,695 ft. A variety of marble found in the district is named Connemara.



Connecting Rod of a
driving wheel

CONNING TOWER. Circular structure, heavily armoured, from which the movements of a warship are directed in action. Submarines have a conning tower with watertight door. See *Battleship*; also illus. p. 445.

CONNOR, RALPH (b. 1860). Pen-name of a Canadian author, Charles W. Gordon. Born at Glengarry, Sept. 13, 1860, he was educated at Toronto and Edinburgh. Ordained to the Presbyterian ministry in 1890, he went as missionary to the miners and lumbermen in the Rocky Mountains. In 1894 he became pastor of St. Stephen's Presbyterian Church, Winnipeg. His first book, *Beyond the Marshes*, 1897, was followed by *Black Rock*, 1898; *The Sky Pilot*, 1899; *The Man From Glengarry*, 1901; *The Doctor of Crow's Nest*, 1906; *Corporal Cameron*, 1912; *The Sky Pilot of No Man's Land*, 1919; and *The Runner*, 1929. He served as chaplain with the Canadian forces in the Great War.

Conquistador (Sp. conqueror). Name given to Cortés, Pizarro, and other soldiers and adventurers.



Connaught. Left, Duke of Connaught, third son of Queen Victoria. Centre, Duchess of Connaught. Right, Prince Arthur of Connaught
Downey

CONRAD. Name of four German kings, two of whom were also emperors of the Holy Roman Empire. Conrad I, a Franconian noble, was chosen king in 911 on the death of Louis the Child. He died Sept. 23, 918. Conrad II was elected king in 1024 and was crowned emperor in Rome in 1027. He was the first of the Franconian or Salian emperors. He died at Utrecht, Jan. 4, 1039.

Conrad III, the first ruler of the Hohenstaufen family, was a nephew of the emperor Henry V. He was chosen king in 1127, but his rule was not generally accepted until 1137. He died Feb. 15, 1152. Conrad IV, a son of the emperor Frederick II, was chosen king in his father's lifetime. His reign was spent in fighting for his own and his father's rights against the pope. Having been driven from Germany, he died May 21, 1254. The struggle was continued in the name of his young son Conradin, who was put to death at Naples, Oct. 29, 1268. See Hohenstaufen.

CONRAD, JOSEPH (1857-1924). English novelist of Polish parentage. Teodor Jozef Konrad Korzeniowski was born in the Ukraine, Dec. 6, 1857. He was sent to the gymnasium at Cracow, but, firmly resolved to join the British merchant service, he landed at Lowestoft in May, 1878, and until 1894 was a deep-water seaman, becoming a master in 1884. Conrad's first work was *Almayer's Folly*, 1895. It was followed by other notable novels, which, however, did not find a large public till some years later. *The Mirror of the Sea*, 1906, and *Some Reminiscences*, 1912, are both autobiographical. Conrad died Aug. 3, 1924. Consult Joseph Conrad as I Knew Him (1926), by his widow; and also Joseph Conrad: Life and Letters (1927), edit. by G. Jean-Aubry.



Joseph Conrad,
English novelist
Arbutnot

CONSCIENCE (Lat. con, with; scire, to know). Consciousness of moral obligations, which asserts itself with or in opposition to natural impulses. Conscience clause is a term applied to clauses in Acts of Parliament that exempt persons from obeying the Act if they have a conscientious objection to doing so. The laws about vaccination are an example. Conscience money is money sent voluntarily to the chancellor of the exchequer in payment of taxes by those who have hitherto evaded payment.

A man who refused military service on conscientious grounds after the passing of the first Compulsory Service Act in 1916 was known as a conscientious objector.

CONSCRIPTION. Method of raising armed forces. The men required are selected from all able-bodied males, usually by lot, and the substitution of one man for another is allowed. It differs from compulsory military service, which calls upon all fit males to serve and does not allow substitution, but the two cannot easily be separated, and the term conscription is popularly used for both.

From the Revolution to 1872 France had conscription, but after the Franco-Prussian War this was abandoned for compulsory

service. The new German Empire about the same time adopted compulsory service, which had been introduced into Prussia in 1808. Russia introduced it in 1874 and Italy in 1875. The term was usually two or three years of active service followed by 20 or more years in the reserve. The system gave most of the armies that fought in the Great War.

In England there has always been a tradition of compulsory service, although not enforced until the Great War. This was recognized by law in 1803, and it was the basis of the militia organization. In Jan., 1916, conscription was applied to unmarried men between 18 and 41; in May of the same year it was extended to married men, but with many exemptions and reservations; in April, 1917, a third and more rigorous Act was passed under pressure of military necessity; and in March, 1918, the age of liability was raised from 41 to 50. Compulsory service in Great Britain ended on April 1, 1920. The United States also raised her armies for the Great War by compulsory service.

CONSECRATION. Term generally used for the act which sets apart persons or things for the service of God. Ecclesiastically, it is a rite performed solemnly by a bishop in distinction from a simple blessing pronounced by a priest, the only exception to this being the consecration of the bread and wine at Holy Communion. Thus the consecration of a priest to the episcopate, the dedication of a church or churchyard, or any religious building, are the special functions of a bishop.

CONSENT (Lat. con, with; sentire, to think). Term employed in English law. (1) In the law of contract, it indicates the agreement of the minds of the parties contracting. There can be no contract unless they consent to the same thing. (2) In legal proceedings the parties often consent to an order or judgment, and they can consent to things which the court could not order. (3) In certain sexual criminal cases the question often arises whether the prosecutrix consented to the act charged as an offence. A girl under 16 cannot consent in law; and it makes no difference that she did so in fact.

CONSERVATIVE. Political party in Great Britain now officially called Unionist. It regards existing British institutions with defensive pride, and exercises a vigilant caution against constitutional change. The headquarters of the party organization is at Palace Chambers, Bridge St., London, S.W.1, while the National Union of Conservative and Unionist Associations represents the various associations and clubs throughout England and Wales.

The Conservative Club, founded in 1840, has its house at 74, St. James's St., London. See Ashridge; Liberal; Primrose League; Tory.

CONSERVATOIRE. School of music, founded with the object of preserving and encouraging the art. The Paris Conservatoire, dating from 1795; the Brussels Conservatoire, 1832; the Conservatorium of Leipzig, 1843; the Royal Academy of Music, 1822, and Royal College of Music, 1882, in London, are among the chief institutions of this kind.

CONSERVATOR. Literally, one who preserves or keeps anything. It is applied especially to men entrusted with the duty of looking after fisheries and the like on the various rivers. Each river of any size in the United Kingdom has its own board of conservators, under the general supervision of the Ministry of Agriculture and Fisheries. The chief of these is the Thames Conservancy.

CONSETT. Urban district and market town of Durham. On the Derwent, 16 m. S.W. of Newcastle-upon-Tyne by the L.N.E. Rly., it is a coal-mining and iron-working centre. Market day, Sat. Pop. 13,500.

CONSIDERATION (Lat. considerare, to observe). In English law, that which moves the grantor or promisor to grant or promise. It is either (1) good or (2) valuable. (1) Good consideration is, e.g., natural love or affection, in consideration of which a man may give or promise something to a wife, a child, a friend. (2) Valuable consideration only is the basis of a legal obligation. It may be money or money's worth; or it may be doing or forbearance from doing.

CONSISTORY (Lat. consistorium, place of assembly). In the Church of England, the court of justice of a diocesan bishop. It is held in the cathedral church of the diocese for the trial of ecclesiastical causes. The president is the chancellor of the diocese, or some other commissary appointed by the bishop. It constitutes a court of appeal from the archdeacon's court, and appeals from its decisions may be carried to the provincial or archiepiscopal court, and to the privy council. In the Roman Catholic Church the name is given to the assemblage of cardinals in council with the pope.

CONSOLE (Lat. con, with; solidus, solid). Name given to the bracket of a cornice or a triglyph in a frieze, or to any small supporting member of a bust, vase, or other work of sculpture or architecture. The term also denotes the part of an organ containing the manual keyboards, the stops, the pedal keyboard, and accessory mechanism.

CONSOLIDATED FUND. Technical name for the greater part of the public revenues of the United Kingdom. Before 1787 these were paid into various accounts, and on each of these certain items of expenditure were charged. In that year they were thrown together, and the new fund was called on this account the Consolidated Fund. The expenditure of the United Kingdom is divided into that which is charged on the Consolidated Fund and that which is not.

CONSOLS. Word used for certain public debts of the United Kingdom, being an abbreviation of consolidated annuities. The early public loans took the form of annuities, some being redeemable and others perpetual, and in 1751 these were consolidated or made uniform, bearing interest at the rate of 3 p.c. This was later reduced to 2½ p.c. Until the outbreak of the Great War the bulk of the national debt was in consols. The money to pay for that struggle was raised in different ways and it was given other names, so that in 1920 consols formed only a small proportion of the National Debt. In 1929 they amounted to £276,225,755.

The price of consols was long regarded as the index of Britain's credit. In 1898 the average price was £110 18s. 9d. for every £100 of 2½ p.c. stock. In May, 1920, the price touched 47½; in 1930 it was 57½. See National Debt; Sinking Fund.

CONSPICUOUS GALLANTRY MEDAL. Silver medal established in 1874 for award to petty officers, non-commissioned officers and men of the Royal Navy and Royal Marines distinguished by conspicuous gallantry in action with the enemy. The ribbon is three stripes of equal width, blue, white, blue.



Conspicuous
Gallantry Medal

CONSPIRACY (Lat. con, with; spirare, to breathe). In English law an agreement by two or more persons either to do something unlawful, or to do something by unlawful means which is not unlawful in itself. Conspiracy at common law is punishable by imprisonment up to two years. It is also a tort, giving rise to an action for damages.

CONSTABLE (Lat. comes stabuli, count of the stable). Name applied to the master of the horse and a high officer of state under the later Roman Emperors and among the Franks. In France he became commander-in-chief of the army, leader of the vanguard, and judge of military offences. The lord high constable of England was judge of the court of chivalry with the earl marshal and had wide jurisdiction. The hereditary title of lord constable of Scotland survives. The governors of royal castles in England are sometimes called constables, one such being the constable of the Tower of London. The duties of petty or parish constables now mainly fall to the police, also known as constables. Special constables help the police in emergencies. *See* Police.

The Royal Irish Constabulary was a semi-military force established in 1822 and responsible for the maintenance of law and order throughout Ireland, except in the City of Dublin. It was disbanded in 1922.

CONSTABLE, ARCHIBALD (1774-1827). Scottish publisher. Born at Carnbee, Fife, Feb. 24, 1774, he started business as a bookseller in Edinburgh in 1795. He secured *The Scots Magazine*, 1801, issued *The Edinburgh Review*, 1802, and in 1812 purchased the copyright of the *Encyclopaedia Britannica*. Constable published nearly all the later works of Scott, who became his business partner. In 1826 the firm failed, with very heavy liabilities. In 1827 Constable obtained some success by the issue of his *Miscellany*. He died July 21, 1827.

CONSTABLE, JOHN (1776-1837). British painter. Born at East Bergholt, Suffolk, June 11, 1776, he was admitted at the Royal Academy schools in 1799, exhibiting his first picture in 1802. He was elected A.R.A., 1819, and R.A. 1829. Three of his pictures shown at the Paris Salon in 1824 created a tremendous sensation, but recognition in England was slow in coming. From 1830 to 1833 he was closely occupied with the celebrated series of masterly mezzotints by David Lucas in illustration of English landscape. He died suddenly, March 31, 1837.



John Constable, British painter
After the painting
by C. R. Leslie

Constable loved the scenery at his doors, and was content to paint the beauties of cloud and sky, river, woodland, and simple, unpretentious buildings around him. Many of his pictures are in the National Gallery, London; and he is represented at the South Kensington Museum; the Louvre, Paris, etc. *See* illus. p. 138.

CONSTANCE, LAKE (anc. Lacus Brigantinus; Ger. Bodensee). Lake of central Europe, between Switzerland and Germany, and touching Austria at the S.E. end. It is formed by the Rhine. The largest Alpine sheet of water after the lake of Geneva, its greatest length is 46½ m.; greatest width, 10½ m.; greatest depth, 827 ft.; area, 205 sq. m. It lies 1,308 ft. above the sea.

CONSTANCE (Ger. Konstanz). Town and watering-place of Baden. It stands on the left bank of the Rhine, where that river leaves the lake of Constance. Its chief buildings are the cathedral, built in the 11th century, but rebuilt later, and the 16th century Renaissance town hall. The guildhouse of the butchers, called the Rosgarten, is now a museum. One of the suburbs, Kreuzlingen, is in Switzerland.

As the seat of a powerful bishop, Constance was a place of note from the 8th century. It was a possession of Austria until handed

over to Baden in 1805. The bishopric came to an end in 1827. Pop. 31,252.

The Council of Constance was a church



Constance. View of this watering-place from the lake, showing the 11th century cathedral on the right

council convoked with the primary object of putting an end to the disruptions of Christendom which the council of Pisa in 1409 had but accentuated. Opened Nov. 5, 1414, it held 45 sessions, and by the election of Martin V as undisputed pope in Nov., 1417, succeeded in extinguishing the schism which had lasted from 1378. The council of Constance was also concerned with the repression of heresy.

CONSTANS. Name of two Roman emperors. **Constans I** (Flavius Julius) was the youngest of the three sons of Constantine the Great. On the death of his father in 337 he received as his portion of the empire Italy, W. Illyricum, and Africa. After the death of his brother Constantine II, Constans remained undisputed ruler in the W. His unpopularity with the army led to a revolt, headed by Magnentius, in which he was killed.

Constans II was an East Roman emperor (A.D. 642-668). He checked the advance of the Arabs in Syria. Constans proposed to make Rome again the capital of the empire, but his failure against the Lombards in N. Italy forced him to abandon the idea. He afterwards removed with his court to Syracuse, where he was murdered.

CONSTANT, JEAN JOSEPH BENJAMIN (1845-1902). French painter. Born in Paris, June 10, 1845, a visit to Morocco in 1872 inspired his best work in figure subjects. After 1888 he devoted himself to portraiture almost exclusively, among his finest portraits being those of Lord Savile, M. de Blowitz, Queen Alexandra, and Constant's son André. Constant died May 26, 1902.

CONSTANT DE REBECQUE, HENRI BENJAMIN (1767-1830). French thinker and politician. Born at Lausanne, Oct. 25, 1767, he is known for his association with Madame de Stael, who became his mistress in 1796. In 1795 he settled in Paris. A supporter of the Revolution, he was averse from the more violent changes, and became an opponent of Napoleon. He lived in Germany from 1803 to 1814, when he returned to Paris. He had a hand in placing Louis Philippe on the throne, and was president of the council of state when he died, Dec. 3, 1830. Constant wrote a great work in 6 vols., *De la religion*, 1824-32; his *Journal Intime* contains some of his letters.

CONSTANTA, CONSTANZA OR KUSTENJI. Town of Rumania, the ancient Constantiana. In the Dobruja, it is on the Black Sea, 140 m. E. of Bukarest, and is the terminus of the rly. from Bukarest and the principal port of Rumania. Its docks cover 150 acres. It exports chiefly grain and petroleum. During the Great War, Oct., 1916, to Nov., 1918, it was occupied by Bulgarian and German forces. Pop. 65,000.

CONSTANTIA. Village in Cape Province, S. Africa. It stands at the foot of Table Mountain, 6 m. from Wynberg, and is celebrated for its wines. The government farm, Groot Constantia, contains some 140,000 vines.

CONSTANTINE. City of Algeria. It lies on a rocky plateau 54 m. by rly. S.S.W. of Philippeville. Formerly the capital of the Roman province of Numidia, called Cartia by the Carthaginians and Ciria by the Romans, it was destroyed about A.D. 311, but was rebuilt by Constantine the Great. It was taken by the French in 1837. Pop. 93,733.

CONSTANTINE. Name of eleven Roman emperors who reigned in Constantinople, the first being Constantine the Great (A.D. 288-337). Born at Naissus, probably in 288, he was the son of the emperor Constantius Chlorus, upon whose death, at York, July 25, 306, he was proclaimed emperor by the soldiery. Maxentius, another claimant to the throne, had seized supreme power at Rome. In a battle between him and Constantine on Oct. 27, 312, Maxentius was defeated and lost his life. Constantine had staked all on this battle, having in a dream seen in the sky a fiery cross with the legend "by this conquer."

As a consequence of this victory, Constantine ordered his soldiers to wear on their shields the monogram of the name of Christ, and decreed the toleration of Christianity in the western empire. He conducted a war against Licinius, the ruler of the eastern part of the Empire, which ended in a total victory for the western ruler. After this he founded a new capital at Byzantium, which was completed in 330 and renamed Constantinople. Constantine died at Nicomedia, on May 22, 337.

Constantine II, the son and successor of Constantine the Great, reigned from 337 to 340. He divided the Empire with his brother Constans, but the two quarrelled. Constantine III only reigned for a few weeks in 641. Constantine IV (648-85) spent most of his time in defending his throne against the Saracens. Constantine V, emperor from 741 to 775, was noted for his opposition to image worship. Constantine VI reigned from 780 until blinded by his mother Irene in 797.

Constantine VII, called Porphyrogenitus, or horn in the purple, reigned from 912 to 959, but until 944 affairs were controlled by his mother Zoe. Constantine VIII ruled with his brother Basil from 976 to 1025 and alone until his death in 1028. Constantine IX reigned from 1042 until his death, Jan. 11, 1055, and Constantine X Ducas from 1059 to 1067. Constantine XI, Palaeologus, was the last emperor at Constantinople.

CONSTANTINE (1868-1923). King of Greece. Son of George I of Greece, he was born at Athens, Aug. 3, 1868. He married Sophia,

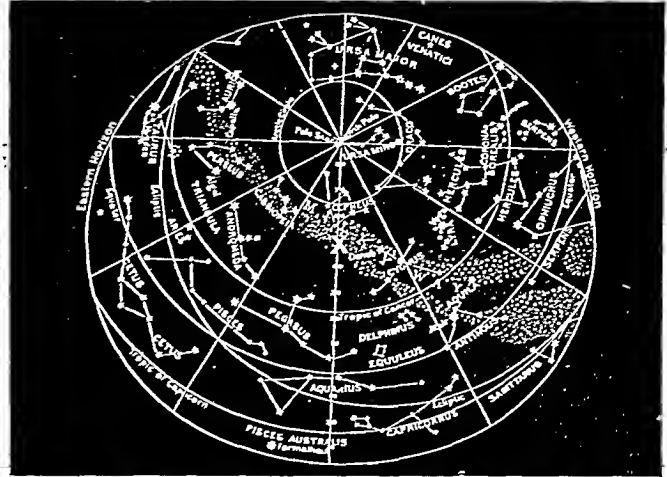
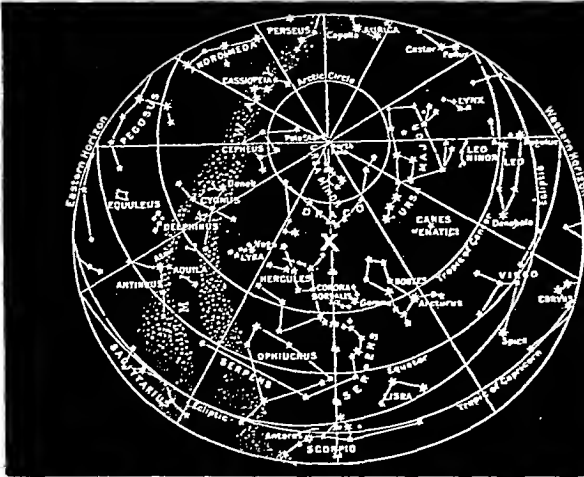


Constantine, King of Greece

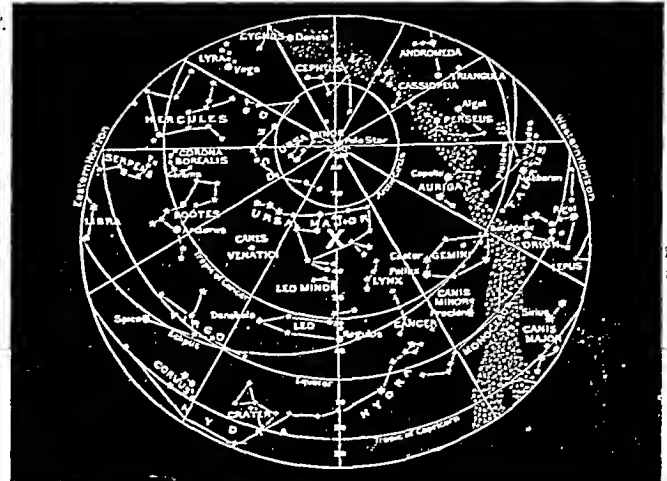
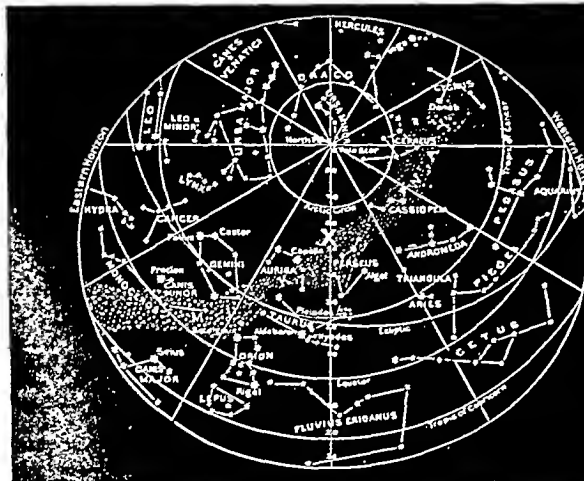
princess of Prussia, in Oct., 1889, and succeeded to the throne on his father's assassination, March 18, 1913. On the outbreak of the Great War he proclaimed Greece neutral, a policy which led eventually to his deposition, June 11, 1917. Again king in 1920, he abdicated Sept. 27, 1922, and died Jan. 11, 1923.

Constantinople. City and former capital of Turkey, now known as Istanbul (q.v.).

CONSTANTINUS, FLAVIUS CLAUDIUS (d. A.D. 411). Roman soldier and usurper. Declared emperor by the soldiers in Britain



Constellation. Map of the heavens showing, left, the relative positions of the stars during the spring months in Great Britain, and, right, those during the summer months. The position of the observer is marked by a cross. The stars of each group have been joined by lines for purposes of reader identification



Constellation. Map of the heavens during the autumn (left) and winter months, showing the positions of the stars as they would be seen by an observer in Great Britain. The centre of each map, marked by a cross, is the point in the sky immediately above the observer. The band of the Milky Way is clearly shown

in 407, he made himself master of Gaul and was acknowledged by Honorius, emperor of the West, as his colleague. His intention was to march into Italy and dethrone Honorius, but having been defeated at Arles by the imperial troops, he was taken to Ravenna and put to death with his son in 411.

CONSTANTIUS. Name of three Roman emperors. Constantius I, Flavius Valerius (c. A.D. 250-306), surnamed Chlorus (the Pale), emperor 305-306, was the father of Constantine the Great. Under the decentralisation scheme of Diocletian he became, in 292, ruler of Britain, Gaul, and Spain, with the title of Caesar. On the abdication of Diocletian, May 1, 305, Constantius received the title of Augustus. He died at York, July 25, 306.

Constantius II, Flavius Julius (A.D. 317-361), emperor, 337-361, was the third son of Constantine the Great, on whose death he received the eastern portion of the empire. Much of his reign was occupied in war with Persia. The overthrow of his brother Constans by Magnentius, involved Constantius in a struggle which ended in 351 with the defeat of Magnentius and left Constantius sole ruler of the empire. In 359 war again broke out with the Persians, and his cousin Julian, commander in Gaul, was proclaimed emperor. Constantius decided to attack Julian, but died Nov. 3, 361.

Constantius III (d. 421) was commander of the imperial troops in the reign of Honorius. Having married Placidia, the sister of Honorius, he was admitted to a share in

the Empire. He died seven months after his elevation to the throne.

CONSTELLATION (Lat. con, together; stella, star). Group of stars. For purposes of identification the fainter stars in the neighbourhood of a bright group have been added to its constellation, while the map of the heavens has been completed by organizing groups of faint stars into constellations.

Aratus (3rd century B.C.) describes (after Eudoxus of Cnidus, c. 408-355 B.C.) all the old constellations now known, except Libra, the Balance. But the consolidation of the position of the classical constellations and their enumeration in 48 figures is to be referred to Hipparchus (c. 160-125 B.C.), and after him to Ptolemy (2nd century A.D.). The work of Ptolemy was translated and amended by Al-Sufi, a 10th cent. Arabian astronomer.

Modern astronomers recognize 88 constellations. They have definite boundaries, and cover the whole sky. The boundary lines usually wind in and out among the stars, and are very irregular. The constellations are of very unequal size. They may be grouped as follows. The 28 conspicuous constellations are as follows:

Andromeda	Gemini	Sagitta
Aquila	Hercules	Sagittarius
Aries	Leo	Scorpio
Auriga	Libra	Serpens
Cassiopeia	Lyra	Taurus
Corona Borealis	Ophiuchus	Triangulum
Corvus	Orion	Ursa Major
Cygnus	Pegasus	Ursa Minor
Delphinus	Perseus	Virgo
Draco		

The following five constellations have only one bright star in each.

Boötes	Canis Minor	Piscis Australis
Canis Major	Canes Venatici	

Of the constellations 19 are not very conspicuous:

Aquarius	Crater	Lynx
Camelopardus	Equuleus	Monoceros
Cancer	Eridanus	Pisces
Capricornus	Hydra	Scutum
Cepheus	Lacerta	Sextans
Cetus	Leo Minor	Vulpecula
Coma Berenices		

There are 36 southern constellations:

Antlia	Fornax	Octans
Apus	Grns	Pavo
Ara	Horologium	Phoenix
Caelum	Hydrus	Pictor
Carina	Indus	Puppis
Centaurus	Lepus	Retikulum
Chamaeleon	Lupus	Sculptor
Circinus	Malus	Telescopium
Columba	Mensa	Triangulum
Corona	Microscopium	Australe
Australis	Musca	Tucana
Crux	Norina	Vela
Dorado		Volans

See Astronomy; Stars; Zodiac; illus. p. 85; consult also The Stars and How to Identify Them, E. W. Maunder, 1919.

CONSTIPATION (Lat. constipare, to press together). Irregular and insufficient evacuation of the bowels. Its chief causes are: sluggishness resulting from sedentary habits or improper feeding; general ill-health, particularly anaemia; diseases of the liver, stomach, and nervous system; local causes, such as obstruction of the intestine. The effects are headache and lassitude, depression

of spirits, coating of the tongue, loss of appetite, had breath, and sleeplessness.

Excess of food and indigestible food should be avoided, daily exercise should be taken, plenty of time allowed for meals, and an attempt should be made to perform the function at the same time each day. Aperients may be taken at the beginning of a course of treatment.

CONSTITUENCY (Lat. *constituere*, to place together). Term used in politics for a body of electors who form an electoral district to return one or more members to a representative assembly. See Election.

A constituent assembly is, in general, any assembly authorised to draw up a constitution for a country. After the Great War constituent assemblies met in Austria and Czechoslovakia and other new states.



Constitution Hill, London. Arch at the Piccadilly end of this thoroughfare

CONSTITUTION HILL. London thoroughfare running from Buckingham Palace to Hyde Park Corner. The arch here was erected in 1846 opposite Hyde Park Corner, but was removed to its present site in 1883, when Wyatt's equestrian statue of Wellington, which surmounted it, was removed to Aldershot and a quadriga with a figure of Peace put in its place.

CONSUBSTANTIATION. Doctrine of the Holy Eucharist which maintains that the substance of the elements of bread and wine exists with the substance of Christ's body and blood after consecration, in contradistinction to transubstantiation, the doctrine of the Roman Catholic Church, that the substance of the elements becomes the substance of Christ's body. See Eucharist; Transubstantiation.

CONSUL. Name of an official who looks after the trading interests of his country in foreign towns. The duties of British consuls may be summarised as follows: To administer the Merchant Shipping Acts with regard to British ships and seamen, wrecks, and collisions; to report fully on the trade and commerce of the district, to assist compatriots in distress, to act as notaries public and registrars, and generally to facilitate British commerce and uphold British trade.

Consulate is the name given to the building in which a consul and his staff discharge their business. Consulates are usually regarded by international law or courtesy as the soil of the country whose representatives they house.

The chief consulates-general in London are: America (U.S.A.): 18, Cavendish Sq., W.1. Argentina: 7, Gower St., W.C.1. Belgium: 10, Lowndes Sq., S.W.1. China: 49, Portland Place, W.1. France: 51, Bedford Sq., W.C.1. Germany: 9, Carlton House Terrace, S.W.1. Italy: 68, Portland Place, W.1. Netherlands: 28, Leinster St., W.1. Japan: 1, Broad St. Place, E.C.2. Portugal: 40, Woburn Sq., W.C.1. Spain: 47, Bloomsbury Sq., W.C.2. Switzerland: 32, Queen Anne St., W.1.

In ancient Rome a consul was one of the chief magistrates. First established in 510 B.C., the consuls were two in number. They held office for one year and possessed supreme judicial and military powers. Twelve lictors carried before them the symbols of office, fasces (bundles of rods), and an axe.

CONSUMPTION. Popular term for disease of the lungs which is due to infection by the bacillus of tuberculosis. See Phthisis; Tuberculosis.

CONTAGION (Lat. *contagio*, contact). Communication of disease from person to person by contact. No rigid distinction can be drawn between diseases thus conveyed and those spread by infection through the air, drinking-water, or other channel. See Infection; Public Health.

The Contagious Diseases Act was the name given to a series of statutes, mainly local in their application, passed in the middle of the 19th century for the purpose of regulating prostitution in the neighbourhood of garrisons.

CONTEMPT OF COURT. In English law, disobedience to the orders, rules, or process of a court of competent jurisdiction, or some violation of its dignity. Contempt of court includes such acts as laughing, or talking hoisterously, or striking another person in court. It also includes press comment in a pending case which is calculated to prejudice the trial, and the court may fine or commit to prison the writer or publisher. To assault a person who comes to serve a writ, summons, or order of the court is contempt. So also to disobey an injunction, or to violate an undertaking given to the court.

CONTINENT (Lat. *con*, with; *tenere*, to hold). Name given to one of the great divisions of the land surface of the globe, or a large upraised portion of the earth's crust surrounded or almost surrounded by the ocean. Accepting the second definition, the continents are (1) Eurasia, consisting of Europe and Asia; (2) Africa; (3) Australia; (4) North America; (5) South America; (6) Antarctica. It is customary to speak of Europe and Asia as separate continents, and this may be justified on economic grounds.

Off all continents there occurs a comparatively gentle slope which descends to about 100 fathoms. This is known as the Continental Shelf. Beyond there is a steep inclination of the ocean bed to a point usually between 200 and 400 fathoms, beyond which is a gradual descent to the bed of the ocean. See Africa; America, etc.

CONTINUATION SCHOOL. Institution established to provide instruction for children for several years after leaving an elementary school. In 1918, the Education Act (England and Wales), re-enacted by the Act of 1921, in addition to raising the school age, provided for the establishment of free and compulsory continuation schools for all young persons (i.e. those between the limit of school age and 18 years) who were not otherwise receiving adequate instruction. The act authorised compulsory attendance within a period of seven years for 280 hours a year, and 320 hours after that period, but provided exemption under certain conditions.

CONTRABAND (Lat. *contra*, against; and *bannum*, a proclamation). Goods, materials, or other commodities which international law forbids neutrals to supply to belligerents in times of war. The articles which constitute contraband are, in general, divided into two classes, (1) those which are of direct application to naval and military use, and (2) those which are fit for and can be employed for military or naval purposes, but are not directly prepared for that sole use. The Conference of London, 1908-9, defined the exact nature of the goods included in each class. See Blockade; International Law.

CONTRACT (Lat. *contrahere*, to draw together). In English law, contract requires: (1) the agreement of two or more persons to the same thing; commonly called offer and acceptance. The acceptance must be absolute, and not conditional. (2) There must be a

communication of both offer and acceptance to the other party. Silence is not an acceptance. (3) Either valuable consideration or a deed under seal. (4) This agreement must be of such a kind that both parties must be reasonably supposed to think that it is legally binding, that is, it must not be merely social. Consult Law of Contract, R. W. Holland, rev. ed. 1920.

A contract note is the name given to any memorandum stating the result of a transaction carried out by a broker, and sent by him to his client. It is evidence that the transaction has been carried through. Contract notes relating to dealings in stocks and shares must bear stamps varying with the amount involved.

CONTRACT BRIDGE. The essence of contract is that the declarer scores towards game only the tricks he has contracted to make. The scoring is different from auction. To make game it is necessary to score 100 points below the line. The trick values are: No trumps 35; spades and hearts 30; diamonds and clubs 20. For a rubber won in two games declarer and his partner score 700. For a rubber won in three games 500 points.

A feature is the scoring when a side is vulnerable. Players are vulnerable when they have won a game. The penalties for undertricks are then automatically doubled and if the contract is doubled are quadrupled. The penalties for failure in contract are when not vulnerable 50 per trick undoubled. If doubled 100 for the first two tricks short of contract, 200 per trick for the third and fourth tricks, and 400 for subsequent tricks. When vulnerable the penalties are, if undoubled 100 for the first trick and 200 for each subsequent trick. If doubled when vulnerable the penalty is 200 for the first trick, and 400 for each subsequent trick.

Slams, which are not scored unless bid, carry big points: 500 for little slam and 1,000 for grand slam if not vulnerable. When vulnerable 750 for little slam and 1,500 for grand slam. Honours are scored only for four in one hand. Four in one hand in any suit, 100. Five in one hand in any suit, 150. Four aces in one hand in no trumps, 150.

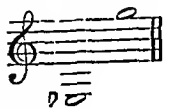
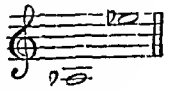
Bidding must be more conservative than at auction. An initial bid of one of a suit should indicate the probability of making at least five tricks if the suit named becomes trumps. An initial bid of one no trump should have all four suits guarded. See Auction Bridge; Bridge; consult also Contract Bridge For All, A. E. Manning Foster, 1929.

CONTRALTO (Ital.). Lowest and fullest kind of woman's voice, having an ordinary compass of about an octave and a half:—

Some voices add three or four semitones at either end of this range, while exceptional contraltos cover as much as:

CONTREXÉVILLE. Watering place of France, in the department of Vosges. It stands on the Vair, 39 m. W. of Epinal. It owes its popularity to its curative medicinal waters.

CONTROL, BOARD OF. Term applied in Great Britain to at least three distinct bodies. (1) In 1784 the India Act of William Pitt established a Board of Control to watch over the doings of the East India Company. This came to an end in 1858. (2) In 1913, under the Mental Deficiency Act, a Board of Control was established to look after the mentally defective in England and Wales. (3) In 1915 the Government was, by the Defence of the Realm Act (No. 2), given power to control the liquor traffic in any munition or camp area.



CONVENER. One who convenes or calls together a meeting. The word is more used in Scotland than in England, where chairman is virtually its equivalent. There the chairmen of the county councils are called conveners. *See* Chairman.

CONVENT (Lat. *convenire*, to come together). Originally applied to an assembly of Roman citizens (*conventus*), the word was appropriated to the members of a Christian community and to their place of habitation. The equivalent of monastery, when common use made this the term for a religious house for men, convent became the special term for a nunnery or religious community of women. *See* Abbey; Monasticism.

Conventicle is a diminutive of convent. The word is generally used, however, in a disparaging sense for a small place of worship. It was applied to the places of worship belonging to nonconformists at a time when their worship was illegal, or almost so, and was frequently used for the secret, and usually outdoor, services of the Covenanters.

CONVENTION (Lat. *convenire*, to come together). Term for a meeting or assembly of any kind, but among English-speaking peoples used mainly for certain kinds of political assemblies. In the U.S.A. the meetings held by the great political parties for the selection of their candidates for the presidential election are called conventions.

Convention is also the name for international agreements, as the Brussels and Hague Conventions, and those of Paris and Geneva.

CONVERSION (Lat. *convertere*, to change). In English law, to convert another's chattels to one's own use. This is done by exercising any act of dominion over the chattels; and it makes no difference that the converter is morally innocent.

In financial language, conversion denotes changing the nature of stocks and shares, e.g. making a 4 p.c. stock into a 5 p.c. one, or conversely making a 3 p.c. stock into a 2½ p.c., as was done to Consols in 1887-88. There are many other instances in public finance. *See* Consols; National Debt.

CONVERTER. Term applied to the furnace in which, in the Bessemer process of making steel, the crude iron is first purified, by having air blown through the molten mass, and then converted into steel by the addition of a suitable compound of iron and carbon. *See* Bessemer, Sir H.

CONVEYANCING. English legal term for the act of transferring property, or some interest therein, by deeds and documents; and usually to the drawing of documents relating to real property, leaseholds, and trusts. Conveyancing has been greatly simplified by the Conveyancing Act of 1881 and certain amending Acts, and to some extent has been supplanted by a system of land registration.

The stamp duty on the conveyance or transfer of property is 1s. where the purchase money does not exceed £5, and there is a graduated scale; 5s. where the value exceeds £20 but does not exceed £25; 5s. for every additional £25 up to £300; and if exceeding £300, 10s. for every £50. In addition there are the usual solicitor's charges. *See* Costa.

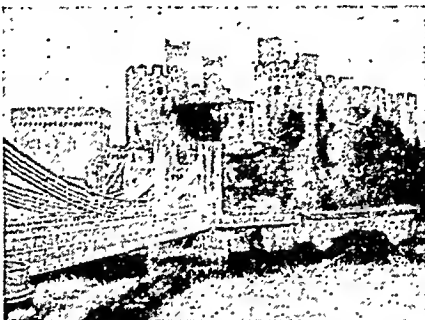
CONVEYER. Device for carrying and lifting broken substances, such as coal, coke, ashes, ore, macadam, grain, earth and sand, and parcels or packages of goods. One form of conveyer is the endless belt running at the delivery end round a driving pulley, and at the other round an idle tension wheel. The upper

or carrying side is supported at intervals of a few feet by groups of rollers which give it a trough-like form; the lower side by "idlers" mounted on straight shafts. By means of a movable throw-off the belt may be made to discharge its load at any point of its travel.

Other conveyers working on the same principle have a series of overlapping plates or trays attached to links of an endless chain. *See* Elevator.

CONVICT (Lat. *convictus*, proved guilty). In English law, a person on whom a sentence has been passed for treason or felony. The Forfeiture Act, 1870, abolished the forfeiture by convicts of their lands and goods, but enables the crown to appoint administrators of their property and to award from it compensation to injured persons and the costs of prosecution. Convicts liberated on licence before the expiry of their sentence are popularly known as ticket-of-leave men. *See* Criminology.

CONVOCACTION (Lat. *convocare*, to call together). Term meaning generally an assembly, but more especially the official and constitutional assemblies of the clergy of the Church of England. Convocation meets in two houses in each province of Canterbury and York, as it has done since the 14th century. The two upper houses consist of the diocesan



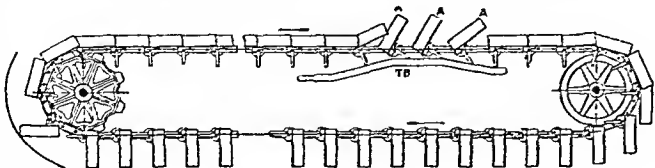
Conway Castle, built by Edward I in the 13th century, and the Telford suspension bridge. *See* below

bishops exclusively, and are presided over by the archbishops of Canterbury and York respectively. The lower houses consist of deans, archdeacons, and two proctors for each diocese, these being chosen by the beneficed clergy. *See* Church of England.

Convolutus. Genus of twining plants. *See* Bindweed.

CONVOY. Word meaning an escort or protecting force, chiefly used in connexion with shipping. When a ship of war, in time of war, under an officer appointed by government, sails with merchantmen to protect them from the enemy, it is called a convoying ship, and the merchantmen are called the convoy.

CONVULSION (Lat. *convellere*, to pull together). Violent contraction, followed by relaxation of the muscles of the body. Convulsions form a symptom of great variety of diseases or abnormal conditions. The condition is most often observed in young children. The immediate treatment is to place the



Conveyer. Babcock and Wilcox patent tipping tray conveyer. T.B. tipping bar; AAA, tipping trays

infant in a warm bath, but it is more important to direct attention to the cause of the convulsions. *See* Rickets.

CONWAY OR **ABERCONWAY** (anc. *Conovium*). Borough, market town and seaport of Carnar-

vonshire. It stands at the mouth of the river Conway, 13½ m. E.N.E. of Bangor, on the L.M.S. Rly. The town is enclosed by a high wall with 21 round towers. Among other features are the ruins of the castle, erected by Edward I in 1284; the Plas Mawr, a 16th century timber mansion; and the two bridges over the river Conway. Market day, Fri. Pop. 6,500. *See* illus. below



Moncreux Conway, American author

CONWAY, MONCREUX DANIEL (1832-1907). American man of letters. Born in Virginia, March 17, 1832, he became a Unitarian minister. In 1863 he came to England and was minister of South Place Chapel, London, until 1884. He wrote *Lives of Carlyle, Emerson, Hawthorne, and Thomas Paine*. He died in America, Nov. 15, 1907.

COOCH BEHAR. Semi-independent state of Bengal, India. Its area is about 1,300 sq. m. The soil is alluvial, rice being the chief crop. Pop. 592,500. The capital is Cooch Behar. Pop. 11,461.

COOK. Group of islands in the Pacific Ocean, also called the Hervey Archipelago. They are 1,640 m. N.E. of Auckland, New Zealand, and are mostly coral atolls. The largest is Rarotonga, which has a wireless station. The archipelago was taken over by New Zealand in 1901. Its area is about 280 sq. m. Pop. 13,877.

COOK, SIR EDWARD TYAS (1857-1919). British journalist and author. Born at Brighton, May 12, 1857, he entered upon a journalistic career in London. In 1890 he succeeded to the editorship of *The Pall Mall Gazette*, which he left in 1892 to become the first editor of the *Westminster Gazette*. From 1896-1901 he was editor of the *Daily News*, which he left in 1901, as he believed in prosecuting the war against the Boers to its conclusion. From 1901-12 Cook was a leader writer on *The Daily Chronicle*, and from 1916-19 joint director of the Press



Eliza Cook, British poet

Bureau. Knighted in 1917, he died Sept. 30, 1919. Cook was a leading authority on Ruskin.

COOK, ELIZA (1818-89). British poet. Born Dec. 24, 1818, in Southwark, she wrote *Lays of a Wild Harp*, 1835, and *Melaia and Other Poems*, 1838. The *Old Arm Chair*, 1837, established her popularity. From 1849-54 she conducted *Eliza Cook's Journal*. She died Sept. 23, 1889.

COOK, JAMES (1728-79). British navigator. Born Oct. 27, 1728, at Marton, Yorks, in 1755 he joined the navy as A.B. and in 1759 became master of the *Mercury*. In 1768 he was given command of the *Endeavour*, sent to the Pacific to observe the transit of Venus. On the return voyage New Zealand was circumnavigated, and Australia was visited. Returning by way of the Cape, Cook dropped anchor in the Downs, June 12, 1771.

On July 13, 1772, Cook sailed for the Antarctic in the *Resolution*, accompanied by the *Adventure*, and after careful exploration, sailed N., explored the New Hebrides, and discovered



James Cook, British navigator After N. Dance, R.A.

New Caledonia. A year later he sailed again to explore the N. Pacific. He discovered the Sandwich Islands, March 7, 1778, to which, after a cruise farther N., he returned Jan. 17, 1779. Here Cook was murdered, Feb. 14, 1779.

COOK, SIR JOSEPH (b. 1860). Australian politician. Born in England, he emigrated to Australia in 1885 and settled in New South Wales. In 1894 he took office as postmaster-general, and in 1898 was minister for mines and agriculture. On the formation of the Commonwealth in 1900, Cook entered the Federal House of Representatives. In 1909 he was minister of defence under Deakin, but the general election of 1910 went against them and they resigned. In 1913 Cook, as leader of a coalition, secured a narrow victory at the general election, and was for a short time prime minister, but in September, 1914, he resigned. He was minister for the navy, 1917. In 1918 he was knighted. Delegate at the peace conference, 1919, he was high commissioner for Australia in London, 1921-7.

COOK, THOMAS (1808-92). British tourist agent. Born Nov. 22, 1808, he became a printer and an itinerant preacher. In 1841, in connexion with a temperance meeting, he secured a special train from Leicester to Loughborough; this carried passengers for 1s. each. Other excursion trains were chartered by Cook, who soon had a regular arrangement with the Midland Railway. He died July 19, 1892.

His son, John Mason Cook (1834-1909), joined him, and the business was known, after 1872, as Thos. Cook & Son. Attention was turned to foreign travel, and fresh lines of business were developed, until the firm had branches all over the world. It was absorbed by the International Sleeping Car Co. in 1928.

Cookham. District of Berkshire. It is on the Thames, 2½ m. W. of London on the G.W.R. There is a lock here. Pop. 5,348.

COOKSTOWN. Urban district and market town of co. Tyrone, Northern Ireland, 53½ m. by rly. W. of Belfast. Its industries include linen and chemical manufactures. Market days, Sat. and Tues. Pop. 3,700.

COOLGARDEE. Town of W. Australia, 357 m. by rly. E.N.E. of Perth. On the transcontinental rly., it is an important junction for several goldfields. This rich area, now somewhat worked out, originated in the sensational find of 1892. Pop. 4,000.

The Coolgardie aqueduct is part of the pipe line, 350 m. long, that supplies water to the W. Australian goldfields.

COOLIDGE, CALVIN (b. 1872). American president. Born July 4, 1872, at Plymouth, Vermont, he became a lawyer at Northampton, Mass. In 1912 he was elected a member of the Massachusetts senate and in 1918 was chosen governor of the state. By that time he had become a leading Republican, and in 1920 he was chosen vice-president of the U.S.A., succeeding to the presidency on Harding's death in Aug., 1923. Coolidge was re-elected president in 1924, but retired when his term ended in March, 1929. He published his Autobiography in 1929.

COOLIE (Hind. quli, labourer). General term for unskilled Asiatic labourers. In the 19th century the migration and exploitation of Indian and Chinese coolies led to such

abuses that a convention between China, Great Britain, and France in 1866 established fair conditions of labour, and British conventions with France, 1861, and Holland, 1870, were directed to a similar end. In 1883 the Indian government restricted still further the contract labour of coolies overseas. Coolie contract labour within India itself is regulated by an Act of 1901.

COOPER. Skilled mechanic engaged in barrel making. "Wet" coopers are highly skilled workmen who construct bulging vessels for holding wine and other liquids; "dry" coopers make barrels for dry goods, where less exactness in fitting the staves is required; "white" coopers are concerned mainly with tubs, churns, and other domestic articles without the bulge.

The Coopers' Compny is a London city livery company. Incorporated in 1501, it was empowered by Henry VIII to search and gauge all beer, ale, and soap vessels within the city and 2 m. round, ¼d. being allowed for each cask. The hall in Basinghall Street, E.C., was burnt in 1666 and rebuilt a second time in 1668.

COOPER, ALFRED DUFF (b. 1890). British politician. A son of Sir Alfred Cooper and Lady Agnes Duff, sister of the duke of Fife, he was educated at Eton and New College, Oxford. During the Great War he served with the Grenadier Guards, winning the D.S.O. From 1924 to 1929 he was Unionist M.P. for Oldham, and from 1926-29 was financial secretary to the War Office. He married Lady Diana Manners, daughter of the 8th duke of Rutland, the central figure in *The Miracle* and other film pieces.



Sir Astley Cooper, British surgeon

demonstrator of anatomy at St. Thomas' Hospital, he was appointed surgeon to Guy's Hospital in 1800. He was president of the College of Surgeons in 1827 and 1836, and wrote treatises on anatomy and surgery. In 1820 Cooper operated for a tumour on George IV and was made a baronet. He died in London, Feb. 12, 1841.

COOPER, JAMES FENIMORE (1769-1851). American novelist. Born at Burlington, N.J., Sept. 15, 1769, he joined the merchant service as a seaman, 1806, and in 1808 entered the navy, resigning his commission in 1811. Among his thirty-two novels are *The Last of the Mohicans*, 1826; *The Prairie*, 1826; *The Pathfinder*, 1840; and *The Two Admirals*, 1842. Cooper made the Red Indian a familiar figure in fiction. He died at Cooperstown, New York, Sept. 14, 1851.

COOPER, SAMUEL (1609-72). English miniature painter. Born in London, he became the greatest miniaturist of the English school. To him are due portraits of Cromwell, Milton, Albemarle, Montrose, Waller, Hampden, Charles II and his Queen, and other notabilities. He died May 5, 1672.



Coolie. Chinese coolie with load

COOPER, THOMAS SIDNEY (1803-1902). British painter. Born at Canterbury, Sept. 26, 1803, he was engaged as a youth in coach and scene-painting. Elected A.R.A. in 1845 and R.A. in 1867, between 1833 and 1902 he exhibited 266 pictures at Burlington House. He died Feb. 7, 1902.

COOPERAGE. Practice of selling spirits and tobacco that have not paid duty, to fishermen in the North Sea. Dutch traders began the business about 1850, their vessels being called koopers. As far as Great Britain is concerned, the practice is now illegal.

COOPERATION. Name given to an industrial system, self-governed, and organized for the mutual benefit of its members. It does not admit the authority of the private capitalist, and is to be distinguished from systems of co-partnership and profit-sharing devised for the joint benefit of labour and capital. The founder of cooperation was Robert Owen, who in 1821 established in London the first cooperative society. In 1844 Owen's disciples started the first distributive store at Rochdale. These Rochdale pioneers consisted of 28 weavers, and while their full programme included the establishment of colonies and workshops, their immediate plan was to subscribe £1 each for the purchase of foods, open a store and divide the profits from sales in proportion to the amount of goods purchased by each member. This principle has remained the vital and distinctive feature of the cooperative movement.

To get rid of the difficulties of buying goods, a north of England Cooperative Wholesale Society was established at Manchester, 1864, and a Scottish Wholesale Society in 1868. The former received its present name, the Cooperative Wholesale Society, in 1873. As each local retail society consists of members who are required on joining to take up a £1 share, which £1 may be paid out of the dividend on purchases, so the share capital of the C.W.S. was raised by the local societies, and its shareholders are exclusively these societies.

All members of a retail society participate in its dividend, and membership is open to all. The total profits of each local society are not entirely allotted as dividends, for a certain amount may be spent on educational work, and all the more progressive societies arrange for reading rooms and for courses of lectures out of their funds. In 1917 a political cooperative party was formed. In 1927 it was united with the Labour party.

In 1928 there were 1,293 retail, 3 wholesale and 70 productive associations controlled by consumers. These 1,366 societies had an aggregate membership of 5,827,000, and capital and reserves of £176,468,000.

COOT (*Fulica atra*). Aquatic bird of Central and S. Europe. It is found on lakes and ponds in most parts of England and Ireland, and in Scotland in summer. It is recognized by the conspicuous white naked patch on the forehead. It feeds on aquatic insects, small fish, and leaves and buds of water plants, generally building a nest on the water.

COPAIBA. Oleo-resin obtained from the trunk of *Copaifera lansdorffii*, a tree found in the E. and W. Indies but native of Brazil. It is only occasionally used in medicine, but oleum copaiba, which is a volatile oil distilled from copaiba, is more usually employed as an internal disinfectant.



Calvin Coolidge, American president



Fenimore Cooper, American novelist



Coot. European aquatic bird of the rail family
Parker

COPAL VARNISH. Oil varnish with characteristic hardness. Copal is a hard resin found in E. Africa, Zanzibar, and Madagascar. The varnish is prepared by fusing the copal and mixing it with hot linseed oil, diluting with spirit of turpentine, and adding a siccative. It is used for purposes where a hard protective surface is required.

CO-PARTNERSHIP. System of organization in industry which aims at bringing about a permanent improvement in the relations of capital and labour and a definite change in the status of the workers. It claims for all workers (1) that they shall receive, in addition to their standard wages, some share in the final profit of the business or the economy of production; (2) that they shall accumulate their share of profit, or part thereof, in the capital of the business; (3) that they shall acquire some share in the control of the business by acquiring share capital, and thus obtain the rights and responsibilities appertaining to shareholders.

The principle of co-partnership may be worked out in a variety of ways. In 1928 there were 308 firms in Great Britain with schemes of this kind, and 222,000 employees participated in the benefits.

COPE (late Lat. cappa, cape). Semi-circular ecclesiastical cloak of silk or other material fastened across the breast by a metal clasp or band, called the morse. Its use as a specific ecclesiastical vestment worn over surplice or alb-dates from the 12th century. It is worn to-day in the Roman Catholic Church by the officiating priest on certain occasions. In the Anglican communion it is worn by some bishops, by the clergy of certain cathedrals at Holy Communion, and in churches where pre-Reformation ritual is practised. It has always been worn by Anglican bishops at the coronation of the sovereign. See Alb; Archbishop; Vestments.

COPE, SIR ARTHUR STOCKDALE (b. 1857). British artist. A son of Charles West Cope, R.A., he was born Nov. 2, 1857, and educated at Norwich. He studied art, and first exhibited at the Academy in 1876. In 1910 he was elected an R.A., and in the same year was knighted. Cope's chief works are portraits of Edward VII, George V. and other royalties.

COPE, SIR JOHN (d. 1760). English soldier. In 1745 he was commander-in-chief of the government forces in Scotland, but failing to check Prince Charles Edward's progress, he took his troops by sea to Dunbar. On Sept. 20 and 21 the two armies met at Prestonpans, when Cope was totally defeated. The contemptible nature of the fight put up by his army is recorded in the song "Hey, Johnnie Cope! are ye waukin' yet?" He died July 28, 1760. See Charles Edward.

COPENHAGEN (Dan. Kjøbenhavn, merchants' haven). Seaport and capital of Denmark. It stands partly on the E. coast of the island of Zealand, and partly on the island of Amager, which is separated from Zealand by the Kalvehodstrand, crossed by two bridges. The smaller and more modern portion on Amager is known as Christianshavn.

The chief thoroughfare is the Gøttersgade, between Kongens Nytorv (New King's Market) in the centre of the city, and the boulevards in the W. The commercial quarter lies between the harbour and Kongens Nytorv. The chief buildings are the palace of Charlottenborg, used as an academy of arts; the castle and palace of Rosenborg, the Thorwaldsen and Hirschsprung museums,

the town hall, university (dating from 1479), and exchange. Ecclesiastical buildings include the Vor Frue Kirke (Church of Our Lady), the cathedral church; Frederikskirke, Holmen's Kirke, and Vor Frelsers Kirke.

Copenhagen grew up round a castle built by Bishop Absalon, and was originally called Axelhuus. In 1443, Christopher II, king of Denmark, made it the capital. Pop. without suburbs, 587,150; with suburbs, 731,496.

The British attack on Copenhagen in 1801 arose from the efforts of Denmark, Sweden, and Russia to establish the right of convoy. The British fleet under Sir Hyde Parker entered the Sound on March 30 and attacked the Danish ships, which in the end were forced to capitulate. On this occasion Nelson, second in command to Parker, put the telescope to his blind eye when the signal to cease firing was hoisted.

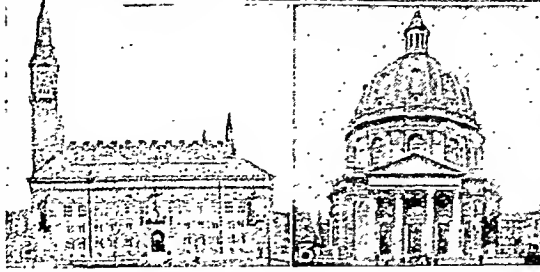
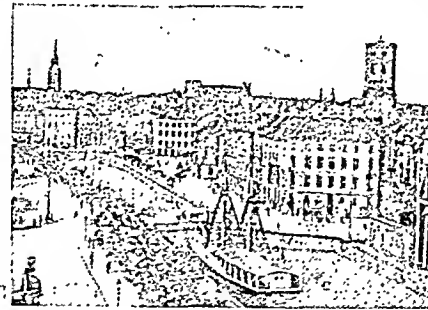
COPEPODA. Order of small crustaceans. They are found in both fresh and salt water, many being parasitic and known as fish-lice. The Cyclops (q.v.) of the ponds is an example of the free-living Copepoda. The order furnishes a large part of the food of the herring and other important fishes.



Nicolaus Copernicus, Polish astronomer. Portrait in possession of the Royal Society.

at Heilsberg, where he prosecuted the construction of a new cosmic theory of the universe. From 1522-29 he sat in the Prussian

COPERNICUS, NICOLAUS (1473-1543). Polish-German astronomer. Born in Thorn, Poland, Feb. 19, 1473, he went in 1491 to Cracow, where he studied medicine, theology, astronomy, and mathematics. In 1500 he went to Rome, later studying medicine at Padua, and ecclesiastical law at Ferrara. He left Italy in 1505, and spent the six succeeding years at Heilsberg, where he prosecuted the construction of a new cosmic theory of the universe. From 1522-29 he sat in the Prussian



1. Copenhagen. Town Hall. 2. Peblinge Lake, to the N.W. of the city. 3. The dome of the cathedral.

Diet. To his intimate friends alone he confided the then audacious theory that the sun is the central body round which the earth and the

remaining planets revolve. At last he consented that his work, *De Revolutionibus Orbium Coelestium* should be published, but the first printed copy reached him only on his death-bed. He died May 24, 1543.

COPHETUA. Legendary African king who made the daughter of a beggar his queen. The story is referred to by Shakespeare and Jonson, and was the subject of two old ballads. Tennyson modernised the story in his poem *The Beggar Maid*.

COPLEY, JOHN SINGLETON (1737-1815). Anglo-American painter. Born in Boston, Mass., July 3, 1737, he received his early art training from his stepfather, Peter Pelham. He sailed for England in 1774, and then spent a year in Italy. On settling in London in 1776 he was elected A.R.A., becoming R.A. in 1779. He painted portraits and historical subjects with conspicuous success. He died Sept. 9, 1815. His son became Lord Lyndhurst (q.v.). Consult Life, A. T. Perkins, 1873.

COPPER. Elementary metal. Its symbol is Cu; its atomic weight, 63.57; atomic number, 29; specific gravity, 8.8 to 8.95; melting point, 1,050° C.; specific heat, 0.095. In hardness copper ranks after manganese, cobalt, nickel, and iron. In tensile strength copper comes after iron. It has a red colour and will take a fine polish. Highly ductile and malleable, copper may be drawn into extremely fine wire.

The processes of extracting copper from its ores are generally two, known as wet and dry extraction respectively. A preliminary operation, indispensable where the sulphides constitute the chief ore, is the process of roasting or calcining the raw ore to remove the excess of sulphur. The roasting finished, the ore is ready for wet or dry process of extraction. The former consists in dissolving the copper out of the ore by a suitable solvent.

The dry method of extraction, by which the great bulk of the world's copper is produced, comprises generally the following operations. First, smelting the roasted ore to "matte," "regulus," or coarse metal in blast furnaces. The molten product is run off into a settler, from which the slag is tapped off. There remains a mixture of chiefly copper and iron sulphides. The product is again roasted, after which the residue is once more smelted either in a reverberatory, or now more generally in modern works, in a modified form of Bessemer converter. The final product is metallic copper containing probably 99 p.c. of the metal.

Copper as an industrial metal ranks second only to iron, alike in the extent of its production and in importance in the arts. It is used in its natural state for an immense number of purposes in the forms of bars, sheets or plates, and wire. Alloyed with zinc it forms brass, and with tin, bronze. See Alloy; Brass; Bronze; Metallurgy.

COPPER ORES. Many minerals are copper-bearing, but only those containing sufficient quantity are mined as copper ores. In the deepest zone of vein deposits are the sulphides of copper and iron, usually called copper pyrites, or chalcocite (34.6 p.c. copper), the original ore of the metal. Nearer the surface are such sulphides as chalcocite or copper-glance (77 p.c.) and erubescite (53 p.c.). In the upper weathered portion of the lodes are found the oxides, including cuprite (88 p.c.) and melanoconite (80 p.c.), the carbonates malachite (56 p.c.) and chrysocolla (36 p.c.).

The world's production of copper in 1929 amounted approximately to 2,136,021 tons. More than half came from the U.S.A.

COPPER AGE. Archaeological term denoting a cultural phase conditioned by the use of copper, without an intentional alloy, for

implements and ornaments Where it occurs, it is intermediate between the stone and bronze ages, with no sharp lines of demarcation and no long duration.

The early period, coincident with the late Neolithic in Egypt, Crete, Cyprus, and W. Asia, exhibits copper objects as a rarity, in conjunction with predominant flint implements and crude handed pottery. The middle period marked a substantial development, especially in middle Europe. The late period, coincident with the earliest bronze age, exhibits implements cast in bronze from copper reproductions of stone originals. See Anthropology; Bronze Age, etc.

COPPERHEAD (Ancistrodon or Trigonocephalus contortrix). Poisonous snake of North America. Beautifully marked with coppery red and brown, and usually about a yard long, it is common in mountain valleys, preys upon birds and small mammals, and gives no warning before it strikes. It is also known as Moccasin-snake.

COPPERMINE. River of the N.W. Territories, Canada, named after the rich mineral deposits in the neighbourhood. It rises in an unnamed lake, flows S. into Lake Gras, N.W. through Lake Point, and finally N. to Coronation Gulf in the Arctic Ocean. It is about 525 m. long.

COPRA (Hind. khopra, coconut). Broken and sun-dried kernel of the coconut. It is exported from the South Pacific Isles for the sake of its oil, of which the kernel contains over 70 p.c. See Coconut Palm; Margarine.

COPROLITES. Fossilised nodules of the excrement of animals. Fish coprolites occur in Carboniferous shales of the Firth of Forth area, and in the Cretaceous beds of Cambridgeshire, where they form a source of phosphate used for artificial manures.

COPTOS. Ancient town near the right Nile bank, 26½ m. below Luxor, Upper Egypt. The modern Kufi, it attained importance at the beginning of dynastic history as the Nile terminus of several desert routes. Flinders Petrie's excavations in 1894 revealed Neolithic implements and cultural objects.

COPTS. Early native Christians, and their Monophysite successors, in Egypt. The European name has become fixed through long association with the town of Coptos. All fellahin (peasants) are racially Copts, but the Moslem majority have acquired by intermingling somewhat Arab and Nubian characters. In lower Egypt the Copts are scribes, traders, and artisans. They have assimilated the Moslem dress and some social culture.

The ancient Egyptian language passed, under the Roman domination, into Coptic, and was written in a hybrid alphabet of Greek uncials and demotic characters. Early Christian Egypt, with its inheritance of centuries of artistic tradition in association with religion, exerted a profound influence upon Christian art at large. Such conventional motives as the S. George and Dragon, perhaps even the Madonna and Child, are of Nilotic origin. So also the ankh (see illus. p. 91), the sign of life,

determined the form of the Coptic cross. Under Oriental influence Coptic craftsmen formed a distinctive school.

The Coptic Church, represented by the see of Alexandria, was famous in the 3rd and 4th centuries, but after 451 it became estranged from the orthodox churches of the East and from the Latins of the West. In Egypt to-day it has about 850,000 members. The head of the church is the patriarch of Alexandria.

COPYHOLD. In England, a form of holding land something between freehold and leasehold. Copyhold land was always land in a manor, and was so named because it was held on conditions laid down or copied on the rolls of the manor. This form of tenure in England was ended by the Law of Property Act of 1925. See Manor.

COPYRIGHT. Exclusive right of an author, artist, composer, or his representative, to produce or reproduce his works in any material form. The Copyright Act of 1911 repealed most of the statutes then in existence, and codifies the law of British, and in large part, of Imperial, copyright.

In addition to the sole right to produce or reproduce, to perform or publish, the case may be, copyright includes rights of translation, dramatisation, and reproduction by mechanical contrivances. There are numerous ways of infringing copyright, e.g. by publishing an unpublished work, such as a letter; by pirating the whole or a substantial part of a published work; by dramatising or filming a novel; by "novelising" a play; in each case without the consent of the owner of the copyright.

Copyright subsists for the life of the author and fifty years after his death;

in a photograph, 50 years from the making of the negative; in mechanical contrivances, 50 years from the making of the original plate. Copyright may be assigned, either wholly or partially, or with limitations as to area and time. The ordinary remedies conferred by law for infringement of a right—injunction, damages, etc.—are open to the owner. Registration at Stationers' Hall is no longer required.

In 1930 a bill to amend the law with regard to musical and dramatic copyright was introduced into Parliament.

COQUELIN, BENOÎT CONSTANT (1841–1909). French actor. Known as Coquelin aîné, he was born Jan. 23, 1841, and appeared at the Théâtre Français, 1860. He made several tours in America, and acted in London 1892, 1902, and 1903. His greatest success

was in Rostand's *Cyrano de Bergerac*. He died Jan. 27, 1909. His brother, Ernest Alexandre Honoré Coquelin (1848–1909), Coquelin cadet (the younger), was also a successful actor. Jean Coquelin (h. 1865), son of Coquelin aîné, and like him an actor, appeared at the Théâtre Français in 1890. He created the part of Raguenau in *Cyrano de Bergerac* (q.v.).

COQUES, GONZALES (c. 1618–84). Flemish painter. Born at Antwerp, he determined to paint portraits in Van Dyck's manner, and earned the sobriquet of *The Little Van Dyck*. He composed some of his subjects in the form of conversation-pieces. He died April 18, 1684. Pron. Cok.

COQUET. River of Northumberland. It rises on the E. side of the Cheviots and flows to the North Sea about 1 m. below Warkworth. Its length is 40 m. Coquet Island lies about 1½ m. S.E. of its mouth.

CORACLE (Gael. curach, boat). Primitive fishing-boat. It is still seen in the Hebrides and on the rivers Dee and Teify. Very light, made of canvas over a tarred basket-work frame, it holds one man, who fishes with one hand and with the other directs the boat by a paddle.

CORAL (Gr. corallion, Lat. corallium). Term applied to a large number of polyps,

related to the sea anemones, and belonging to the sub-kingdom Coelenterata. As a rule coral polyps have the power of extracting lime from the sea water and using it to build up a kind of calcareous skeleton, which may assume the form of an external case or tube, or of an internal supporting axis round which the fleshy substance of the coral "animal" grows. The lime-building corals are found in tropical

and sub-tropical seas. The surface is pierced with minute holes geometrically arranged.

When the coral was alive, each hole was occupied by a polyp, resembling a sea-anemone, which protruded from the hole like a tiny stellate flower. From time to time these put forth buds which developed into new individuals, each of which built its tube, and so the mass grew. All the polyps were connected with one another by a series of canals, and each contributed to the life of the complex organism. Some corals do not live in colonies, and these construct the cup corals, mushroom corals, and other curious forms.

The red coral is the work of a polyp of different organization. It builds up an internal limy stalk or pedestal, round which its reddish-yellow flesh-substance develops. This is starred all over with the flower-like polyps.

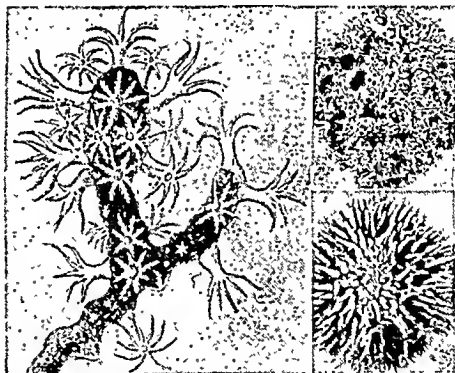
CORAL REEF. This is a formation built by coral polyps. For conditions favourable to the growth of reef-building coral the temperature of the water must not fall below 70°F. This virtually limits coral formation to a belt roughly extending to 30° N. and S. of the



Copperhead. North American poisonous snake
W. S. Burridge



Coracle. A primitive boat



Coral. 1. Branch of red coral, *Corallium rubrum*. 2. Specimen from the Queensland coast. 3. Expanded polyp
From The Great Barrier Reef of Australia, by W. Saville-Kent



Copts. Group of women of this Egyptian race of Christians



Coquelin aîné.
French actor

equator. The presence of any sediment prevents coral growth, so that coral reefs are absent near the mouth of a river bringing sediment to the sea. Coral polyps cannot build in fresh water, owing to the absence of the necessary food constituents. Polyps cannot exist at a greater depth than 30-40 fathoms. There are three kinds of reef—fringing reefs, barrier reefs, and atolls. See Atoll.

CORALLINE (*Corallina officinalis*). Small seaweed of the order Corallinales, in the class Rhodophyceae. It is common on rocks, shells, and stones in shallow water. At first soft and flexible, it later becomes hard and brittle through the deposition of carbonate of lime.



Coralline. Specimen from W. Australia

CORAL ROOT or **CORAL-WORT** (*Cardamine bulbifera*). Perennial herb of the order Cruciferae. A native of Europe and W. Asia,



Coral root, showing leaves, seed pods and bulbils

it is found in woods and copses. It has a creeping, scaly root-stock, lower leaves divided into a few pairs of oblong leaflets, upper leaves simple, bearing reproductive bulbils in their axils; and the flowers are white or lilac.

The name coral-root orchis is given to a genus of orchids (*Corallorhiza*) with fleshy coral-like root-stocks. *C. trifida*, a rare species, occurs in boggy woods in Scotland. The lip of the flower is white, with purplish spots.

CORAL SNAKE. Poisonous snakes of the genus *Elaps*. They are restricted to the American continent. Small, but long in body, they are usually of handsome appearance, banded with coral red and black. They are found in the forests, some species being arboreal in their habit.

CORAM, THOMAS (1668-1751). British philanthropist. Born in England, his early days were spent in the U.S.A. In 1719 he settled in London. About 1735 the condition of the London foundlings attracted his attention. He raised a subscription, obtained a charter, and a hospital was built, which was opened in Hatton Garden in 1741. It was moved to Bloomsbury in 1745. In 1749 Coram was granted an annuity. He died March 29, 1751. See Foundling Hospital.

CORBEL (late Lat. *corvellus*, little crow). In medieval architecture, name for a bracket of stone or metal projecting from a wall and supporting a structural feature such as an oriel window, etc. When a corbel projects more than double its height it is called a cantilever; when its depth equals its projection, a block corbel; when its projection is half its height or less, a console.

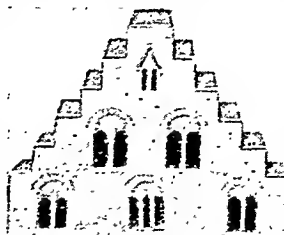


Corbel, a bracket of stone

CORBETT, JAMES JOHN (h. 1866). American boxer. In 1889 he knocked out Joe Choynski in 28 rounds. He defeated Jake Kilrain in 1890, and in 1891 fought a drawn battle with Peter Jackson. In 1892 Corbett

became world's champion by beating James L. Sullivan. He successfully defended his title against Charley Mitebell, 1894, but lost to Bob Fitzsimmons at Carson, Nevada, 1897. In his last fight, on Aug. 14, 1903, he was knocked out by J. J. Jeffries.

CORBIE STEP or **CROW STEP** (Scots corbie, crow). Scots term for either the top stone of a gable on which the pinnacle is set, or the stepped sides of a gable. The latter form is a picturesque feature of many mediæval houses in the Netherlands and Germany.



Corbie Steps on the gable of a 12th century house in Cologne

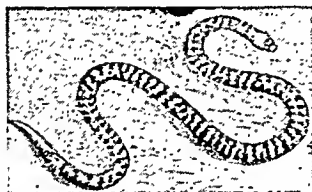
CORBRIDGE. Town of Northumberland, on the N. bank of the Tyne, 4 m. E. of Hexham. It has a square peel tower. The church of S. Andrew is built partly of materials from the neighbouring Roman station of Corstopitum (q.v.). Pop. 2,415

CORCYRA. Latin form of Kerkyra, the Greek name of Corfu (q.v.). Colonised by the Corinthians about 733 B.C., its alliance with Athens in 432 B.C. was a cause of the Peloponnesian War. Corcyra was taken by the Romans, 229 B.C. See Ionian Islands.

CORDAY, CHARLOTTE (1768-93). French revolutionist and assassin. Born at Saint Saturnin, July 27, 1768, she at first ardently supported the Revolution. On the fall of the Girondists, with whom she sympathised, Charlotte determined to rid France of Marat. On July 13, 1793, she obtained admission to his apartments, where Marat was sitting in his bath, writing. While he was taking note of the names of certain Girondists, Charlotte stabbed Marat with a knife. She was guillotined, July 17, 1793.



Charlotte Corday, French revolutionist. Drawn from life by J. J. Hauer at her trial



Coral snake. A poisonous snake of the American continent

Friends of the Rights of Man and of the Citizen, but it was familiarly named from its original meeting place in the empty chapel of the Cordelier friars. It possessed great influence over the mob and was largely responsible for the fall of the Girondins (1793), but the increasing violence of its opinions drove the more level-headed members elsewhere, and in 1794 those who were most prominent were guillotined. The club was finally dissolved in Aug., 1795.

CORDIERITE. Hydrated silicate of alumina, iron, and magnesia. Crystallising in rhombic system, with pseudo-hexagonal symmetry, it occurs in granite and gneiss, and occasionally in volcanic rocks, and is easily decomposed into other minerals.

CORDILLERA. Spanish term for extensive mt. systems, applied locally in America to sections of the Rocky Mts and Andes. See illus. pp. 13 and 53.

CORDITE. Standard smokeless propellant, technically known as a nitroglycerine powder. It was patented by Abel and Dewar on behalf of the British Government in 1889. It consists of nitroglycerine, 30 p.c.; gun-cotton,

65 p.c.; and mineral jelly, 5 p.c. Cordite is brownish-yellow in colour and translucent. In small weapons it is placed direct in a brass case and ignited by a percussion cap, but for large guns it is packed in silk bags with a pocket at one end containing gunpowder. The latter is ignited by a percussion cap or electric firing tube, and fires the charge.

CÓRDOBA. City of Argentina. Situated in the central part of the republic, on the Primero river, it is an important rly. junction and a busy centre of communication between Buenos Aires and the northern provinces. There is a considerable trade in cattle and wheat. The city has a cathedral, a 16th century Jesuit church, an observatory, and a university, founded in 1613. Pop. 221,200.

CÓRDOVA. City of Spain, capital of Córdoba prov. It stands on the Guadalquivir, 82 m. by rly. N.E. of Seville, on the main line to Madrid, and is an important railway junction. It has a Roman-Moorish bridge, an alcázar, a cathedral, bishop's palace, colleges and schools, including an academy for girls (1590), which confers degrees. Its greatest glory is its mezquita, a mosque built on the site of a Christian (Visigothic) church, and transformed into a cathedral in 1236.

Founded by the Carthaginians, colonised by the Romans and beautified by the Moors, Córdoba was the birthplace of the two Senecas, of Lucan, and Averroës. The famous Córdoba leather industry is dead, but the city is still famous for its silver and filigree work. There are orange plantations near. Pop. 81,125

CORDUROY. Coarse, heavy, corded or ribbed cotton fustian, used chiefly for labourers' clothes. The term is also applied to lighter and finer fabrics of similar appearance. A corduroy road is one made through swamps or soft ground by laying transverse logs touching one another. The ends of the logs may be attached to longitudinal logs.

CORDWAINER. Originally a maker of shoes from leather from Córdoba. In 1410 the London cordwainers were incorporated as one of the livery companies. Their hall is at 7, Cannon Street, E.C.4.

CORELLI, MARIE (1864-1924). British novelist. Born May 1, 1864, of Scottish and Italian parentage, she was adopted when an infant by Charles Mackay. Mainly to help her adoptive father she became a professional novelist, and the success of *The Romance of Two Worlds*, 1886, determined her career. Among other novels from her pen are *The Sorrows of Satan*, 1895; *The Mighty Atom*, 1896; *The Master Christian*, 1900; *Temporal Power*, 1902; *Holy Orders*, 1908; *Innocent*, 1914; *The Young Diana*, 1917; and *The Secret Power*, 1921. She died April 21, 1924.

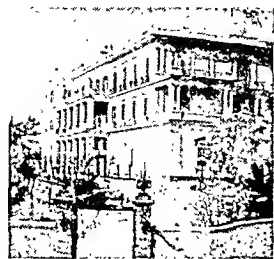


Marie Corelli, British novelist. Copyright photo: G. B. H.

CORFE CASTLE. Town of Dorset. It is on the isle of Purbeck, 5 m. S.E. of Wareham, on the Southern Rly. The castle stands on the site of a hunting lodge, at the gate of which Edward the Martyr was murdered in 978. Edward II was incarcerated there in 1326. The castle was unsuccessfully besieged by the parliamentarians in 1643, but dismantled by them in 1646. Purbeck marble and fireclay are worked near by. Pop. 1,406.

CORFU. Island of Greece in the Mediterranean Sea, one of the Ionian Islands. Separated from Albania by the Channel of Corfu, its length is 40 m., width from 2½ m. to 19 m., and area 227 sq. m. The mountains are bare, but fertile valleys yield vines, olives, figs, oranges, etc. Many goats are reared.

Sulphur, salt, honey, coal and marble are produced. Corfu, the capital, is a seaport on the E. coast. During the



Corfu. The Villa Achilleon, the ex-Kaiser's former residence

settled through the League of Nations. Pop. (island) 106,251; (town) 32,221.

CORIANDER (*Coriandrum sativum*). Annual herb of the order Umbelliferae. A native of S.E. Europe and W. Asia, it has much divided leaves with a bug-like odour and small irregular umbels of white flowers. The small, roundish aromatic fruits are used for flavouring and in medicine.



Coriander, leaves and umbels of fruit

CORINTH (Gr. Korinthus). City of Peloponnesus, in ancient Greece. Its position on the isthmus between the Corinthian and Saronic gulfs, its harbours, Lechaicum and Cenechrae, and its stronghold, the Acrocorinth made it of great importance. In 657, Cypselus made himself tyrant, and under him and his son Periander, 629-585 B.C., Corinth reached the height of its power.

In 582 the oligarchy was restored. Jealous of the power of Athens and irritated by her support of Corcyra in her quarrels with the mother-country, Corinth brought about the Peloponnesian war, 431. In 337 the Acrocorinth was occupied by the Macedonians until 243, when Corinth became the chief city of the Achaean League. It was destroyed in 146 by the Romans.

In 40 Julius Caesar built a new city, notable as one of the first places in Greece where a Christian church was established. With a brief interval of Venetian occupation, Corinth was in the hands of the Turks from 1459 to 1822. The city was famous for its vase-paintings and work in clay and bronze; the alloy known as Corinthian bronze was celebrated, and an order of Greek architecture was named after it. The foundation of Syracuse and Corcyra and trading stations on the Greek and other coasts are proof of its important colonial and commercial activities.

The new town, known as New Corinth, is built on the Gulf of Corinth, 3 m. from the ruins of the old city. It was almost destroyed by earthquake, April 23, 1928.

The Corinth Canal is a ship canal, about 4 m. long, connecting the Gulfs of Corinth and Aegina. Begun in 1882 and opened in 1893, it shortens the voyage from the Ionian Sea to Athens by about 200 m.

CORINTHIAN. Term used in England, especially in the early part of the 19th century, for a man of wealth who shared in the follies of the day and was also a sportsman.

The Corinthian Football Club is the leading amateur club playing the Association game.

CORINTHIAN ORDER. Third order of Greek architecture. Only a few important examples of its use in Greek buildings exist, and none much earlier than 300 B.C., but the Romans adopted and elaborated it. In its simplest form a garland of acanthus leaves is a chief feature of the order, which admits of many combinations. See *Architecture*: illus. pp. 116, 151.

CORINTHIANS.

EPISTLES TO THE. Two Epistles written by the Apostle Paul. S. Paul had visited Corinth during his third missionary journey. Later he heard that abuses had arisen in the Church there, and he dealt with these in a reply known as the First Epistle to the Corinthians, written from Ephesus, probably A.D. 55.

The Second Epistle, written later, deals with the building up of the Church after internal dissensions and the preaching of "false prophets."

CORIOLANUS, GAIUS (or GNAEUS) MARCIUS. Legendary Roman hero, surnamed Coriolanus for the part he took in the capture of the Volscian town of Corioli. An aristocrat, he was banished for the part he took against the plebeians in a dispute with the patricians. He settled among the Volsci at Antium and led them against Rome. When his army was near the city he refused to listen to several deputations. Yielding finally, however, to the entreaties of a body of Roman matrons, accompanied by his mother, wife, and two children, he led his army back to Volscian territory. Shakespeare used the legend in his *Coriolanus*.

CORK (*Quercus suber*). Evergreen tree of the order Amentaceae, a species of oak, native of S. Europe. The best qualities are supplied by Spain. The bark is of

great thickness, and increases by annual layers. After eight or nine years the outer layers fall off naturally; but to obtain the better qualities of commercial cork the outer coats are stripped

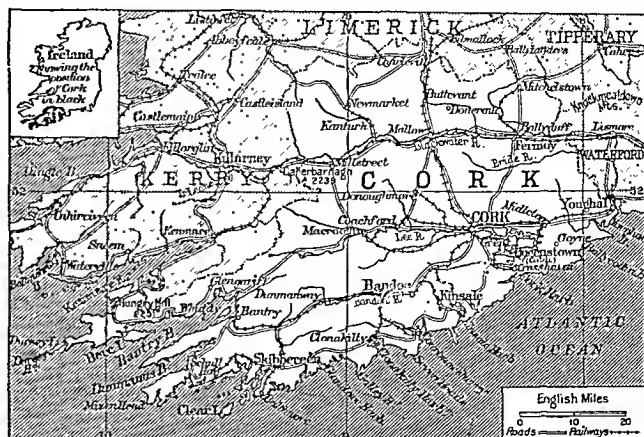
carried to great perfection in the U.S.A. The refuse pieces are ground and mixed with rubber and used for floorcloth.

CORK. County of the Irish Free State, in the prov. of Munster. Its area is 2,890 sq. m. Its irregular coast has many bays and sheltered harbours, the chief being Bantry and Dunmanus bays and Cork, Kinsale, and Clonakilty harbours.

Mountainous in the W. and S.W., the surface declines to a fertile plain in the centre and E., and is again relieved in the N.E. by the W. extension of the Knockmealdown Mts. Bere, Clear, Whiddy, and other small islands lie off the S.W. coast. The Blackwater river crosses the county from W. to E., the Lee flows to Cork harbour, and the Bandon empties into Kinsale harbour.

Cork is noted for its dairy produce, especially butter, and has fisheries. Inland communication is supplied by the Great Southern Rlys. Cork is the co. town, others being Queenstown, Fermoy, Youghal, Kinsale, Bandon, and Skibbereen. Pop. 365,747.

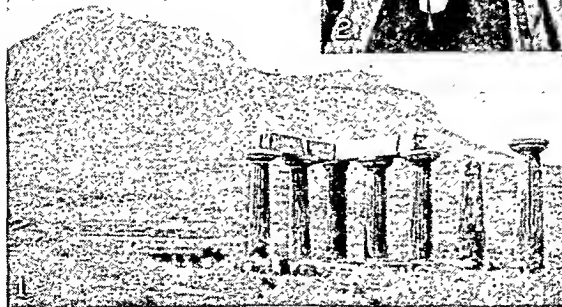
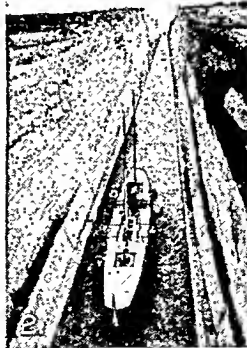
CORK. County borough, seaport, county, and capital of co. Cork, Irish Free State. It stands on the river Lee, 11 m. above its entrance into Cork Harbour, and 166 m. by



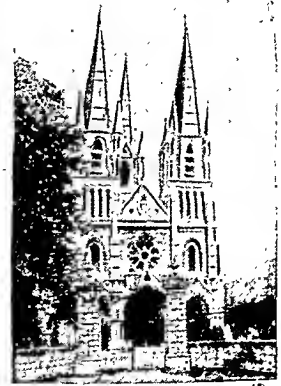
Cork. Map of the southernmost county of Ireland. In it is Queenstown, on Cork Harbour, an important port of call for trans-Atlantic shipping



Cork. Fine old cork tree in Swallowfield Park, near Reading, Berkshire
F. Mason Good



Corinth. 1. Ruins of the Temple of Apollo, with the Acrocorinth in the background. 2. Corinth Canal, cut through solid rock



Cork. Cathedral of S. Finbar, the patron saint of the city
Courtesy J.T.A.

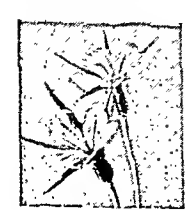
ry. S.W. of Dublin, on the Great Southern Ry. The city possesses more than 4 m. of quays. Cork has flour, woollen and other manufactories, distilleries and breweries. It exports oats, butter, and cattle, and imports wheat, grain, sugar, and timber. The chief ecclesiastical buildings are the Anglican Cathedral, the Roman Catholic Cathedral of S. Mary's, and the church of S. Anne, Shandon, famous for its bells. University College, founded as Queen's College (1849) is now part of the National University of Ireland. Race meetings are held in the City Park. The city occupies the site of a 7th century abbey founded by S. Finbar. Pop. 78,490.

CORK, EARL OF. Irish title held since 1620 by the family of Boyle. Sir Richard Boyle (1566—1643) was born at Canterbury, Oct. 13, 1566, and settled in Ireland in 1588. He was knighted in 1603, created baron in 1616, and in 1620 became earl of Cork. He died Sept. 15, 1643. His son Richard, 2nd earl, was also earl of Burlington. This title, which became extinct in 1753, was re-created in 1831. A kinsman, John Boyle, earl of Orrery, succeeded to the earldom of Cork, and since then these two titles have been united.

The earl's eldest son is called Viscount Dungarvan. See Boyle, Robert.

CORMORANT (Lat. *corvus marinus*, sea-crow). Genus of large sea-fowl, widely distributed. The common cormorant found round the British coasts is blackish brown, with a crest of slender feathers at the back of the head and naked patches at the base of the beak. A fine specimen is about a yard in length. Cormorants are heavy fliers, but powerful swimmers and expert divers after fish. Their voracity is proverbial. In Oriental countries cormorants are trained to catch fish for their owners. In the 17th century this curious form of sport was popular in England.

CORN (Lat. *cornu*, horn) OR **CLAVUS** (Lat. *clavus*, nail). Localised thickening of the epidermic layer of the skin, which also projects downwards and rests upon the deeper and more sensitive layer, giving rise to pain when pressed upon. Ill-fitting hoots are the commonest cause.



Corn-cockle. Common British field weed

are produced in an egg-shaped, capsule, which splits at the top into five teeth.

CORNCRAKE OR **LANDRAIL** (*Crex pratensis*). Brown insectivorous bird about the

size of a partridge. A summer visitant to Britain, its creaking call is uttered at nightfall.



Corncrake or Landrail, a summer visitor to Britain

dramatist. Born at Rouen, June 6, 1606, he practised as an advocate from 1624, but after the success of his comedy, *Mélie*, 1629, abandoned law. In 1636 he took Paris by storm with *Le Cid*, the first masterpiece of the French stage. This was followed by four great tragedies—*Horace*, *Cinna*, *Polyeucte*, and *La Mort de Pompée*; and *Le Menteur*, 1642, the best French comedy before Molière. He was made a member of the Academy. 1647. Discouraged by the failure of his *Pertharite*, 1653, he retired to Rouen, and though he returned to the theatre in 1658, he never repeated his earlier triumphs. He died Oct. 1, 1684.

His younger brother, Thomas Corneille (1625—1709), born at Rouen, Aug. 20, 1625, was made a member of the Academy, 1685, and died at Les Andelys, Dec. 8, 1709. His tragedies (e.g. *Timocrate*, 1636; *La Mort d'Annibal*, 1669), though far inferior to those of Pierre, have much of his heroic spirit.

CORNEL. Name of several plants or shrubs of the order Cornaceae. *Cornus mas*, the Cornelian cherry, is a native of Europe (not Britain), with oval downy leaves, and yellow flowers which appear before the foliage. Its red, pulpy, acid fruits are used for making tarts. *C. sanguinea* is the dogwood (q.v.).

CORNELIUS, PETER VON (1783—1867). German painter. Born at Düsseldorf, Sept. 23, 1783, he went to Rome in 1811. Recalled to Düsseldorf, 1819, to remodel the Academy, he went then to Munich, 1825, where he remained for over 20 years, decorating the Glyptothek and the Pinakothek with frescoes. In 1841 he was appointed director of the Academy at Berlin, and there decorated the Royal Mausoleum with the frescoes of *The Four Riders of the Apocalypse*. He died March 6, 1867.

CORNET. (1) Wind instrument of various pitches. The last survivor of these instruments was the *hass* or *serpent* (q.v.). (2) Chief brass instrument of soprano pitch in the modern military band (Italian *cornetto*, French *cornet à piston*). In the military band the cornets are mostly pitched in B flat, and their "open" notes are:—



sounding The fundamental sound, shown as a black note, is not used. A smaller cornet (soprano cornet) is also used in military bands, pitched in E flat. (3) The organ stop called *cornet* consisted of a combination of flue pipes on each note, reproducing a section of the harmonic series, which resulted in a reedy tone not unlike the old cornet.

CORNEA (Lat. *corneus*, horny). The transparent part of the surface of the eyeball. It is continuous with the white of the eye (q.v.).

CORNEILLE, PIERRE (1606—84). French dramatist. Born at Rouen, June 6, 1606, he practised as an advocate from 1624, but after the success of his comedy, *Mélie*, 1629, abandoned law. In 1636 he took Paris by storm with *Le Cid*, the first masterpiece of the French stage. This was followed by four great tragedies—*Horace*, *Cinna*, *Polyeucte*, and *La Mort de Pompée*; and *Le Menteur*, 1642, the best French comedy before Molière. He was made a member of the Academy. 1647. Discouraged by the failure of his *Pertharite*, 1653, he retired to Rouen, and though he returned to the theatre in 1658, he never repeated his earlier triumphs. He died Oct. 1, 1684.



Pierre Corneille. French dramatist

CORNET (Fr. *cornette*, standard). Rank formerly given to an officer on first joining the cavalry, equivalent to that of an ensign in the infantry. It was abolished in 1871.

CORNFLOWER. Hardy and half-hardy annual and perennial plant of the order Compositae, genus *Centaurea*. It is a native of N. America, Britain, and W. Asia, and is grown easily in any garden soil. *C. cyanus* is the blue cornflower, but there are also red and white flowering varieties.



Cornflower. *Centaurea cyanus*

CORNHILL. London street running E. from the Mansion House and Royal Exchange to Gracechurch Street. Once noted for its corn market and its drapers, its old features included *The Wey House*, where merchandise was weighed at the king's beam; its *Standard*, used as a measure of distance; its *Tun*, a prison for night-walkers; and its *pillory*.

The *Cornhill Magazine* was a periodical founded Jan., 1860, by George Smith, founder of the firm of Smith, Elder & Co., whose publishing house was then in Cornhill. The magazine was taken over by the firm of John Murray in April, 1917.

CORNICE (Fr. *corniche*). In classic architecture, the topmost member of the entablature. The parts of a cornice are the bed-

mould, corona, and cymatium. A cornice can be employed without the other members of the entablature, to finish a storey either inside or outside a house, or to crown a doorway, chimney-piece, or other part. When applied to the interior of a room, it generally takes the form of one or more moulded fillets. Each order in classic architecture shows a cornice peculiar to itself in detail, though the chief ornamental characteristics were the same.

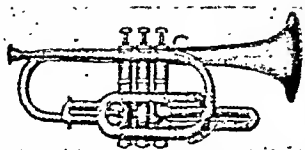
Cornish Light Infantry. English regiment more commonly known as the Duke of Cornwall's Light Infantry (q.v.).

CORN LAWS. Laws regulating the import, and sometimes the export, of corn. In

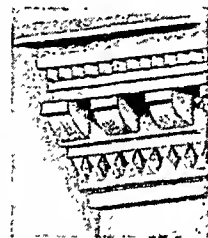
England the term refers to the laws passed early in the 19th century to protect the farmer from the competition of foreign corn. In 1815 a law was passed forbidding altogether the import of foreign corn when the price of native corn was under 80s. a quarter. This made bread very dear, and in 1828 a sliding scale was introduced. When home corn was 73s. or more a quarter, a duty of 1s. was put on the imported article. The duty was increased as the price fell, until corn at 64s. a quarter meant a duty of 23s.

In 1838 the Anti-Corn Law League was founded, and in 1846 Sir Robert Peel passed a law to repeal the duties. This came into force in 1849, although a registration duty of 1s. a quarter was retained until 1869. This was temporarily reimposed in the 20th century.

In 1917 a Corn Production Act fixed minimum prices for wheat and oats and guaranteed the agricultural labourer a minimum wage of 25s. a week. This was repealed in 1921. See *Agricultural Labourer*; *Barley*; *Cohden, R.*; *Protection*; *Tariff Reform*; *Wheat*.



Cornet. Light model Besson instrument fitted with Proteau quick-change slide



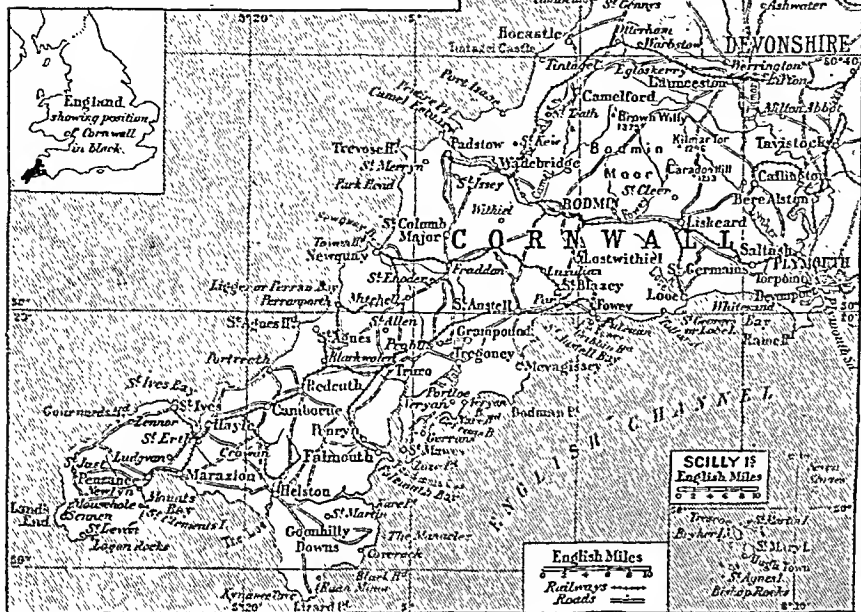
Cornice. Topmost member of the entablature in classic architecture

CORN MARIGOLD (*Chrysanthemum segetum*). Annual herb of the order Compositae. It grows in cornfields and waste places. The ray is golden yellow, the head being about 2 inches across.

CORNSTONES. Lenticular layers of close-grained limestone. Usually red or grey, they occur at the base of the Old Red Sandstone series. They are well developed in Monmouthshire. Notable forms of extinct fish (e.g. *pteraspis*) are found as fossils in them.

CORNUCOPIA (Lat. cornu, horn; copia, plenty). A device in architecture, and also in heraldry. It generally consists of a horn

the eldest son of the British sovereign by inheritance and consist of property, not only in Cornwall and Devon, but also in London. The estates are managed by a council, of which the prince is president.



Cornwall. Map of this beautiful county in the extreme south-west of England. Inset, the Scilly Isles

placed in the hands of a mythological figure represented as pouring forth its abundance of fruit and flowers, cereals, or coin.

CORNWALL. County of England, bounded on the E. by Devonshire and on all other sides by the sea. Its area is 1,356 sq. m. Its rugged coast is pierced by many indentations, on the N. the Camel estuary and St. Ives Bay, and on the S. Mount's Bay and Plymouth Sound. The most prominent headlands are Land's End and Lizard Point. About 25 m. S.W., and belonging to the co., are the Scilly Isles, between which and the mainland is said to lie submerged the Land of Lyonesse. The largest rivers, none long, flow to the English Channel, and of these the Tamar, Lynher, Looe and Fowey are the chief.

Cornwall enjoys a mild climate. Vegetables and fruit are grown, and dairy farming and cattle raising engaged in. Mining is the principal industry, tin and copper being found. China clay is also worked. Pilchard and mackerel are taken in great quantities. The Southern and G.W. Rlys serve the co. Bodmin is the co. town, others including Falmouth, Penzance, Truro, St. Ives, and Launceston. Cornwall is in the diocese of Truro. The Cornish language died out in the 18th century. Pop. 320,705.

LITERARY ASSOCIATIONS. Cornwall is the background of much of the literature concerning King Arthur, Tintagel being associated with him. R. S. Hawker's prose and verse about the county centre in Morwenstow. Several of S. Baring-Gould's novels are set in Cornish scenes, and Sir Arthur Quiller-Couch has made Fowey the centre of many stories.

DUCHY OF CORNWALL. This is the name given to large estates owned by the prince of Wales as duke of Cornwall. These come to

CORNWALL. Town of Ontario, Canada 68 m. from Montreal. Near the Long Sault Rapids on the St. Lawrence, it is the terminus of the Cornwall Canal. Pop. 7,419.

CORNWALL. British light cruiser. Belonging to the Kent class, she was completed in 1927. Her displacement is 10,000 tons, speed 31.5 knots, and principal armament eight 8-in. guns. She is 630 ft. long, and has a crew of 679 men. An earlier Cornwall, which took part in the battle of the Falkland Islands, displaced 9,800 tons and carried fourteen 6-in. guns. Her speed was 24 knots. See Kent.

CORNWALL, BARRY (1787-1874). Pseudonym of Bryan Waller Procter, British poet. Born at Leeds, Nov. 21, 1787, he became a solicitor and afterwards a barrister. He is remembered rather by his songs than his longer poems, such as *Marican Colonna*, 1820, and *Dramatic Scenes*, 1819, though the latter was praised by Lamb. He died Oct. 5, 1874.

CORNWALLIS. British battleship of the Duncan class. Launched in 1901, she had a displacement of 14,000 tons, four 12-in. and twelve 6-in. guns. She rendered service in the Dardanelles, 1915, and was sunk by a submarine, Jan. 11, 1917. A later Cornwallis, a sloop, belongs to the Royal Indian Marine.

CORNWALLIS, EARL. British title borne by the family of Cornwallis from 1753 to 1852. In 1661 Sir Frederick Cornwallis was made Baron Cornwallis. Charles (1700-1762), 5th lord, was in 1753 made Earl Cornwallis.

His son Charles, 1st Marquess Cornwallis (1738-1805), was born in London, Dec. 31, 1738. He fought in the Seven Years' War, and succeeded to the earldom in 1762. In 1776 he was sent to North America, but after

some successes was compelled to surrender at Yorktown in 1781. In 1786 he went as governor-general and commander-in-chief to India, where he broke the power of Tippoo Sahib. He was created a marquess in 1793. In 1805 he returned to India as governor-general, but he died at Ghazipur, Oct. 5, 1805. The title is now extinct.

CORNWELL, JOHN TRAVERS (1899-1916). Hero of the Great War. Born at Leyton, 1899, he trained as a sailor at the Devonport training establishment. At the battle of Jutland, May 31, 1916, he was on the Chester (q.v.). Mortally wounded early in action, he remained standing alone at an exposed post, awaiting orders, until the end of the action. He died on June 2 in Grimsby Hospital. His heroism was recognized by the posthumous award of the V.C. After him was named Mount Cornwell, Canada.



1st Marquess Cornwallis, British soldier

COROLLA (Lat. little crown). Collective botanical name for the second series or whorl of the floral envelope (perianth). It consists of the petals, which are either separate, or connected by their edges to form a tube, cup, or bell. The purpose of the size and brilliance of the corolla is to attract the insects essential to fertilisation. See Flower.



Corolla of hellebore

The name Corolla is given to a southern constellation identified with Corona Australis. It lies beneath Sagittarius. See Constellation.

COROMANDEL. Township of Auckland, New Zealand. Here is the oldest goldfield in New Zealand, discovered in 1867.

Coromandel Coast is the name formerly in use for the E. coast of the Madras Presidency, India. It is said to be a corruption of Cholomandalam, the country of the Cholas, whose capital in the 10th century was Tanjore.

CORONA (Lat. crown). Concentric coloured ring, usually of small diameter, seen round the sun or moon. The colours are in the same order as those of the rainbow, the red being on the outside. The appearance is due to the refraction and interference of light passing through clouds of moderate thickness. The corona is partly made up of self-luminous gases, such as flaming hydrogen and the unknown coronium, partly of white-hot solid or liquid particles. These materials are of inconceivable thinness on the outskirts, and the streamers may reach 10,000,000 miles. The Corona Borealis is a small constellation on the left of Bootes.



Corona of daffodil

In the inflorescence of some other plants, it is formed of separate scales; while in others it forms a diminutive coronet.

CORONATION (Lat. corona, crown). Public ceremony of placing a crown upon a king's head in token of his sovereignty.

In former days coronation immediately followed accession, and is still performed within twelve months. The right to crown the British sovereign belongs properly to the archbishop of Canterbury, the archbishop of York

having the honour of crowning the queen consort. Clothed in the supertunica of cloth of gold and seated bare-headed in S. Edward's chair, the sovereign takes the oath, this being followed by the ceremonies of anointing, investiture, crowning, and homage.

The Coronation Stone, long used at Seone as the coronation seat of the Scottish kings, was removed in 1296 to England by Edward I, and placed beneath the chair of S. Edward in Westminster Abbey. See Ampulla; Chair; Coach.

CORONEL. Seaport of Chile. It stands on the Bay of Arauco, 20 m. by rly. S. of Concepción. Pop. 5,400.

BATTLE OF CORONEL. Soon after the outbreak of the Great War a German squadron caused much damage by attacking Allied ships. It consisted of the armoured cruisers Scharnhorst and Gneisenau, with the light cruisers Leipzig, Nürnberg, and Dresden, and was commanded by Rear-Adm. von Spee.

In Oct. a small British squadron under Rear-Adm. Sir C. Cradock (q.v.) proceeded in search of the Germans. He sighted the enemy off Coronel on Nov. 1 when the two squadrons were steaming S. in a heavy sea. Both sides opened fire at 12,000 yards, but the enemy's superior strength and heavier batteries soon began to tell. Cradock's flagship Good Hope was badly damaged and sank with him. The Monmouth, after fighting for hours, went down with all her crew. The Glasgow and Otranto escaped and reached the Falklands. The British loss was two old cruisers and 1,500 men.

CORONER (late Lat. coronator). One of the oldest judicial officers in England, the office dating back to the 12th century. The chief function of the king's coroner, or crowner, was to collect and guard certain revenues of the king. Escheat of a felon's property to the crown and the other revenue collecting duties of the coroner, except that relating to treasure trove, are now abolished.

The Coroners Act of 1887 requires the coroner to hold an inquest in a case of violent or unnatural death or of a sudden death of which the cause is unknown. Formerly he could not sit without a jury, but since 1927 he need not have a jury unless it appears to him that there is reason to suspect that the death was caused by murder, manslaughter, or infanticide, or by a street accident, or that the death took place in prison. See Inquest.

CORONET. Minor crown, assigned in British heraldic practice to princes, princesses, peers, peeresses, kings of arms and, by courtesy to heirs of peers bearing courtesy titles not lower than baron. Coronets are worn or carried by peers and peeresses at coronations and other functions. See Duke; Earl, &c.

COROT, CAMILLE JEAN BAPTISTE (1796-1875). French painter. Born in Paris, July 16, 1796, after studying under A. E. Michallou and V. Bertin, he exhibited his first picture—View from the Bridge of Narni—at the Salon in 1827. He made all his sketches in the open air in summer, and developed them in his studio in winter. He died Feb. 22, 1875. Corot is represented in the National Gallery and Wallace Collections, London, in the Louvre, and in Glasgow, New York, and Washington.



Camille Corot,
French painter

CORPORAL. In the British army, a non-commissioned officer ranking below a sergeant. He is distinguished by two chevrons on the left sleeve. Below him is the lance-corporal. In the household cavalry there is a corporal of horse, the equivalent of the sergeant elsewhere, and in the navy the ship's corporal assists the master-at-arms to maintain discipline.

CORPORATION (Lat. corpus, body) Word used for an association which is independent, so far as its existence is concerned, of those who compose it, i.e. it is never terminated by death. In English law a corporation is either a corporation sole or a corporation aggregate. Thus a bishop is a corporation sole, so is the parson of a parish. Corporations aggregate are, for example, municipal corporations, companies incorporated under the Companies Acts, railway companies, etc. They exist by virtue of a royal charter, or Act of Parliament, or ancient custom.

A tax levied by the British Government on the property of corporations and similar bodies is known as a corporation duty. Introduced in 1885, it is at the rate of 5 p.e. on the annual income of the corporation. See Borough; Company Law.

CORPUS CHRISTI (Lat. Body of Christ). Festival of the Roman Catholic Church, instituted in 1264 in honour of the Holy Eucharist and celebrated on the Thursday after Trinity Sunday. Its special feature is the outdoor procession of the Blessed Sacrament commonly held on the following Sunday. The festival has no place in the English Book of Common Prayer.

There are colleges dedicated to Corpus Christi at both Oxford and Cambridge. The one at Cambridge was founded in 1352 and extended in 1823-27. Corpus Christi college at Oxford was founded by Richard Fox, bishop of Winchester, in 1516.

CORREGGIO (c. 1494-1534). Italian painter, whose real name was Antonio Allegri. Born at Correggio, he was supposed to have come under the influence of Andrea Mantegna and Leonardo da Vinci. He was the master of the art of chiaroscuro, and wrought in oil and fresco. His Ecce Homo, the Education of Cupid, and the Virgin with the Pannier are in the National Gallery, London. His grandest work was the fresco of the Assumption of the Virgin, in the dimly lit dome of Parma Cathedral. He died March 5, 1534.



Correggio,
Italian painter
Self-portrait

CORROBOREE. Spectacular dance of the Australian aborigines. Sometimes informal, its most characteristic manifestation involves much preparation and a cycle of three successive moonlit nights. Animal head-dresses, awe-inspiring patterns painted upon the skin, and singing by the audience are features of these pantomimic scenes of war, the chase, and tribal history. The performers usually work themselves up into a state of great excitement.

CORROSIVE SUBLIMATE or **MERCURIC CHLORIDE** ($HgCl_2$). Heavy crystalline powder. A solution of 1 in 1,000 parts of water makes a strong antiseptic, largely used for disinfecting purposes and washing towels and the hands previous to surgical operations. A solution of 1 in 2,000 may be used for wounds. Corrosive sublimate is a powerful poison.

CORRUGATED IRON (Lat. corrugare, to wrinkle). Sheet metal pressed into a series of parallel curved ridges and furrows. It is a cheap and durable roofing material, and is largely used for making sheds, fences, etc. The

corrugations impart strength and rigidity to the material. See Iron.

CORSAIR (late Lat. cursarius, a pirate). Name given both to pirates and their vessels, especially to the Barbary pirates of the Mediterranean. See Barbary; Piracy.

CORSET (Fr. little body). Stay or support for the figure made of material stiffened with whalebone or steels. The custom of wearing stays has been general among the women of civilized nations, and even the Greeks wore supporting bands. As an adjunct to fashion the corset was responsible for the unnatural wasp waist of the Victorian era.

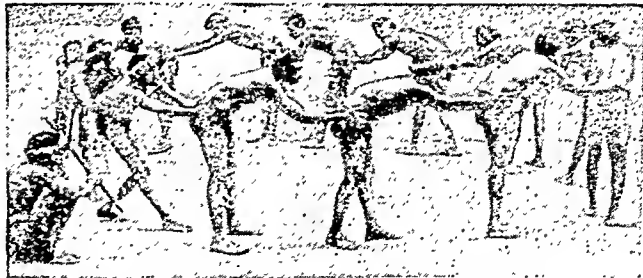
CORSHAM or **CORSHAM REGIS.** Market town of Wiltshire. It is 4½ m. S.W. of Chippenham by the G.W.R., and has freestone quarries, and was a royal residence in Saxon times. Corsham Court is the seat of Lord Methuen. Pop. 3,940.

CORSICA. Island in the Mediterranean. Separated from Sardinia by the strait of Bonifacio, it belongs to France, of which it forms the dept. of Corse. Its area is 3,367 sq. m. On the N. it runs into a narrow needle of land, terminating in Cape Corso.

The island is mountainous. The rivers are short and swift. The coast on the E. is steep and little indented, but on the W. are fine bays forming excellent harbours. Minerals exist, but are little worked; there are quarries of marble and other building stone. Among the products are grain, olives, wine, and fruit, particularly edible chestnuts. Ajaccio is the capital; other ports are Bastia and Calvi.

Famous as the birthplace of the great Napoleon, the island was colonised by the Phoenicians, passed to Rome, and fell to the Goths and other Northern races. Later it was held by Genoa, who sold it to France in 1768. A quarter of a century later the Corsicans expelled the French, who regained possession in 1796. Pop. 289,890. See France.

CORSTOPITUM or **CORCHESTER.** Romano-British military town near Corbridge, Northumberland, 3 m. S. of Hadrian's Wall. Within its partly ramparted, oval enclosure of 22 acres remains are traceable of large buildings, two granaries, barracks, a potter's kiln, and smiths' hearths. The Corbridge lanx, a silver sacrificial dish, bears Greco-Roman divinities in relief. The Corbridge lion, in stone, was perhaps a fountain ornament. Besides silver



Corroboree. Spectacular dance of the Australian aborigines, in which they typify their battles and hunting exploits

coins, hoards of gold coins were found in 1908 and 1911. In 1913 a bronze scent-box in the form of a barbarian head was unearthed.

CORTES. Spanish word, the equivalent of the English parliament, and as such still used in Spain. The Cortes consists of two houses, Senate and Congress

CORTÉS, HERNANDO (1485-1547). Spanish conqueror of Mexico. Born at Medellín, he went in 1504 to the W. Indies. In 1518 he sailed to the spot afterwards named Vera Cruz, within the territory of Montezuma, where he renounced the authority of Velasquez, governor

of Cuba, and declared his allegiance to the king of Spain alone. After an encounter with the Mexicans Cortés entered Mexico, Nov. 8, 1519, and seized the emperor. He was soon obliged to return with some of his party to Vera Cruz, where an expedition had arrived from Velasquez to recall him. Cortés refused to obey, and the bulk of the new force went over to him, the remainder being sent back to Cuba.



Hernando Cortés, Spanish conqueror of Mexico
Portrait in Sacral Mus., Madrid

Returning to Mexico, Cortés found his position in the city untenable, and he and his men cut their way out. After a visit to Spain he returned in 1530 to America, and spent the next ten years in exploring Mexico and the Pacific coast. In 1540 he returned finally to Spain, and died at Seville, Dec. 2, 1547.

CORTONA. City of Italy. Overlooking the lake of Perugia, it is 73 m. by railway from Florence. One of the twelve cities of Etruria, its old walls still stand. The cathedral, dating from the 11th century, was restored in the 18th. Pop. 30,400.

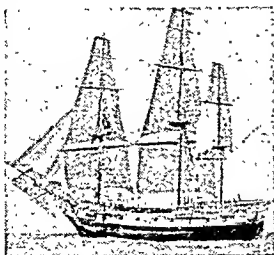
CORUNDUM (Hind. Kurund). Mineral chiefly consisting of oxide of aluminium. Its finer coloured varieties include some of the most highly prized gem stones, such as the ruby, emerald, sapphire, and those varieties of the amethyst, hyacinth, chrysolite, and topaz known as Oriental, all remarkable for hardness and brilliancy. The mineral is used as an abrasive, and is mined for this purpose in India, S. Africa and Canada.

CORUNNA (Sp. La Coruña). Seaport of Spain. It stands on a peninsula in an inlet of the Atlantic, 320 m. by rly. N.W. of Madrid. Corunna is composed of an old town, defended by a citadel and walls, and a modern town with arsenal, barracks, and wireless station. Its harbour is safe and well sheltered. In 1386 John of Gaunt landed here to claim the crown of Castile; the Armada sailed from here in 1588; the town was captured by Drake in 1589; and in the bay the English fleet defeated the French in 1747 and, on another occasion, in 1805. Pop. 65,932.

Corunna was the scene of a battle fought between the British and the French, Jan. 16, 1809, in which Sir John Moore defeated the French army under Soult, but was himself mortally wounded. See Peninsular War.

CORVETTE.

Ship of war now obsolete. In the days of sailing ships it ranked next below a frigate, which it rather resembled, but usually had only one tier of guns. Its counterpart to-day is the light cruiser. In the United States it was called a sloop of war. See Cruiser.



Corvette. Type of obsolete warship
Model in Victoria and Albert Museum

CORVUS, MARCUS VALERIUS (c. 376-270 B.C.). Hero of ancient Rome, six times consul and twice dictator. During a single combat with a Gaul a raven attacked his enemy, and so confused him that Valerius obtained the victory, hence his surname Corvus (raven).

CORWEN. Market town of Merionethshire. It stands on the Dee, 11 m. N.E. of Bala on the G.W. and L.M.S. Rlys. Pleasantly situated N. of the Berwyn Mts., it is frequented by artists and anglers. Market days, Tues. and Fri. Pop. 2,690.

Corybantes. Priests of Cybele or Rhea, in Phrygia. A feature of their rites was their noisy dance to cymbals and drum.

COSELEY. Urban dist. of Staffordshire, 3 m. S.E. of Wolverhampton, of which it is virtually a suburb. It has a station on the L.M.S. Rly. and two on the G.W. Rly. It is a mining centre. Pop. 24,213.

COSGRAVE, WILLIAM THOMAS (b. 1880). Irish politician. Born in Dublin, he became M.P. for Kilkenny city in 1917, and was returned for N. Kilkenny as a Sinn Féin in Dec., 1918. Member of the provisional government, Jan., 1922, and chairman, Aug., 1922, he was elected president of Dail Eireann in Sept. of that year. After the establishment of the Irish Free State, Cosgrave became president of its executive council, Dec. 6, 1922, and he was still in power in 1930. See Irish Free State.



William T. Cosgrave,
Irish president
Lafayette

COSIMO, PIERO DI (1462-1521). Italian painter. Born in Florence, his real name being Piero di Lorenzo, he took his adopted name from Cosimo Rosselli. With Rosselli he assisted in the decoration of the Sistine Chapel, Rome, returning to Florence in 1485, where he died, 1521. One of his best works, The Death of Procris, is in the National Gallery, London.

COSSACK (Russ. kazak; Turk. quzqaq, bandit, light-armed horseman). Name originally denoting the steppe-dwellers on the marches along the E. frontiers of Muscovy and Poland. They were organized in ten army corps called voiskos, and were settled in villages under elective chiefs known as hetmans or atamans. As a military organization distinct from the imperial army, they were trained to arms from boyhood. The Cossacks joined the Russian revolution of March, 1917, but later were frequently engaged in hostilities with the Soviet government.

COSTA RICA. (Span. rich coast). Republic of Central America, between Nicaragua and Panama. Its W. shores are washed by the Pacific and its E. coast by the Caribbean Sea. Area, about 23,000 sq. m. Pop. 492,541. The country is traversed from N.W. to S.E. by the Central Cordillera, which in parts reach a height of over 11,000 ft. The slopes of the mts. from the tree limit are heavily forested, the timber including mahogany, rosewood, and other cabinet woods. The San Juan is the only navigable river. The climate of the low E. coast lands is tropical, that of the W. coasts and the mt. area temperate. Rainfall is abundant and earthquakes are frequent. San José is the capital; other towns include Cartago, Limón, Heredia, Punta Arenas and Alajuela. The language is Spanish. San José and Colorado each have a government wireless station, and there is a high power international station at Paraiso.

An independent state since 1821, Costa Rica is a member of the League of Nations. Legislative power is vested in the congress of 43 deputies. The executive authority resides in a president, who is elected for four years. See Central America.

COSTS (Lat. constare, to consist). Term applied in England to legal expenses. There are party and party costs, which the loser of an action has to pay to the winner; and

solicitor and client costs, which a client has to pay to his own solicitor. Any person who is liable to pay costs has a right to have them overhauled, reviewed, or taxed by a master of the Supreme Court, called a taxing master.

In England, except by express written agreement, no one is liable to pay costs to a solicitor unless and until the solicitor has presented a detailed bill. See Solicitor.

COSTUME. Collective term for the articles of clothing worn by men and women. The earliest examples of civilized costumes shown in sculpture are those of Babylon and predynastic Egypt, about 3500-4000 B.C. Greek costume, which depended for its effect on a simplicity only possible in a warm climate, influenced Roman, from which in its turn Byzantine was evolved. From this came the dress of civilized Europe in the Middle Ages, or from about 900 to 1350.

In England, until quite modern times, the essentials of the costume of the poorer classes were warmth and durability. Woollen was therefore the chief material. The richer classes were influenced by the fashions of France and Italy, and the costumes, both of men and women, became extraordinarily elaborate in both Tudor and Stuart times. In the 18th and 19th centuries there was a tendency towards simple forms of costume, which, however, lacked the picturesqueness of that of earlier days.

The trend towards simplicity of dress was accelerated by the Great War. Women abandoned the long skirt, and the fashion for short hair necessitated simpler and better fitting headgear. The attire of men, too, tended to become less formal, while the great improvement in the standard of living led to the disappearance, to a great extent, of the differences in costume between class and class. See Boot; Cap; Hat; etc.

COSWAY, RICHARD (1740-1821). British miniature painter. Born at Tiverton, he was elected A.R.A. in 1770 and R.A. in 1771. His fame rests on his miniatures, which are among the best of the English school. In 1785 he was appointed principal painter to the prince of Wales. He died July 4, 1821. His wife, Maria Hadfield (1759-1838), also painted miniatures.

COTENTIN. Peninsula in N. France, on the English Channel in the dept. of Manche. It is a flat, marshy district, noted for cattle. Coutances is the chief town and Cherbourg the chief port. The Channel Islands lie off its western side. See Manche.

COTILLON (Fr. petticoat). Dance invented for the court of Louis XIV. At first a dance for one person, it was gradually developed into one for eight, and is said to be the origin of the quadrille. The cotillon popular in London in the late 19th century was totally unlike the original cotillon.

COTMAN, JOHN SELL (1782-1842). British painter. Born at Thorpe, Norwich, May 16, 1782, he came to London about 1799. He exhibited, 1800-6, at the Royal Academy, but was never a member of that body. In 1825 he was elected to the Royal Society of Painters in Water Colours, and in 1834 was appointed professor of drawing at King's College, London. He died July 24, 1842. As a painter in water colours Cotman divides with "old Crome" the leadership of the Norwich School.

His eldest son, Miles Edmund Cotman (1810-58), became professor at King's College, in succession to his father. His landscapes and seascapes were much admired. The second son, Joseph John Cotman (1814-78), showed ability as a landscape painter, and was greatly valued as a teacher.

COTONEASTER (Cotoneaster integerimus). Shrub of the order Rosaceae. A native of Europe, N. and W. Asia, and the Himalaya,

it has leathery, oblong leaves, downy beneath, minute pink flowers, and red and shining fruit similar to that of the hawthorn.

COTOPAXI. Volcanic mt. of Ecuador, in the Andes, probably the highest active volcano in the world. It is 35 m. S.S.E. of Quito, and its alt. is 19,613 ft. The crater is over 2,300 ft. in diameter. The first recorded eruption was in 1532. Others were in 1698, 1768, 1877 and 1903. It was first ascended by Wilhelm Reiss in 1872, and by Edward Whymper in 1880.

COTSWOLD OR **COTTESWOLD HILLS.** Range of oolitic limestone hills in the western midlands of England. They extend from the valley of the Bristol Avon towards the N.E., where it slopes away near the Cherwell valley.

Numerous short streams flow to the Severn; the chief, the Stour and Stroud Water, have cut into the hills and separate the southern, central, and northern portions. The gentle slope of the Southern Cotswolds drains to the Bristol Avon; the Churn, Colne, Windrush, and Evenlode drain the Central Cotswolds, and the Northern Cotswolds give rise to a number of small streams which join the Evenlode or Cherwell.

COTTER OR **COTTAR** (late Lat. *cota*, *cot*, hut). One who cultivates a small plot of land. Such was evidently the cottar of Burns's poem *The Cottar's Saturday Night*. The name represents the *cotarii* of Domesday Book, a small class of men who worked on their own plots of land or for those who cultivated larger areas. See *Crofter*; *Manor*.

COTTESMORE. English hunt. The name is taken from a village $\frac{1}{2}$ m. N.E. of Oakham, and the country hunted is in Leicestershire and Rutland. It covers about 400 sq. m. and touches the Quorn and Belvoir countries. One earl of Lonsdale was master 1788-1802, and another 1806-42. The 6th earl was master 1907-11 and again in 1915-19.

COTTINGHAM. Urban dist. of Yorkshire (E.R.), 4 m. N.W. of Hull by the L.N.E.R. The castle occupies the site of Baynard Castle, destroyed by fire in 1541. Pop. 5,135.

COTTON. This, the seed hair of the cotton plant, is the most largely produced of textile fibres; it is cheapest to manufacture, and capable of conversion into the widest variety of goods. The plant belongs to the botanical order of the Malvaceae or mallows, its generic name being *Gossypium*. The cotton plant varies greatly in different countries, but it may be



Cotton plant seeds, to which the actual cotton is attached

described as generally a bushy plant, growing about 3 ft. to 6 ft. high. The leaves are large, divided into three or five lobes.

Sea Island has deeply-cut lobes, like a vine leaf, American Upland represents the opposite extreme, and the Indian leaf is smaller, with rounded lobes. The flower also differs considerably, ranging from red to a creamy shade. The boll, or fruit, is from $\frac{1}{2}$ in. to 1½ ins. in diameter. It is divided into from three to five compartments, each containing a "lock" of from seven to nine seeds, to which the lint—the actual cotton itself—is attached.

The climate most suitable to cotton growing is sub-tropical. The crop requires an ample water supply. Drought (or untimely rain), frost, insect pests such as the boll weevil and

the holl worm, and inferior seed, form the chief obstacles to a successful yield. The seed is separated from the lint (or cotton) by a process known as ginning, and the cotton is packed in bales for the manufacturers.

Cotton began to be manufactured in Lancashire soon after 1700, and the close of the 18th century was the dawn of the age of machinery. The first cotton spinning mill was erected in Manchester in 1781, following upon the momentous inventions of Hargreaves, Arkwright, and Crompton.

Cotton goods are classified as grey or bleached, dyed, printed, or coloured (woven from dyed yarns). They are woven in long lengths, which are severed to form pieces of required yardage. In addition to piece goods there are woven cut-up articles like flags, handkerchiefs, and shawls. Cotton net, curtains and lace, tape, sewing-thread, and surgical dressings are important articles of the trade.

In Great Britain there are about 57,000,000 cotton spindles and 788,000 looms. The world's total is 165,000,000 spindles and 3,000,000 looms. The world's cotton crop is about 25,880,000 bales, made up as follows: U.S.A. 15,075,000; East Indies 5,175,000; Egypt 990,000; remainder, 4,640,000. Cotton grown in the Empire for the year 1928-9 was estimated to amount to 3,156,215 bales. A bale of cotton contains about 500 lbs.

The British Cotton-Growing Association was founded in 1902 in order to promote the growing of cotton in the British Empire.

COTTON, CHARLES (1630-87). English poet and translator. Born April 28, 1630, in 1656 he married a sister of Colonel Hutchinson. In 1685 he brought out his translation of Montaigne's *Essays*. He wrote burlesques of Virgil and of Lucian, but his best verses are his *Ode to Winter* and *The Retirement*. In 1676 he wrote a treatise on fly-fishing for the 5th ed. of Izaak Walton's *The Compleat Angler*. He died in Feb., 1687.

COTTON GRASS (*Eriophorum*). Genus of perennial tufted herbs of the order Cyperaceae, natives of the N. temperate and arctic regions. They have grasslike stems, and the simple flowers are gathered in spikelets. The sepals and petals are represented by bristles



Cotton Thistle. Its leaves have a woolly surface

which develop into long, silky filaments resembling tufts of cotton. They grow in hoggry ground, especially on elevated moors.

COTTON THISTLE (*Onopordum acanthium*). Biennial herb of the order Compositae. A native of Europe and Siberia, it has large, broad, spiny leaves, covered with woolly filaments. The stout stem (3 ft. to 6 ft.) branches above, and each branch ends in a large, cobwebby, and prickly flower-head with pale purple flowers.

COTYLEDON. In botany, the first leaf, or one of the first pair of leaves, formed in a plant developing from seed. Monocotyledons, or endogens, have but one; dicotyledons, or

exogens, comprising about two-thirds of the known plants, have two; in the few cases where there are more, the plants are known as polycotyledons.

COUCH GRASS

(*Agropyron* or *Tritium repens*). Perennial grass, a weed of cultivated ground. It has a long creeping root stock. The sessile spikelets grow each in a notch of the spike, in opposite rows. Twitch and speargrass are local names.



Cotyledon. Germination of a bean, showing cotyledons, A A

COUÉ, EMIL (1857-1926).

French physician. In practice at Nancy, he devoted many years to investigating psychology and treatment by auto-suggestion. He prescribed certain formulas to be repeated by the patient many times a day. Coué gave séances in London in 1922. He died at Nancy, July 2, 1926. See *Psychoanalysis*.

Cougar. Name used by French naturalists for the puma (q.v.) or American lion.

COULOMB. Quantity unit of electricity, representing the amount of electricity given by 1 ampère in 1 second. It is the practical unit, and is equal to 1-10th of the absolute electro-magnetic unit. It is named after Charles Augustine de Coulomb (1736-1806), a French scientist, who investigated the theory of magnetic attraction and repulsion.

COULSDON. Village of Surrey, an urban district with Purley. It is 15 m. S. of London, being served by the Southern Rly. Between here and Chaldon is Farthing Down, where in 1872 several harrows were opened. Within the parish is Cane Hill, with its mental hospital. The village has a picturesque church. Pop., urban dist., 27,154.

COUNCIL (Lat. *concilium*). Word meaning a meeting of any kind, but especially one called to give advice. The Church early adopted the word, and its most important assemblies are known as councils, such as the councils of Nicaea and Trent.

In a general way the word is used for a governing body, e.g. the council of a school or college, of a trust or society. In some countries the assembly of ministers is known as the council of ministers, and the body of allied leaders that decided questions arising out of the Great War. In 1919 and 1920 was known as the Supreme Council. The government of India is directed by a council, and in 1930 an Economic Advisory Council was established in London. In the Netherlands Alva set up the Council of Blood in 1567.

The word has also found a place in the system of local government. In the United Kingdom there are county councils, town councils, district councils, parish councils, etc. See *District Council*; *Town Council*; etc.

COUNCILLOR. Variant of counsellor, one who gives counsel. In England and Ireland this form is especially used for the directly elected members of a county, city, town, or urban district council. In the City of London they are known as common councillors.

Coundon. Market town of Durham. It is 1½ m. S.E. of Bishop Auckland by the L.N.E.R. Market day, Thurs. Pop. 6,937.

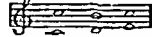
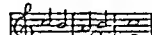
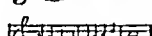
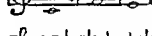
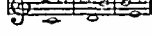
COUNSEL (Lat. *consilium*, advice). Term used in English law for a barrister who advises or appears in court for a client. It is sometimes applied to a solicitor in his capacity of an advocate in one of the inferior courts. Counsel cannot be compelled to divulge anything that takes place between them and their clients. When conducting a case they conduct it their own way, and their clients are bound thereby; but they cannot compromise against express

instructions. Counsel can make any statement in court, or ask any question, without being liable for the consequences. See Bar.

COUNT (Lat. comes). Title of nobility. The title is only used in Great Britain in the feminine form countess, the wife of an earl, but was frequent in France, Germany, and Italy. From it comes the English word county, analogous to the Fr. comté. The German form is graf. See Earl; Pécage.

COUNTER IRRITANT. Substance applied to the skin to produce irritation and dilatation of the blood vessels with the object of relieving congestion or inflammation in underlying organs. The commonest are mustard plasters and liniments, oil of turpentine, and iodine. When vigorous action is desired a blistering substance such as cantharides may be employed. See Cantharides.

COUNTERPOINT (Fr. contre, against; point, point). Addition of notes to the notes of a given melody, i.e. note against note, or point against point, as musical notes were called in the Middle Ages. Harmony concerns itself chiefly with the building-up of solid chords; counterpoint observes rather the flow of single voices or parts, in relation to other parts. Harmony is looked at vertically, counterpoint horizontally. Strict counterpoint is classified in several species:

1. Note against note:—
2. Two (or exceptionally three) notes to one:—
3. Four (or six) notes to one:—
4. Suspensions and syn-
copations (q.v.):—
5. Florid:—

Modern counterpoint is simply free part-writing, and it is untrammelled by medieval rules. See Harmony.

COUNTERPOISE. In wireless telegraphy, etc., an insulated system of conductors in connexion with the aerial system, used in addition to, or in place of, an earth connexion at a transmitting station.

COUNTY. Division of the United Kingdom and other parts of the British Empire and a unit for purposes of local government. The word comes from the French comté, and its equivalent was given in France to districts ruled by counts. From there it passed over to England about 1066.

Gradually England was divided into counties until there were 40 of them. Each had a sheriff, and an earl, whose duties, however, soon became nominal. Each, irrespective of size, sent two members to Parliament, there being only one or two exceptions to this rule before the Reform Act of 1832. From Tudor times each had its own lord-lieutenant and its own body of magistrates. Each had its county town, some of these being miniature capitals. Some were counties palatine—i.e. their rulers had exceptional powers because they occupied positions of exceptional danger. Such were the border counties of Durham, Lancashire, and Cheshire. Wales was organized into counties on the English model soon after its conquest by Edward I, as was Scotland. The word also spread to Scotland, and later to Canada, Australia, and the COR-
v. States.

B.C.). Hero in large towns were made counties and twice dict. This principle was extended with a Gaul a rment Act of 1888, which and so confused him-places county boroughs, the victory, hence his su. any place with over

75,000 inhabitants is usually made into a county borough. These county boroughs are free from any control on the part of a county council.

The Act of 1888 created administrative counties, i.e. counties with a county council, and in England and Wales there are now 62 of these, compared with 52 geographical counties, as the older areas are called.

COUNTY COUNCIL.

By the Local Government Acts of 1888 and 1889, county councils were established in every county of England, Wales, and Scotland, and in 1898, by a similar act, in Ireland. They were set up to manage local affairs, duties hitherto discharged in the main by the magistrates in England, Ireland, and Wales, and by the commissioners of supply in Scotland.

These councils are composed of aldermen and councillors. The councillors are elected by the ratepayers, both men and women, and serve for three years. An election takes place in March every third year. The counties are divided into districts, each of which sends one member to the council. The councillors choose the aldermen, usually one alderman to every three councillors, and they hold office for three years. The aldermen and councillors choose the chairman, who is elected each year. Women are eligible for membership. From April 1, 1930, they took over the duties formerly discharged by the Boards of Guardians.

COUNTY COURT. In England, Wales, and Ireland a court of law set up in 1846 for the trial of civil cases. It must be distinguished from the old county courts that date back to Anglo-Saxon times.

England and Wales, except the city of London, are divided into districts, and each district has a court. The circuits are numbered, and for each there is a judge who holds sittings as occasion demands in the chief towns of his district. He is assisted by a registrar, who hears certain less important cases, a high bailiff, and other officials, there being a separate staff for each court. These judges are appointed by the lord chancellor except in the duchy of Lancaster.

County court judges can try any action in which not more than £100 is involved, and can also hear equity cases in which not more than £500 is at stake; and they also examine bankrupts and do a good deal of other judicial business. From their decisions there is an appeal to the High Court. The various Rent Restriction Acts greatly increased the work of the county courts. A county court judge is addressed as Your Honour.

COUPAR ANGUS. Burgh and market town of Perthshire. It stands near the left bank of the Isla, 16 m. by rly. N.N.E. of Perth, in the centre of Strathmore. It has a station on the L.M.S. Rly. Pop. 1,976.

COUP D'ÉTAT. French expression meaning literally a state blow, applied to a violent change in the constitution of a state. The term is used of the overthrow of the Directory in 1799 by the great Napoleon and of the overthrow of the Republic in 1851 by Napoleon III. Pron. Coo-dah-tah.

COUPERUS, LOUIS MARIE ANNE (1863-1923). Dutch novelist. Born at The Hague June 10, 1863, after publishing two volumes of poems he turned to fiction, and established his reputation with *Eline Vere*, 1889, a novel

dealing with life in Amsterdam. His works include *Noodlot*, 1890; *Extaze*, 1892; *Majesteit*, 1893; *Metamorfoze*, 1897; *De Stille Kracht*, 1901; *Dionyzos*, 1905. Couperus died July 16, 1923.

COUPLER. Device for rapidly connecting and disconnecting rly. vehicles. The type used in Great Britain consists of a bar, fitted with a centre turning lever, the ends being screwed with right and left-hand threads, which screw into and through the flat ends of a pair of links. At each end of every passenger vehicle a drawbar hook projects, to the shank of which one of the end links is permanently attached. To secure two vehicles, the link at the free end of one of the couplings is looped over the drawbar hook of the other vehicle. The lever bar is then turned until the tension exerts a firm pressure between the buffer springs of both vehicles.

In the U.S.A. and some other countries an automatic coupling is employed which

also serves the purpose of a central buffer. The drawbar hooks are jaw-shaped, the jaws being pivoted and arranged right- and left-handed at the two ends of the carriage. When two vehicles come into contact, the pivoted jaw of each, pressing against the opposite bar, is turned at right angles, locking pins drop into position, and the two jaws are automatically and securely locked together.

In music, coupler is the mechanism for causing the keys of one manual or pedal to act on another keyboard, or on a higher or lower octave of the same keyboard.

COUPLET (Lat. copula, bond). Two rhymed lines containing the complete expression of a single thought. The form is a distinguishing characteristic of English heroic verse of the 18th century, and Pope in particular excelled in its production.

COURIER (Lat. currere, to run). Messenger sent post or in haste to carry letters or dispatches. The ancient Persians, Assyrians, and Egyptians had organized courier services, and relays of runners were used by the Greeks and Romans. In the Middle Ages professional runners were employed by the nobility.

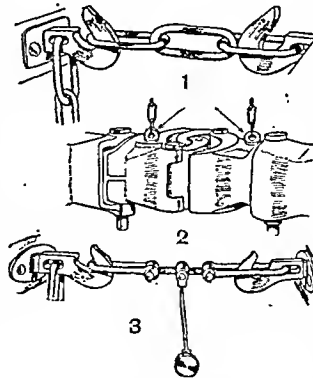
Special couriers, known as king's messengers in England, are sent with diplomatic messages to the country's representatives. The modern courier is a professional attendant on travellers.

COURLAND. District of Latvia, once a separate duchy. Until 1795 it was under the protection of Poland or Russia, and from 1795 to 1917 it was a province of Russia.

COURSING. Chasing of hares with greyhounds, by sight. One of the most ancient of field sports. Solomon catalogues the greyhound, and Arrian (2nd century A.D.) described the sport as practised in his time. The first code of laws governing the judging of greyhounds in Great Britain was drawn up in Elizabeth's reign.

Each individual course consists of two greyhounds running one against the other in pursuit of the hare. The dogs are held in leash by the slipper, who releases them simultaneously directly a hare comes in their direction. The course is closely followed by the judge, who is mounted and awards points for speed and other qualifications.

The principal event in the coursing world is the Waterloo Cup, which takes place annually in February at Alcar. See Greyhound; Waterloo Cup; and illus., p. 461.



Coupler. 1. English goods train coupling. 2. American express automatic coupling, also used on District Rly. London. 3. Standard English express train couplers

COURT (Lat. cohors, an enclosed place). The original sense still survives as the name of a mansion e.g. Hampton Court; or that of a narrow court or cul-de-sac. From it have come the two main uses of the term. The king's court or house was the place where he heard disputes and where he received his

COURT MARTIAL. Military tribunal for the trial of officers and soldiers for breaches of the Army Act, and of civilians for offences against the Defence of the Realm Act or other contravention of regulations when a state of martial law is proclaimed.

The court is both judge and jury - it decides upon the question of

guilt and also pronounces sentence. The prisoner may be represented by counsel or by an officer who acts as prisoner's friend. The prosecutor is usually an officer, but sometimes a representative of the judge advocate. Should the accused be

found not guilty he is at once released from military custody, and if guilty his sentence is not promulgated until the proceedings have been confirmed, because a general by endorsing the records "not confirmed" may annul both verdict and sentence. Courts martial are of three kinds, regimental, district, and general.

NAVAL COURTS. In the royal navy, courts martial are held under similar circumstances to those in the army, and are competent to try all persons belonging to the navy or on board any of H.M. ships. They can be convened by the senior officer commanding the squadron, and must be held publicly on one of the ships. The procedure is similar to that of a military court, but the sentence (unless of death) does not require confirmation. A barrister, the judge advocate of the fleet, advises the Admiralty on all matters connected with courts martial.

COURTNEY, LEONARD HENRY COURTNEY, 1st Baron (1832-1918). British statesman.

Born at Penzance, July 6, 1832, he was professor of political economy, University College, London, 1873-75. From 1876-85 he was M.P. for Liskeard, and from 1885-1900 for the Bodmin division of Cornwall. From 1886-92 he was Chairman of Committees and deputy speaker of the House of Commons. Made a privy councillor in 1889, and a peer as Baron Courtney of Penwith in 1906, he died May 11, 1918. Consult Life, G. P. Goode, 1920.

His brother, William Prideaux Courtney (1845-1913), was the author of a Register of National Bibliography, 1905-12.

COURTNEY, WILLIAM LEONARD (1850-1928). British scholar. Born Jan. 5, 1850, he was a tutor at Oxford before he began his work as literary and dramatic critic for The Daily Telegraph in 1890. He became editor of The Fortnightly Review in 1894. His published work includes Studies in Philosophy, 1882; Kit Marlowe, a blank verse drama, 1893; The Development of Maeterlinck, 1904; The Literary Man's New Testament, 1915; Old Saws and Modern Instances, 1918; and The Bedside Bible, 1926. He died Nov. 1, 1928.

COURTRAI. Town of Belgium, on the Lys, 27 m. S.W. of Ghent. The 15th century church of Notre Dame was partly rebuilt in the 18th, and contains a painting by Van Dyck and some medieval wall-paintings. St. Martin's Church is Gothic, largely restored, with a beautiful W. portal, and St. Michael's is 17th century chnreh. The hôtel de ville, dating from the 16th century, has wonderful interior decorations, and was restored about 1850. There is an old bridge with two massive

towers; a belfry dating from the 14th century stands in the market-place. A canal connects the town with the Schelde.

Courtrai is famous for the battle in July, 1302, when 700 spears were collected from dead French knights and hung up in the church by the victorious Flemings. Pop. 38,251.

COUSIN, VICTOR (1792-1867). French philosopher. Born at Paris, Nov. 28, 1792, in 1817 he visited Germany, where he became acquainted with Hegel and Schelling, and took back German philosophy with him into France. After the revolution of 1830 he entered politics, and became minister of public instruction in the Thiers cabinet of 1840. After the coup d'état of 1851 he retired into private life. He died Jan. 13, 1867. In philosophy, Cousin tried to combine the views of Descartes and the Scottish school with those of Kant, Schelling, and Hegel into a system which he called eclecticism.

COUTTS, THOMAS (1735-1822). British banker. Born in Edinburgh, Sept. 7, 1735, he settled in London, being employed by the



Thomas Coutts, British banker

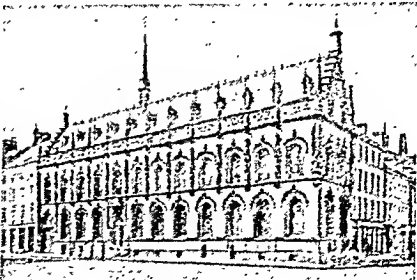
firm of goldsmiths in the Strand founded by John Campbell. Under him this developed into Coutts's bank, which was in 1920 affiliated to the National Provincial Bank, Ltd. Thomas Coutts died Feb. 24, 1822. To his second wife he left his immense fortune, which on her death passed to his granddaughter, Baroness Burdett-Coutts (q.v.).

COUVADE (Fr. hatching). Custom observed by some primitive tribes, whereby at childbirth the father simulates the maternal condition. The term has been extended to a group of practices indicating a belief that the father is physically affected by the birth, or that indulgence in certain acts or foods will react sympathetically upon mother or child.

COVENANT (Lat. convenire, to agree). Term occurring frequently in the Bible, especially in the O.T. Here it is used for many different kinds of agreements, but particularly applies to an engagement made between God and men. The Book of the Covenant is the name given in Exodus 24, 7 to a collection of ancient Hebrew law codes incorporated in the Pentateuch.

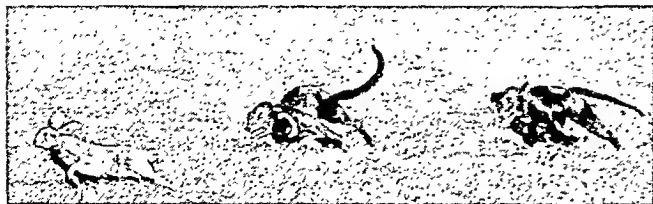
In English law, a covenant is a promise made under seal, i.e. by a deed sealed and delivered. A covenant is binding although made without valuable consideration, unlike an ordinary promise. Again, an action for breach of covenant is only barred by the lapse of 20 years instead of 6 years.

The term covenant is applied to the document embodying the clauses in the Versailles Treaty of 1919, which define the creation and administration of the League of Nations.



Courtrai. The Town Hall, built in the early 16th century and restored about 1850

It is also applied to the King's Confession or National Covenant adopted in 1581 by the General Assembly of Scotland, and signed



Coursing. A course in the Croxeth Stakes, held at Altcar, Liverpool. See p. 460

vassals and retainers. Thus court came to mean a place where justice was dispensed, and to-day the term courts of law covers all tribunals from the high court of justice and the supreme court of the U.S.A. to the county court and the magistrates' court. Thus also comes the term high court of Parliament.

The manorial courts were the court baron, attended by the freeholders, the court customary for the copyholders, and the court leet for hearing criminal cases.

Court is also used for the attendants and surroundings of a sovereign, a useful collective term for a king and queen and their suite. Presentation at court is in Britain a preliminary to entrance into society. These presentations, in the case of ladies, take place at courts, i.e. evening assemblies held by the king and queen, usually at Buckingham Palace, in May, for which invitations are issued by the lord chamberlain. Men are presented at levées, held by the king alone.

COURT CIRCULAR. This is the daily official record of events at court and movements of members of the royal family. It is issued from the Lord Chamberlain's office to the newspapers nightly.

COURTENAY. Name of an old English family derived from its French place of origin. Their heiress, about 1150, married a son of Louis VI of France, and their descendants were for a time emperors of Constantinople or Romagna.

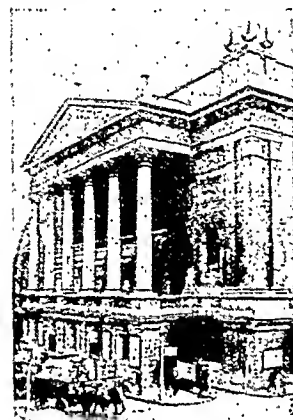
Robert de Courtenay married a daughter of the earl of Devon, and a later Courtenay, Hugh, was made earl of Devon in 1335. William Courtenay (c. 1342-96), fourth son of Hugh, 2nd earl of Devon, and through his mother great-grandson of Edward I, was born at Exeter. He was made bishop of Hereford, 1370, bishop of London, 1375, and in 1381 archbishop of Canterbury. He died July 31, 1396. Sir William Courtenay (d. 1511) married a daughter of Edward IV: their son, made marquess of Exeter, was executed in 1539. The title of the earl of Devon, several times forfeited and recovered, is still held by the Courtenays.

COURTESY or **CURTSEY** (Fr. courtoisie). Something granted as a favour, not as a right. Such are courtesy titles, which are titles not legally valid, but granted by custom. The eldest son of a duke, marquess, or earl is known by one of his father's titles, usually the second; for example, the eldest son of the duke of Devonshire is the marquess of Hartington. The younger son of a duke or marquess has the prefix lord with the Christian name and surname, and his wife has lady prefixed to her husband's Christian name and surname. The daughter of a duke, marquess, or earl has the prefix lady with her own Christian name and surname. The eldest son of a Scottish viscount or baron is called master, e.g. the master of Stair. Holders of courtesy titles may sit in the House of Commons.

by King James VI; to the Covenant of 1638; and to the Solemn League and Covenant of 1643. See League of Nations.

COVENANTERS. Adherents of the Scottish covenant which was signed in 1638. Its signatories bound themselves to maintain the Presbyterian faith as the religion of their land, in opposition to the plans of Charles I. After the restoration of Charles II, in 1660, the Covenanters were persecuted. Their rising in 1666 was cruelly suppressed. See Bothwell; Cameronians.

COVENT GARDEN. London district and wholesale fruit, vegetable, and flower market, between the Strand and Long Acre. Covent, formerly called Convent, Garden was a garden of the abbot of Westminster. It was granted by Edward VI to the earl of Bedford. The market dates from the middle of the 17th century, the square having been built some twenty years earlier on the plans



Covent Garden Theatre. Exterior of the famous London opera house

of Inigo Jones, the architect of St. Paul's Church, Covent Garden. In 1913 most of the property was sold to H. Mallaby-Deeley, M.P. In 1918 the Covent Garden estate was bought by the Covent Garden Estates Co. (Limited). There is a station on the Piccadilly tube rly.

Covent Garden Theatre, the chief seat of grand opera in London, stands on the site of the playhouse opened by John Rich, the famous harlequin, in 1732. Enlarged and altered, the theatre was the scene of John Kemble's greatest triumphs until it was burned, Sept. 20, 1808. The second theatre, opened Sept. 18, 1809, met with the same fate in 1856. The present building was opened May 15, 1858.

COVENTRY. County borough and city of Warwickshire. It is on the river Sherbourne and Radford Brook, 94 m. N.W. of London by the L.M.S. Rly. Originally walled and pierced by 12 gates, the walls were levelled by Charles II in 1662, and only two gates remain.

It was a bishop's see from 1102-85. The present bishopric dates from 1918. The cathedral church is St. Michael's, a Perpendicular building dating from 1373-94, with a high spire 296 ft. high. The Guildhall (St. Mary's Hall) is a 15th century building, noted for its carved oak roof, stained



Coventry. The 15th cent. Guildhall, known as St. Mary's Hall
W. F. Taylor

glass, and tapestry. A new council house was opened in 1920. In 1928 it was proposed to restore the ruins of Caludon Castle.

The "City of Three Spires"—thus named from its three prominent churches—was the centre of the cloth industry to the close of the 17th century; it afterwards became noted for ribbons, watches, and sewing machines, and is now most actively engaged in cycle, motor cycle, motor car, aeroplane, telephone and other electrical apparatus, and artificial silk manufactures. Several fairs are held, in one of which the pageant of Lady Godiva and Peeping Tom is occasionally introduced. Market day, Fri. Pop. 166,000.

COVENTRY, EARL OF. English title borne since 1697 by the family of Coventry. Sir Thomas Coventry was made Baron Coventry in 1628. In 1697 his descendant, the 5th baron, was made Viscount Deerhurst and earl of Coventry. The 9th earl died in March, 1930, having held the title for the long period of 87 years. The earl's eldest son is called Viscount Deerhurst, and his seat is Croome Court, Worcestershire.

COVERDALE, MILES (c. 1488-1568). Translator of the Bible. Born at Coverham, Yorks, he was ordained in 1514, and joined the Austin Friars. Later he broke with the friars, and adopted Lutheran views, living abroad for some years. He finished his translation of the Bible in 1535. This was the first published version of the complete Bible in English. In 1540 Coverdale's edition of Crammer's Bible was published. From 1551-1553 he was bishop of Exeter, but on Mary's accession he was deprived of his see. He was rector of St. Magnus the Martyr, London, 1564-66. He died in 1568.



Miles Coverdale, translator of the Bible

COWAGE, COWHAGE OR COWITCH (*Mucuna pruriens*). Perennial climber of the order Leguminosae, native of the W. Indies. It has trefoil leaves, pea-like flowers and curved seed-pods coated with stiff brittle hairs whose points are toothed. These hairs in contact with human skin cause irritation.

COWANS, SIR JOHN STEVENS (1862-1921). British soldier. Born Mar. 11, 1862, he entered the Rifle Brigade in 1881. In 1906 he went to India, where he was director-general of military education, and from 1908-10 he commanded a brigade. In 1912 he was appointed quartermaster-general and member of the Army Council, being knighted in 1913. In March, 1919, Sir John left the army for a business appointment. He died April 16, 1921.



Sir John S. Cowans. British soldier Elliott & Fry

COWBANE (*Cicula virosa*). Perennial herb of the order Umbelliferae. A native of the N. hemisphere, it has a short, stout root-stock and large, wedge-shaped, much-divided leaves. The minute white flowers are borne in flat-topped umbels 4 ins. or 5 ins. across. From its exceedingly poisonous properties it is known as water hemlock.

COWBERRY (*Vaccinium vitis-idaea*). Evergreen shrub of the order Ericaceae. A native of N. Europe, N. Africa, and N. America, it

has twisted trailing, wiry stems, with box-like leathery leaves and bell-shaped pink flowers. The red round acid berries are larger than cranberries.



Cow Bird, American gregarious bird

COW BIRD (*Molothrus*). Genus of American birds belonging to the troupial tribe. Gregarious and polygamous in habit, they sometimes take possession of the nests of other birds, in which, following the habit of the cuckoo, they deposit their eggs.

COWBRIDGE. Borough and market town of Glamorgan. It stands in the valley of the Thaw, 12 m. by road W. of Cardiff, 23 m. by the G.W. Rly. Market day, Monday. Pop. 1,157.

Cowdenbeath. Burgh of Fifeshire. It is 23 m. N.W. of Edinburgh by the L.N.E. Rly., and is a mining centre. Pop. 14,215.

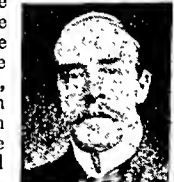
COWDRAY, WEETMAN DICKINSON PEARSON, 1ST VISCOUNT (1856-1927). British contractor and politician. Born July 15, 1856, he became the head of the firm of S. Pearson & Son, contractors. From 1895-1910 Pearson was Liberal M.P. for Colechester, and on his retirement was made a baron. In 1917 he became a viscount. He died May 1, 1927. Consult Weetman Pearson, First Viscount Cowdray, by J. A. Spender, 1930.



Viscount Cowdray British contractor and politician
Vandyk

His eldest son, Weetman Harold Miller Pearson (b. 1882), who succeeded to the title, was Liberal M.P. for the Eye division of Suffolk, 1906-18.

COWEN, SIR FRIDERIC HYMEN (b. 1852). British composer and conductor. Born at Kingston, Jamaica, Jan. 29, 1852, he came to England in 1856. He was conductor of the Covent Garden Promenade Concerts (1880), of the Philharmonic Society, 1888-92, and again from 1900; of the Scottish Orchestra, 1900, the Handel Festival, and orchestras at Manchester, Liverpool, and elsewhere. His compositions include operas, oratorios, cantatas, symphonies, and songs. Knighted in 1911, he published *My Art and My Friends*, 1913.



Sir F. H. Cowen, British composer
Russell

COWEN, JOSEPH (1831-1900). British politician and journalist. Born at Blaydon-on-Tyne, July 9, 1831, he was Liberal M.P. for Newcastle, 1873-86. He founded *The Northern Tribune* and owned and edited *The Newcastle Chronicle* for many years until his death, Feb. 13, 1900.

COWES. Urban dist., seaport, and sea-side resort of the Isle of Wight. It is on the Medina river, 11 m. S.E. of Southampton, with which and with Portsmouth and Ryde it has regular steamer communication. It has a station on the Southern Rly. On the opposite bank of the Medina, and connected by a floating bridge and steam ferry, is East Cowes.

Cowes is the headquarters of the Royal Yacht Squadron. Ship and yacht building are important industries, to which the manufacture of aircraft has been added. Of the two forts (erected 1540) which formed the nucleus of East and West Cowes, the western still stands, now the Royal Yacht Squadron club house. Pop. 11,500.

Cowgate. Historic thoroughfare in Edinburgh, leading from the Grassmarket to St Mary Street. See Edinburgh.

COWL (Lat. cucullus, hood). Originally the hood attached to a cloak and worn over the head in the Middle Ages. Later the term was restricted to its present use, a hood worn by many orders of monks and friars. That of the Augustinians is a separate garment.



Cowl, as worn by members of the Franciscan order

In aeronautics the term cowl denotes the sheet metal cover or casing usually fitted over the engine and end of the fuselage to reduce head resistance. The term is also applied to the hood-shaped cover attached to chimneys.

COWLEY, ABRAHAM (1618-67). English poet and essayist. Ejected from Cambridge, where he was a fellow of Trinity College, on the outbreak of the Civil War, Cowley espoused the Royalist cause; and in 1646 followed the queen to Paris. On his return to England in 1656, he was arrested as a spy, but was released on bail of £1,000. In 1657 he became M.D. of Oxford, and in 1661 he wrote his Proposition for the Advancement of Experimental Philosophy. In 1665, receiving a Crown grant of land, he retired to Chertsey, where he died July 28, 1667. His Collected Works were issued in 1668. Cowley's elegies on Harvey and Crashaw, his paraphrases from Anacreon, The Chronicle, his hymn To Light, and his essays, will preserve his name in English literature.



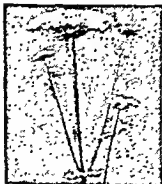
Abraham Cowley, English poet and essayist

COWLEY, HANNAH (1743-1809). English dramatist and poet. Born at Tiverton, her first play, The Runaway, was produced in 1776. Her best comedy was The Belle's Stratagem, 1780. She corresponded in verse with Robert Merry (Della Crusca), and their joint poems were published in 1788. She died March 11, 1809.

COWLEY. Suburb of Oxford. It consists of two villages, Church Cowley and Temple Cowley, and a district separated from them by Cowley Marsh. A military college was formerly here, but now the place is known because of the large motor works erected by Sir W. R. Morris. The chapel of St. Bartholomew's Hospital and Cowley Church are worthy of mention.

COWLEY FATHERS. This is an order in the Church of England, founded in 1865, at Cowley, as the Society of St. John the Evangelist. It consists of mission priests and lay brothers. The London house is 22, Great College St., Westminster, and there are several branch houses.

COW PARSNIP (Heracleum sphondylium). Biennial herb of the order Umbelliferae, a native of Europe, N. Africa, and N. Asia. It has, in its second year, a stout, hollow and furrowed stem, 5 ft. or 6 ft. in height, with rough leaves 3 ft. long, broken into large leaflets holdly lobed and toothed. The comparatively small white or pinkish flowers combine in large umbels, making the plant conspicuous. The edible stems are chiefly used for feeding pigs.



Cow Parsnip, flowering head

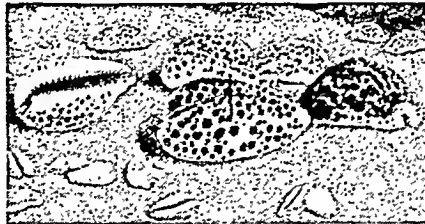
COWPER, WILLIAM (1731-1800). English poet. Born at Great Berkhampstead, Herts, Nov. 15, 1731, he was educated at a country school and later at Westminster. Having become a barrister, he held a position in the courts of law, but his health gave way, and

from Dec., 1763, to June, 1765, he was an inmate of a private asylum, melancholia dating from his mother's death having developed into a form of insanity. In 1767, he moved, with the Unwin family from Huntingdon to Olney, Bucks, where he came under the influence of the Rev. John Newton. He had a rather mental breakdown in 1773.

At the suggestion of Mrs. Unwin, he began to write poetry—a series of moral satires, The Progress of Error, Truth, Table-Talk, Hope, Charity, etc., his first volume appearing in 1782. Meanwhile he had met Lady Austen, who suggested his ballad John Gilpin, 1782, and also his most important work, The Task, 1785. A translation of Homer and several other poems followed. He removed to Weston in 1786, received a state pension in 1794, and settled at East Dereham, Norfolk, 1795. He died April 25, 1800.

Of Cowper's smaller poems, the lines, On the Receipt of My Mother's Picture, To Mary (Unwin), and The Castaway, and the patriotic Boadicea and The Loss of the Royal George will long serve to keep his memory green. His letters are notable. Pron. Cooper.

COWRY or **COWRIE** (Hind. Kauri, shell). Name applied generally to shells of the genus Cypraea, in which the outer or body whorl is so developed as more or less completely to cover and conceal the others. The aperture is long, narrow, and usually denticulated, and runs the whole length of the shell.



Cowry. Various specimens of cowry shells, the use of which as money has been widespread After W. D. Merrill, A.R.A.

The yellowish money cowry was long used as currency in the East, and is still so employed in parts of Africa. Cowries are also worn as charms or amulets.

COWSLIP (Primula veris). Perennial herb of the order Primulaceae, a native of Europe and Western Asia. The wrinkled,



Cowslip, Flower-head of Primula veris

spoon-shaped leaves spring directly from the rootstock. The drooping, yellow, funnel-shaped flowers are borne on short stalks from the summit of a stout, juicy, leafless stem (scape), and appear in spring. The fruit is a capsule, opening by five valves at the top and containing numerous seeds.

COW TREE. Several trees of different genera whose sap is very similar to the milk of the cow. One of the best known is the Palo de Vaca (Brosimum utile), a species of Urticaceae, native of Venezuela. Incisions are made in the trunk, and a sweet, cream-like fluid exudes, which is not only an efficient substitute for real milk, but makes excellent glue. Another species is the Hya-Hya (Tabernaemontana utilis) of British Guiana.

COW WHEAT (Melampyrum). Genus of annual herbs of the order Scrophulariaceae.



William Cowper, English poet Engraving by W. Holl

Natives of Europe and the temperate parts of Asia, they are partial parasites, tapping the roots of other plants. The leaves are slender and opposite. The cylindrical flowers have the mouth closed by two appressed lips.

COX, DAVID (1783-1859). British painter. Born at Deritend, Birmingham, April 29, 1783, he went to London in 1804, where he painted for theatres, and took lessons from John Varley. He resided at Hereford, 1814-27, teaching drawing and painting incessantly in water colours. Returning to London in 1827, about 1839 he took to oils. He lived at Birmingham from 1841 until his death, June 7, 1859. Cox's favourite ground was North Wales, and simplicity the note of his character and work. Drawings by him are to be seen in the British and Victoria and Albert Museums, London.

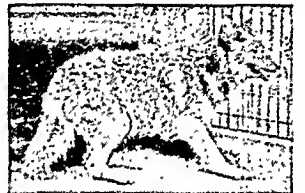


David Cox, British painter Painting by an unknown artist in the Nat. Port. Gallery

COXSWAIN. In the British navy, a petty officer in charge of a boat's crew. The Lifeboat Institution gives the name to the official in charge of a lifeboat station. The word comes from cock, sometimes used for a small boat, and swain. Cox is the man who steers a racing eight or four.

COYOTE (Canis latrans). Prairie wolf of North America. Having longer fur and a more bushy tail than the common wolf, it resembles

a large jackal, and lives usually in burrows and feeds on young birds and small mammals. The coyote is not dangerous to man or large mammals, but is a serious pest to poultry farmers.



Coyote or prairie wolf of N. America, a member of the dog family W. S. Derridge, F.Z.S.

COYPEL, NOEL (1628-1707). French painter. Born in Paris, Dec. 25, 1628, he won the favour of Louis XIV, who kept him occupied for twenty years. He was director of the French Academy in Rome, and in 1690 director of the Paris Academy. He died Dec. 24, 1707.

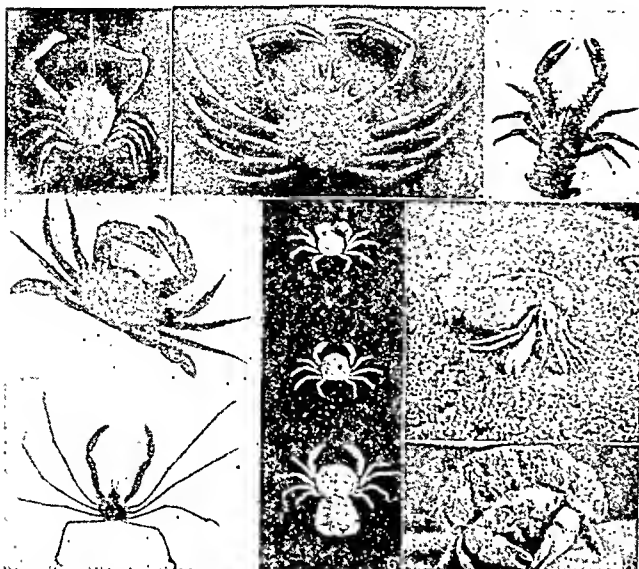
His son, Antoine (1661-1722), also a painter, was born in Paris, April 12, 1661. His picture of Louis XIV Crowned by Victory secured his election in 1681 to the Academy, of which he became director in 1714. He is represented at the Louvre by Esther and Ahasuerus. He died Jan. 7, 1722. His son Charles Antoine Coypel (1694-1752) painted popular genre works as well as portraits in crayon. Another son of Noel, Noel Nicholas Coypel (1690-1734), painted mythological subjects.

COYPU. S. American rodent. It is often mistaken for a large water-rat or a small beaver, hence its name Alyocastor (Gr. mys, mouse, castor, beaver). It lives in burrows beside the water, and feeds on the leaves and roots of aquatic plants.



Coypu. One of these South American rodents

CRAB. Popular name applied generally to the short-tailed crustaceans (Brachyura), particularly to the large common crab (Cancer pagurus). Sixty species are



Crab. 1. Masked crab, *Corystes cassivelaunus*. 2. Great Spider crab, *Maia squinado*. 3. Squat lobster, *Galathea squamifera*. 4. Velvet Fiddler, *Portunus puber*. 5. Long-legged Spider crab, *Macropodia longirostris*. 6. Pea-crabs, *Pinnotheres pisum*. 7. Hairy-handed Hermit, *Eupagurus sculptimanus*. 8. *Dromia vulgaris*, covered with living sponge as a disguise.

natives of the British coasts, presenting great variety of form and habit, small groups being distinguished as swimming crabs, spider crabs, hermit crabs, etc. The British species are all marine, but in other countries there are freshwater crabs, and in the Bahamas and W. Indies are found land crabs that inflict serious damage to the sugar-cane.

Crabs pass through several larval stages before arriving at the adult form. They possess five pairs of legs, of which the first pair is greatly developed into the powerful nippers. The complicated mouth-parts include sharp cutting jaws, there are two pairs of antennae, and the eyes are mounted on foot-stalks, which, in some species, are very long.



Crab-apple blossom

CRAB APPLE (*Pyrus malus*). Small tree of the order Rosaceae. A native of Europe and W. Asia, it is the original stock from which cultivated varieties of apple have been produced. It has pink and white fragrant flowers succeeded by yellow fruit about an inch across, with very acid juice.

CRABBE, GEORGE (1754-1832). British poet. Born at Aldeburgh, Dec. 24, 1754, he was apprenticed to a surgeon, but abandoned medicine for literature. Edmund Burke assisted Crabbe to publish his poem, *The Library*, in 1781. Crabbe took orders, and was chaplain to the duke of Rutland at Belvoir (1782-85). Occupied with his clerical duties, he published practically nothing more for 22 years. In 1807 appeared *The Parish Register*, followed by *The Borough*, 1810; *Tales in Verse*, 1812; and *Tales of the Hall*, 1819. In 1810 Crabbe was made rector of Trowbridge. He died, Feb. 3, 1832.

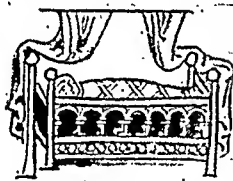
CRACOW. City of Poland. On the left bank of the Vistula 160 m. S. of Warsaw, Cracow is a busy commercial centre.

The old capital of Poland, it has many interesting buildings. The cathedral, built on a rock, is a 14th century Gothic building. Other churches include S. Peter's, modelled on S. Peter's at



Cracow. Cloth Hall of this ancient city, the former capital of Poland

republic which lasted until 1846. It was again part of Austria from 1846 to the peace treaty of 1919, by which it was included in the restored state of Poland. Heavy fighting took place between the Russians and Austro-German forces for the possession of Cracow, in Dec., 1914. Pop. 205,262. See Poland.



CRADLE (A.S. *cradol*). Little bed for a baby. It was originally a small wooden chest, upon which rockers were eventually fixed, or which was slung upon up-rights at either end. Wicker-work cradles or bassinets on wooden rockers were in use until the middle of the 19th century.

The word is used for many things which have something of the shape or purpose of the cradle, such as a framework placed over an injured limb to prevent pressure; the apparatus in which a large animal is slung into, or from, a ship and the frame placed under a ship for launching it.

In metallurgy, the hand appliance employed by the miner in obtaining gold from alluvial deposits is called a cradle. It consists of a box, mounted on rockers and having a removable hopper sieve. The "pay dirt" is thrown into this hopper with water and the cradle is rocked by means of a handle, by which action the dirt is broken up, the fine material being carried down and the coarse retained.

CRADLEY. Market town of Worcestershire. It is 2½ m. N.E. of Stourbridge by the G.W.R. There are iron and steel works. The parish includes the village of Cradley Heath, in Staffordshire, which has chain-making works. Market day, Sat. Pop. 7,800.

Rome; and those belonging to the Dominicans and Franciscans. Of secular buildings the chief is the castle, where the Polish kings lived. The university, founded in 1364, is now housed in a fine 19th century building; its older home is used for the library. Of museums the principal are the national museum in the old cloth hall, a 13th century building, largely rebuilt in the 19th, and the Czartoryski, with a valuable collection of pictures. In the vicinity are the salt mines of Wieliczka and Kosciusko Hill, a mound of earth thrown up early in the 19th century in honour of the Polish hero.

Cracow was part of Poland until the third partition of that land, when Austria obtained it. In 1815 it was made the capital of a little republic which lasted until 1846. It was again part of Austria from 1846 to the peace treaty of 1919, by which it was included in the restored state of Poland. Heavy fighting took place between the Russians and Austro-German forces for the possession of Cracow, in Dec., 1914. Pop. 205,262. See Poland.

CRADOCK, SIR CHRISTOPHER GEORGE FRANCIS MAURICE (1862-1914). British sailor. Born July 2, 1862, he served with distinction in the Sudan, 1891; and in China, 1900. Rear-admiral in 1910, he was given command of the Atlantic Fleet in 1911, and went down with his flagship, the *Good Hope*, in the battle of Coronel (q.v.), Nov. 1, 1914.



Sir C. Cradock, British sailor
Littell & Fry

Terry, from 1889-97 he acted under Henry Irving. He produced operas and plays in London, Berlin, Florence, and Moscow, introducing innovations in scenery and stage construction. His books are *On the Art of the Theatre*, 1911; *Towards a New Theatre*, 1913; and *The Theatre Advancing*, 1921.

CRAIGAVON, JAMES CRAIG, 1ST VISCOUNT (b. 1871). British politician. Born Jan. 8, 1871, he was chosen Unionist M.P. for a division of co. Down in 1906. He was with the Ulster division during the Great War. In 1918 he was created a baronet. In 1921 he became Unionist leader in Ulster, and was the first prime minister of N. Ireland. Created a viscount in 1927, in 1929 a general election confirmed Lord Craigavon in office.



Viscount Craigavon, British politician
Laloy, Ltd.

CRAIGIE, PEARL MARY TERESA (1867-1906). Anglo-American novelist whose pseudonym was John Oliver Hobbes. Born at Boston, U.S.A., Nov. 3, 1867, her earliest stories, *Some Emotions* and *A Moral*, 1891; *The Sinners' Comedy*, 1892; *A Study in Temptations*, 1893; and *A Bundle of Life*, 1893, achieved immediate success. In her later works, *The School for Saints*, 1897, and its sequel *Robert Orange*, 1900, Mrs. Craigie reached higher levels. She also wrote several plays. She died Aug. 13, 1906.

CRAIK, DINAH MARIA (1826-87). British author. Born at Stoke-upon-Trent, April 20, 1826, her maiden name was Mulock. Her first novel, *The Ogilvies*, was published 1849, and her most popular book, *John Halifax, Gentleman*, 1856. In 1864 she married G. L. Craik, a partner in Macmillan's publishing house. She died Oct. 12, 1887. *Consul Memoir*, L. Parr, 1898.

CRAIOVA OR CRAJOVA. Town of Rumania. Capital of the dist. of Oltenia, Wallachia, about 120 m. W. of Bukarest, it is an important rly. and road centre, manufactures leather and rope, and has a large export trade in grain and cattle. During the Great War it was occupied by the Germans on Nov. 21, 1916, after the Rumanian defeat in the second battle of Targul Jiu. Pop. 52,000.

CRAKE. Bird of the Rallidae or rail family. The landrail or cornrake is a familiar British example. The name crake, derived from the harsh cry, should be applied only to the genus *Crex*. See Cornrake.



Dinah Craik, British author
From her monum. at in
Tuskebury, church

Cramlington. Urban district of Northumberland. It is 10 m. N.E. of Newcastle by the L.N.E.R. Pop. 9,300.

CRAMP. Painful spasm of the muscles, generally of the leg. Irritation of the stomach and intestines is probably the most frequent cause; prolonged exposure to cold, as in bathing, excessive fatigue, and a tendency to gout or rheumatism are other influences. Forcibly straightening the limb and vigorous rubbing are the best means of treatment.

Cramp ring was the name given to a ring blessed by the kings of England on Good Friday, supposed to be a preventive of or cure for cramp and epilepsy. It was long kept in Westminster Abbey.

CRAN (Gaelic). Scottish measure of capacity used for fresh herrings. It represents a fish-barrel full, or about 750 fish, and was fixed at 37½ imperial gallons in 1852.

CRANACH, LUCAS, THE ELDER (1472-1553). German painter. Born at Kronach, Bavaria, Oct. 4, 1472, he was twice hurgomaster of Wittenberg. He painted several portraits of Luther, Melancthon, and other Protestant leaders. His compositions include *The Agony in the Garden*, at Dresden; and *Motherly Love*, at Antwerp. He died Oct. 16, 1553.

His second son, Lucas Cranach the Younger (1515-86), born at Wittenberg, painted portraits and figure subjects, the latter including at least three versions of the Crucifixion, at Dresden, Leipzig, and Wittenberg.

CRANBERRY (*Vaccinium oxycoccos*). Creeping evergreen shrub of the order Ericaceae. It has egg-shaped leaves whose margins are rolled back. The small red flowers have four or five widespread segments. The small round dark red berries are acid and astringent. The cranberry of the fruit shops is usually the American cranberry (*V. Macrocarpus*).



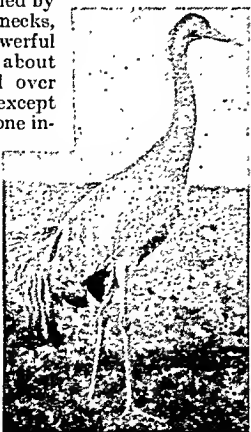
Cranberry stalk and leaves

CRANBROOK. Market town of Kent. It is on the Crane, 44 m. S.E. of London, on the Southern Rly. Formerly the centre of the broadcloth industry introduced by the Flemings, it now has a trade in malt and hops. In 1928 the old cloth hall, formerly called Coursethorpe, was sold. The church, with its detached baptistery, is noteworthy. Market day, Wed. Pop. 4,061.

The title of earl of Cranbrook has been borne by the family of Gathorne-Hardy since 1892.

CRANE. Family of birds of the family Gruidae, distinguished by their long legs, necks, and bills and powerful wings. There are about 20 species, spread over most of the world, except in S. America. None inhabits Great Britain, but the common crane and the demoiselle crane are occasional visitors.

CRANE. In engineering, a machine for lifting and moving heavy weights. Cranes may be classified as (1) jib cranes, which revolve and carry the load on a long overhanging beam or girder; and (2) bridge cranes, which carry the load intermediately on a horizontal girder supported at both ends.



Crane. The Common Crane, *Grus cinerea*, of Europe

Travelling jib cranes consist of a wheeled truck, whereon is a turntable, with the jib attached to one side of it and a platform for a counterbalancing weight on the other. Floating cranes are mounted on large pontoons subdivided into watertight compartments and heavily ballasted. In the operation of cranes, human, steam, or electric power is applied through de-multiplying trains of toothed wheels with compound block tackle. Hydraulic power is used mostly for stationary cranes which have to deal quickly with light loads.

CRANE, WALTER (1845-1915). British artist. Born in Liverpool, Aug. 15, 1845, he was a prolific draughtsman in black and white, his work being usually of a decorative character. Of his books *The Baby's Opera* was a special favourite. His *Lady of Shalott* was exhibited at the Royal Academy in 1862. His best known pictures were *The Fate of Persephone*, at Karlsruhe; and *The Renaissance of Venus*, Tate Gallery, London. Crane in later life identified himself with the Socialist movement. He died at Horsham, March 14, 1915.



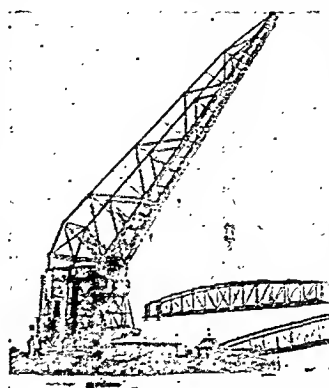
Walter Crane, British artist. Self-Portrait. Uffizi Gallery, Florence

from its slender form and larvae, known as leather jackets, are destructive grass pests.

CRANE'S BILL (*Geranium*). Genus of herbs (a few shrubs) of the order Geraniaceae. It has swollen joints, leaves more or less cut or lobed, and five-petalled flowers. The fruit is a capsule with a long beak which breaks into five parts, each containing a large seed with a long awn, which, separating from the beak and curling, suddenly ejects the seed to a considerable distance.

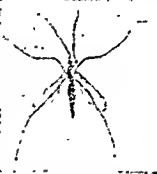
CRANK. In mechanical engineering, a bend in a shaft, or an arm or plate and pin attached to it, whereby rotary motion is converted into reciprocating motion, or vice versa. A single or outside crank is found at the end of a shaft. A double or inside crank is of U form. Single cranks for steam engines are usually made separate from the shaft and keyed or sprung on. Double and multiple cranks may be machined out of the same forging as the crank-shaft or they may be built up.

The crank serves as a lever, enabling the connecting rod to rotate the driving shaft. When there are more than one crank to a shaft, the cranks are set at an angle to avoid a dead centre. The two bars connecting the pedals of a bicycle to the gear wheel shaft are also known as cranks, as they convert the downward pressure on the pedal into a rotatory force. See Bicycle.



Crane. Example of a mammoth jib crane which will lift 150 tons

CRANE FLY (*Tipula olerea*). Large two-winged insect, otherwise known as daddy long legs long limbs. The



Crane Fly, or daddy long legs



Crane's-bill, *Geranium pratense*

CRANMER, THOMAS (1489-1556). English prelate. Born at Aslockton, Notts, July 2, 1489, he went to Cambridge and became a priest. He attracted the notice of Henry VIII by suggesting that the divorce question should be submitted to the universities of Europe, and became a royal chaplain. Having been abroad on public business, he became archbishop of Canterbury in 1533, and as such pronounced Henry's first marriage invalid. Later he dissolved the union with Anne Boleyn, married the king to Anne of Cleves and pronounced their divorce. Equally subservient in political and doctrinal matters, he helped Henry to throw off the papal supremacy and to make himself head of the church.

During the reign of Edward VI Cranmer was equally prominent. He had a large share in reforming the rites and doctrines of the church. He signed Somerset's death warrant, helped to depose Gardiner and Bonner, and agreed to the succession of Lady Jane Grey. This led to his fall. On Mary's accession he was tried for treason and sentenced to death. The sentence was not carried out at once, but he was deprived of his archbishopric (1556). Solemn recantations, in which he declared his belief in the Papacy and the Mass, did not save him, and he withdrew these just before he was burned at Oxford, March 21, 1556. Consult Cranmer and the English Reformation, A. F. Pollard, 1904.



Thomas Cranmer, English prelate. Engraving by W. Hoell

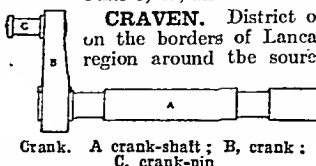
CRANNOG (Gaelic, crann, tree). Ancient lake-dwelling in Scotland or Ireland. Logs, brushwood, sometimes small stones, laid on an islet or in a shallow, and bound together with timber piling, formed a platform above water level, bearing one or more round huts with stone hearths. Notable examples are at Dowalton, Wigtonshire; Lochlee, Ayrshire; and Hyndford, Lanarkshire.

CRANWELL. Village of Lincolnshire. It is 4 m. N.W. of Sleaford. Its old church presents a variety of architecture, from Norman to Perpendicular. The cadet college of the R.A.F. is here, and there is also an aerodrome. The college was founded in 1920, and new buildings were opened in 1929.

CRASSUS, MARCUS LICINIUS (c. 115-53 B.C.). Roman general and triumvir, surnamed Dives. He joined Sulla in the struggle with the Marian party in 83, and as praetor in 71 crushed the revolt of Spartacus. He quarrelled with Pompey, but a reconciliation was effected by Caesar, and in 60 the three formed the so-called First Triumvirate. Embarking on an expedition against the Parthians, Crassus was crushingly defeated at Carrhae, June 8, 53, and was himself killed.

CRAVEN. District of Yorkshire (W.R.) on the borders of Lancashire. It is a hilly region around the sources of the Aire and Wharfe. There is a Craven Museum at Skipton and a Craven Hunt in the district.

The title of Earl of Craven was held by the Craven family from 1603 to 1697, and again from 1891.



Crane. A crank-shaft; B, crank; C, crank-pin

CRAWFISH (*Palinurus vulgaris*). Spiny species of rock lobster common round the British coasts. Considerably larger and with coarser flesh than the common lobster, and reddish-brown in colour when alive, it has the carapace thickly armed with short spines, long antennae, and no pincers. It should not be confused with the crayfish (q.v.).



Crawfish, or rock lobster

CRAWFORD, EARL OF. Scottish title borne since 1398 by the family of Lindsay. Ludovic, the 16th earl, fought for Charles I and later under Montrose. Consequently he lost his earldom, which was given in 1644 to John Lindsay, who had been made earl of Lindsay in 1633. On the death of the 22nd earl, in 1808 the two earldoms were separated, and for 40 years the earldom of Crawford was in abeyance. In 1848 it was granted to James Lindsay, 7th earl of Balcarres, and since then its holder has been earl of Crawford and Balcarres. He ranks as the premier earl of Scotland, and as earl of Balcarres has been a peer of the United Kingdom since 1826.

David Alexander Lindsay (b. 1871), who became the 27th earl of Crawford in 1913, was, as Lord Balcarres, M.P. for Chorley, 1895-1913. He was president of the board of agriculture, lord privy seal, and first commissioner of works in the Coalition Government, 1916-22. Known also as a patron of art, he has valuable literary and artistic treasures at his seat, Haigh Hall, Wigan.



27th Earl of Crawford
Beresford

CRAWFORD, FRANCIS MARION (1854-1909). American novelist. Born in Tuscany, Aug. 2, 1854, from 1879-80 he was a journalist in India. His first novel, *Mr. Isaacs*, 1882, was remarkable for its treatment of occultism. Among his later works were *A Roman Singer*, 1884, descriptive of modern Italian life and character; *Saracinesca*, 1887; and *A Cigarette Maker's Romance*, 1890. He died April 9, 1909.

CRAWLEY. Village of Sussex. It stands in the N. vicinity of Tilgate Forest, 7 m. N.E. of Horsham by the Southern Rly. It is a popular stopping place on the Brighton road. Pop. 453.

CRAYFISH (*Potamobius pallipes*). Freshwater edible crustacean, resembling a miniature lobster. It is common in many British rivers, and must be distinguished from the crayfish (q.v.).

CRAYFORD. Urban district of Kent. It stands on the Cray, 1½ m. S.E. of London by the Southern Rly. Here in 457 the Saxons defeated the Britons. Today it is an industrial centre, Vickers being among the firms that have works here. Pop. 11,924.

CREAM. That part of milk which rises to the top when milk is allowed to stand. Richmond's analysis of thick cream is as follows: water, 39.37; fat, 56.09; sugar, 2.29; albuminoids, 1.57; ash, 0.38, and miscellaneous matter 0.30. The old method of cream-raising by allowing the milk to stand in shallow pans has been varied according to the shape and depth of the vessels employed. See Milk.

CREAM OF TARTAR OR ACID TARTRATE OF POTASSIUM ($\text{KHC}_4\text{H}_4\text{O}_6$). Product obtained by purifying argol. The argol is ground to a coarse powder and boiled with water, strained, and allowed to rest for six or seven days, when most of the cream of tartar is deposited. What remains in the mother-liquor is converted into tartaric acid by adding sulphuric acid. Cream of tartar is used in preparing ginger beer and in baking powder.

CREATINE (Gr. *kreas*, meat, flesh). White, inodorous substance, a constant constituent of muscle-substance. It is prepared from meat extract, from which it was first separated by Chevreul in 1835.

CREATION (Lat. *creare*, to bring into existence). According to the Hebrew and Babylonian conception of the universe, the world is a solid expanse of earth which rests upon, and is surrounded by, the waters of a world ocean. Above the earth is a rigid vault or firmament, and around and above this are spread the waters of a heavenly ocean.

This is the background of the Biblical story of Creation, of which there are two versions in Genesis. Parallels to the O.T. accounts are found in a Babylonian epic in the British Museum. There Marduk overthrows Tiamat, the dragon impersonation of the watery deep. Egypt attributed creative acts to various deities: a master workman and a master potter who, from the Nile mud, produced the cosmic egg and fashioned man on a potter's wheel. Early Aryan India named Varuna maker of all, and postulated a golden egg whence man emerged; and other ancient peoples had their own creative deities.

CRÉCY, BATTLE OF. Fought between the English and French, Aug. 26, 1346. Edward III landed with an army near Cherbourg and advanced through Normandy towards Rouen. Philip VI of France set out to meet him, and soon the rival hosts were close together, marching on opposite sides of the Seine towards Paris. Edward, however, found an unguarded ford which his army crossed, and on Aug. 25 was on the outskirts of the forest of Crécy. Next day the French arrived on the field and the battle opened. The French forces were severely defeated and suffered very heavy losses.

CREDENCE (late Lat. *credentia*, a sideboard). Small table at the side of the altar. Upon it are placed, in preparation for Mass or for Holy Communion, the Eucharistic vessels and unconsecrated elements.

CREDITON OR KIRTON. Urban district and market town of Devonshire. It stands on the Creedy, near its confluence with the Exe, 7½ m. N.W. of Exeter, on the Southern Rly. Crediton was the seat of a bishop from 909 to 1049. Market day, Sat. Pop. 3,502.

CREED. (Lat. *credere*, to believe). Verbal expression of belief. The term is applied to a general body of doctrine, and to a summary of articles drawn up for belief. The three creeds of the Christian Church are the Apostles', the Nicene, and the Athanasian.

Creeping Jenny. Variant name for the moneywort. See Moneywort.

CREEVEY, THOMAS (1768-1838). British politician. Born at Liverpool, he was called to the bar in 1794. Elected M.P. for Thetford in 1802, he was secretary to the board of control, 1806, and treasurer of the ordnance, 1830. He died in Feb., 1838. The Creevey Papers, letters and comments written by him, were edited by Sir H. Maxwell, 1903.

CREFELD. Town of Prussia, in the Rhine Province. It stands near the Rhine, 32 m. N.W. of Cologne. Its prosperity is due to its position on the Westphalian coalfield, from which power is obtained for its important textile industries. It is an important rly. centre.

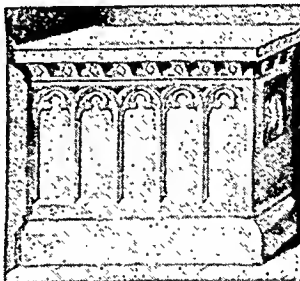
Crefeld became a chartered town in the 14th century, and was soon a market of some importance. With the county of Mors, it passed into the possession of Prussia in 1702, and remained therein except for a few years during the time of the French Revolution. Its industrial prosperity began when religious refugees settled here, and was augmented by the introduction of the silk manufacture by Dutchmen, and the opening of the Westphalian coalfield. Pop. 131,008.

CREIGHTON, MANDELL (1843-1901). British divine and historian. Born at Carlisle, July 5, 1843, he went to Merton College, Oxford, where he became a fellow and tutor. In 1875, having been ordained and married to Louise von Glehn, he became vicar of Embleton. In 1884 he was appointed first Dixie professor of ecclesiastical history at Cambridge, in 1891 bishop of Peterborough, and in 1896 bishop of London. In addition to *The History of the Papacy during the Reformation, 1882-94*, he wrote *Lives of Simon de Montfort, 1876*, *Cardinal Wolsey, 1888*, and *Queen Elizabeth, 1896*, and was the first editor of *The English Historical Review* (1886-91). Creighton died Jan. 14, 1901.



Mandell Creighton,
British historian
Russell

CREMATION (Lat. *cremare*, to burn). Reduction of a corpse to ashes by fire. In Great Britain regulations are made by the Home Office. When it is desired to cremate a body, a form of application must be filled up by the executor or nearest surviving relative of the deceased, and the application must state that the deceased had expressed no objection orally or in writing to being cremated after death. Two medical certificates are required. When an inquest has been held, a special certificate is given by the coroner.



Crematorium dating from c. 1460 in the church of S. Cross, Winchester

A crematorium is a structure built specially for the practice of cremation. The first in England was that at Woking, Surrey, first used March 26, 1885. Crematoriums were opened later at Golder's Green and in various cities, e.g. Leicester, Manchester, and Ipswich. See Burial.

CREMONA. City of Italy. It stands on the N. bank of the Po, 55 m. by rly. S.E. of Milan. The cathedral, consecrated in 1190, has a facade built of red and white marble. The detached belfry is the loftiest in Italy (396 ft.) and the baptistery is octagonal. Most of the churches contain paintings of the

Cremona school, as do the Palazzo Pubblico and other 13th century palaces. The Campo Santo has an 8th or 9th century mosaic pavement. Pop. 65,305. See illus. p. 467.

Cremona is the popular name for a violin from the workshops of the great violin makers of Cremona, e.g., Amati and Stradivarius. See Violin.



Thomas Creevey,
British politician
By courtesy of
Mr. John Murray

CREMORNE GARDENS. London pleasure resort at Chelsea. Originally known as Chelsea Farm, it was built by the earl of Huntingdon in the 18th century, and finally became the property of Viscount Cremorne, who renamed the place Cremorne Villa.

After the death of Lady Cremorne the house and grounds were sold for pleasure gardens, which were opened in 1845, and as such they remained until 1877, when they were suppressed as a nuisance. Their memory is preserved in some of Whistler's Nocturnes.

CREOLE. French form of a West Indian Spanish word *criadillo* (creatureling). It denotes in general the country-horn offspring, and their descendants, of immigrants. No racial admixture is necessarily implied.

CREOSOTE OR CREASOTE. Name applied to a mixture of phenols and phenoloid bodies derived from the destructive distillation of wood, coal, and shale. Wood-tar creosote is obtained by distilling beechwood tar. The product is a colourless liquid when freshly distilled, but turns brown on keeping. Creosote contains phenol, cresols, xylenols, guaiacol, and creosol. Coal-tar creosote is the "heavy oil" or "creosote oil" obtained in the distillation of coal tar. Its composition varies, but naphthalene, anthracene, pyrene, and carbazole are generally present. Chiefly employed for preserving timber, e.g. railway sleepers, it is also used as fuel, and for making lampblack and disinfectants.

CRESCENT (Lat. *crescens*, growing). Term originally applied to the waxing moon, the waning moon, and then to any figure of similar shape. The crescent was made the badge of Byzantium in 339 B.C., and was a Turkish badge as early as the 13th century. It is still used by the Ottoman Turks as their military and religious emblem, appearing on their flag with a star between the horns, and is applied figuratively to Islam.

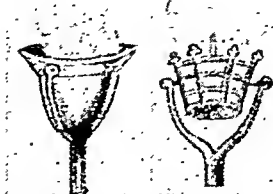
In heraldry the crescent is used as a charge with the horns pointing upwards; if to dexter, as an inescutcheon; if to the sinister, as a decrescent. It is also a difference or mark of cadency to denote a second son. See Heraldry.

CRESCOGRAPH. Apparatus invented by Sir J. C. Bose (q.v.) for demonstrating the rate of growth and of reaction in plants in response to the application of manures, anaesthetics, poisons, or electrical stimuli.

CRECOL. Constituent of coal tar. It is a mixture of three isomers, orthocresol, metacresol, and paracresol. These are used for the manufacture of aniline dyes and also as disinfectants. See Creosote.

CRESS. Popular salad vegetable of the order Cruciferae, genus *Lepidium*, commonly associated with mustard. A hardy annual and a native of Persia, it was introduced into Britain about 1548. Seed can be sown out of doors in March in fortnightly succession until Sept., or it can be sown indoors in warm greenhouses. See Watercress.

CRESSSET (old Fr. *carisse*, mod. *graisse*, grease). Lamp consisting of an iron cage or cup containing pitch-smear rope or other combustible material. It was formerly used for lighting the streets, for holding beacon fires, and by the street watchmen. The term is also applied to a fire basket for lighting docks, etc.



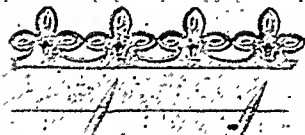
Cresset. Two examples of ancient cressets mounted on poles

CRESSWELL CRAGS. Beauty spot in Derbysire, 9 miles from Chesterfield. In 1875, in Robin Hood Cave, Sir W. B. Dawkins found a palaeolithic engraving, the first found in England. In 1928, in Pin Hole Cave, an engraved bone and some flint implements were found. The bone, probably of a reindeer, bears the engraving of a masked human figure and is the first of the kind found in Britain.

CRESSY. Nameship of a class of six British cruisers built 1898-1901. On Sept. 22, 1914, the Cressy and two of her sister ships, Hogue and Aboukir, were sunk by the German submarine U 9, 20 m. N.W. of the Hook of Holland. See Aboukir.

Crest (Lat. *crista*, tuft, comb). Figure of a man, beast, bird, or monster worn by knights on their helmets.

CRESTE. Properly a decorative ornament attached to the ridge of a roof, to a coping, to the pinnacle of a gable, etc. Cresting is the same ornament multiplied into a continuous feature.



Creste, decorative ridge ornament. An example from Exeter Cathedral

CRESLYATE. Salt formed by trinitro-cresol when it combines with alkalis, metals, and other inorganic or organic bases. The alkaline salts are used as explosives, ammonium cresylate having been extensively employed in Austria under the name of *ecrasite*. Under the name of *cresylite*, mixtures of trinitro-cresol and trinitrophenol have been used as high explosives for shell filling.

CRETACEOUS SYSTEM. Uppermost division of the Secondary or Mesozoic stratified rocks. The typical succession of strata in England includes a basal series of sands and clays, forming the Wealden beds; these are overlain by variable layers of greensands, the Gault clay, subordinate beds of greensands and marls, and finally the chalk of the upper portion. In other areas Cretaceous rocks vary in constitution. In the Cretaceous system the fossils are nearly all of marine animals.

CRETE. Island of the Mediterranean, sometimes called Candia. It lies across the S. end of the Aegean Sea, of which it is much the largest island. Its area is 2,950 sq. m.

The surface consists of mt. ranges and fertile alluvial plains and valleys, well watered by numerous unnavigable streams. There are no rivers, and few good roads. The only good natural harbour is Suda Bay, near Canea. The valleys and plains are well suited for fruit growing, and provide good feed for stock. There are no minerals. Modern towns are the capital, Candia, Canea, and Retimo. Pop. 336,151.

The civilization of Crete is of great antiquity and remarkable interest, as the ruins of Chossus, Phaestus, and other cities show. It was the first European land to attain any high achievement in art, this taking place between about 2200 and 1600 B.C., the Middle Minoan period. This was ended perhaps by an invasion from Greece, which was followed by other invasions; the result was that

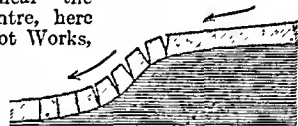
another civilization, in which Asiatic influences played a part, developed in the island, its date being about 1000 B.C. The laws also at this time show a degree of social organization superior to that of any part of the mainland.

The rise of the maritime cities of Greece deprived Crete of its dominant position, and it was of minor importance until modern history begins. It was included in the Roman and the Byzantine empires until 1204, when, for trading reasons, it was seized by Venice. Attempts made by the Turks to capture it failed until 1669, when success came to their arms, and the island was a Turkish possession nominally until 1913.

The 19th century was marked by repeated risings against Turkish rule and by constant feuds between Christians and Moslems. From 1824 to 1852, by decree of the Powers, the island was governed from Egypt. In 1868, after a further period of grave disorder, the Powers, while giving the islanders a certain independence, themselves by means of consuls took a hand in its government. In 1897, with the aid of many Greeks, the islanders started upon a war of liberation. The Turks were driven out and the Powers decided to administer the island themselves. After further troubles the island was, in 1913, handed over to Greece. See Aegean Civilization; Chossus; Greece; Phaestus.

CRETINISM. Condition of mental and physical defectiveness in children due to absence or loss of function of the thyroid gland, known in adults as myxoedema. In a typical case the lips are thick and swollen, the eyelids puffy, and the nose depressed. The abdomen is swollen. Treatment consists in supplying the missing secretion either by giving the child a small amount of sheep's thyroid gland daily or extracts made from the gland.

CREUSOT OR LE CREUSOT. Industrial town of France. In the department of Saône-et-Loire, it is 55 m. from Dijon and stands in the centre of a coal and iron field. Well served by rivers, and near the Canal du Centre, here are the Creusot Works, opened by Adolphe and Eugène Schneider in 1836. Pop. 32,419.



Crevasse. Diagram illustrating the formation of crevasses

CREVASSE (Fr. *crever*, to break) Fissure or crack in a glacier. Where the valley floor is smooth and of uniform slope and



Crevasse. Remarkable example on Mont Blanc

width, the surface of the ice is generally unbroken and comparatively smooth. Where the slope changes suddenly, transverse cracks or crevasses are caused, but these may narrow or even close with a later change of slope. If the valley widens, longitudinal crevasses tend to be formed. A notable crevasse is at the western edge of the Ross Sea Ice Barrier in the Antarctic. In the U.S.A. the name is applied to gaps in river embankments caused by floods

CREWE. Borough of Cheshire. It is 158 m. by rly. N.W. of London, on the L.M.S. Ry. Crewe owes its prosperity to the L. & N.W. Ry. (now L.M.S.) which has there some of the largest rly. constructional workshops in the world. It has a school of art and a technical school. In 1887 the company presented the borough with a splendid recreation ground 40 acres in extent. Lord Crewe's seat, Crewo Hall, built by Inigo Jones and burnt in 1866, was rebuilt by Edward Barry. Market day, Mon. Pop. 46,477

CREWE, ROBERT OFFLEY ASHBURTON CREWE-MILNES, 1st MARQUESS OF (b. 1858). British politician. Born in London, Jan. 12, 1858, and educated at Harrow and Trinity College, Cambridge, he was the son of the 1st Lord Houghton, to whose title he succeeded in 1885. He was made earl of Crewe in 1895, and created marquess in 1911. He was lord-lieutenant of Ireland, 1892-95; lord president of the council, 1905-9; colonial secretary, 1908-10; and secretary for



1st Marquess of Crewe, British politician, Russell

India, 1910-15. He was lord president of the council in the Coalition government, 1915, chairman of the L.C.C. 1917, and British ambassador to Franco, 1922-28. Crewe's second wife was a daughter of Lord Rosebery, whose life he undertook to write.

CREWE HOUSE. This mansion on the N. side of Curzon Street, Mayfair, London, W. was once the residence of Lord Wharncliffe, and was known as Wharncliffe House until purchased in 1899 by the marquess of Crewe. It was occupied in 1918 by Viscount Northcliffe, and his staff, as director of propaganda.



Crewe House. Mansion in Mayfair, London, the residence of the Marquess of Crewe

CREWKERNE. Urban dist. and market town of Somerset. It is 7 m. S.W. of Yeovil on the Southern Ry. It has a grammar school founded in 1499 and a Perpendicular church. Earl Poulett's seat, Hinton House, is near. Market day, Sat. Pop. 3,726.

CRIBB, TOM (1781-1848). Champion English pugilist. Born at Hanham, Gloucestershire, July 8, 1781, he was only beaten once—by George Nicholls, in July, 1805. Cribb secured the championship by defeating Jem Belcher (twice), Tom Molineaux (twice), and Bob Gregson; and held it from Feb. 1, 1809, until his death, May 11, 1848.

CRIBBAGE. English card game. It is played with a full pack, and a marker called a cribbage-board pierced with sixty holes for each player and one for game, on which the score is pegged. The game is usually played by two persons. Court cards count as tens; the rest of the pack bear their face value, the ace being reckoned as one. Points are scored by different combinations of the number of the pips on the cards, totalling 15; by sequences and runs, and by pairs, pairs royal, etc.



Thomas Cribb, English pugilist, after Sharpley

CRICCIETH. Urban dist. and watering-place of Carnarvonshire, Wales. It stands on Tremadoc Bay, 4 m. W.S.W. of Tremadoc. Pop. 1,886.

CRICHTON, JAMES (1560-c. 1585). Scottish scholar, known as the Admirable Crichton. Born in Scotland, Aug. 19, 1560, he travelled to Franco in 1577, and spent two years in the French army. He visited Genoa in 1579, addressing its senate in Latin, and in 1580-1 he argued at Venice and Padua on philosophy and mathematics. The date of his death is uncertain, but it was probably in 1585.



James Crichton the Admirable Crichton

CRICHTON - BROWNE, SIR JAMES (h. 1840). British physician and publicist. Trained for the medical profession at Edinburgh and Paris, he made a reputation as a specialist in lunacy. In 1883 he was elected F.R.S., and in 1886 was knighted. Crichton-Browne achieved distinction as an authority on public health and educational problems, and was the author of a number of works on mental and nervous diseases.



Sir J. Crichton-Browne, British physician, Russell

CRICKET. Orthopterous (straight winged) insect of the family Gryllidae, closely related to the grasshoppers, which it resembles somewhat in general form. One species infests kitchens and bakehouses, lurking in chinks near the fireplace, and though harmless, its incessant chirping makes it a nuisance. The field cricket (*Gryllus campestris*) and the mole cricket (*Gryllotalpa*) are much less common.



Cricket. Field cricket, *Gryllus campestris*, outside its burrow

CRICKET. National summer game of England. It is played between two sides of eleven players, each side having two innings, taken alternately. The exception is when the side which bats second in a three-day match in its first innings shall have scored 150 runs less than its opponents; in a two-day match, 100 less; and in a one-day match, 75 less. That side can be forced to go in a second time at once, to follow on, as it is called.

The wickets are pitched opposite to and parallel with each other, at a distance of 22 yds. Until 1929 the measurements of the wicket were 8 in. wide and 27 in. high, but in that year, in order to counteract the perfection of prepared wickets, it was decided to experiment in first class matches with a larger wicket, one 9 in. wide and 28 in. high. This was continued in the season of 1930, but was not compulsory for ordinary club matches. About the same time the debated leg-before-wicket rule was altered. A player can now be given out if he has played the ball which struck his leg. Previously this was not so. There are a number of different positions in the field, depending on the pace and character of the bowler, the condition of the wicket, and the type of batsman.

TEST MATCHES. The chief events in cricket are the test matches and the county championship. An English team first visited Australia in 1862 and the visit was returned in 1878. The first test match between the two countries was played in 1880. In 1930 an Australian team visited England. Test matches have also been

played between England and S. Africa since 1898. In 1929 a S. African team visited England, but did not win any of the test matches.

COUNTY CRICKET. The county championship was started in 1872, and in 1890 certain counties were definitely marked as first class.

Others were added to the list until there are now 17 of them. The championship is decided by points, but the method of reckoning these has been varied from time to time. In 1928 it was decided that each county must play 28 matches in the championship.

There is also a competition among the second class counties, in which some of the first class counties enter a second eleven. Apart from the test matches the chief events of the season are the matches between gentlemen and players. The governing body of the game is the Marylebone Cricket Club, called the M.C.C., Lord's Cricket Ground, London, N.W.

The county champions since 1900 (excluding the war years) have been:

1900	Yorkshire	1913	Kent
1901	Yorkshire	1914	Surrey
1902	Yorkshire	1915	Yorkshire
1903	Middlesex	1916	Middlesex
1904	Lancashire	1917	Middlesex
1905	Yorkshire	1918	Yorkshire
1906	Kent	1919	Yorkshire
1907	Notts	1920	Yorkshire
1908	Yorkshire	1921	Yorkshire
1909	Kent	1922	Yorkshire
1910	Kent	1923	Yorkshire
1911	Warwickshire	1924	Yorkshire
1912	Yorkshire	1925	Yorkshire
		1926	Yorkshire
		1927	Lancashire
		1928	Yorkshire
		1929	Notts

CRICKHOWELL (ROCK OF HOWELL).

Parish and market town of Brecknockshire. It stands on the Usk, here spanned by a 13-arched bridge, 14 m. S.E. of Brecknock, and 2 m. S. of the British post of Craighywell, from which it takes its name. Market day, Thurs. Pop. of parish, 1,307.

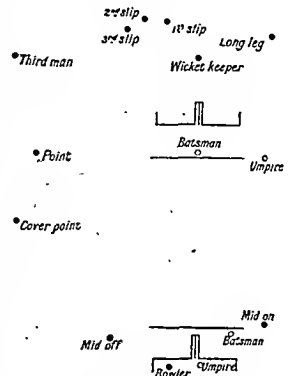
CRICKLADE. Parish and market town of Wiltshire. It stands on the S. bank of the Thames, 8½ m. N.W. of Swindon, on the G.W. and Southern Ry. In Saxon times it was important owing to the ford over the river. Market day Tues. Pop. of parish, 1,425.

CRICKLEWOOD. Residential district of N.W. London, a ward of the parish of Willesden. It is a northward continuation of Brondesbury, and has aeroplane works.

CRIEFF. Burgh, market town, and summer resort of Perthshire. It is on the river Earn, 18 m. W. of Perth by the L.M.S. and L.N.E. Ry. There are two ancient crosses. Market day, first Wed. of each month. Pop. 6,445.

CRIME. (Lat. crimen, charge, offence). Violation of a right as regards the community at large. Crimes are either felonies or misdemeanours. It is usual to speak of acts punishable on summary conviction by fine, e.g. adulteration of food, as offences. See Criminology; Punishment.

CRIMEA (anc. Chersonesus Taurica; Tartar, Krym). Peninsula on the N. coast of the Black Sea, connected with the mainland by the isthmus of Perekop. In the N. chiefly steppe, the S. is hilly and fertile. The chief products are cereals, olives, wine, salt, and porphyry. The chief towns are Simferopol,



Cricket. The field arranged to suit a fast bowler

Sevastopol, Eupatoria, Kertch, Yalta, and Bakhchi Sarai (the old Tartar capital). Its area is 23,312 sq. m. Pop. 700,027.

The Crimea was under Turkish rule from 1475 to 1792, when it was ceded to Russia. It is now an autonomous republic, forming part of the Russian Socialist Federal Soviet Republic. See Russia.

CRIMEAN WAR. Struggle waged by Great Britain, France, Sardinia and Turkey against Russia, 1854-56. In 1853 Russia had

seized Moldavia and Wallachia, with the result that Turkey declared war, and in the following year was supported by Great Britain and France, who sent a fleet to bombard Odessa, while another squadron entered the Baltic. In September, 1854, the allied forces landed at Eupatoria, 45 m. N. of Sevastopol, successfully engaged the Russians under Prince Mentschikoff on the S. bank of the Alma, and established a maritime base at Balaklava. On October 25 was fought the battle of Balaklava. In November the battle of Inkerman resulted in the repulse of the Russians and the siege of Sevastopol, which lasted nearly a year.

The shortcomings of the British army, due to maladministration, were exposed by The Times correspondent, one result being the organization of nursing arrangements by Florence Nightingale. The war dragged on during 1855 until in Sept. the French stormed Malakoff fort and the Russians evacuated Sevastopol. In October Odessa capitulated, and the war ended with the Peace of Paris, March 30, 1856. The British deaths were 19,000, of whom 15,700 perished of disease alone. See Alma; Balaklava; Inkerman; Sevastopol, etc.



Crimea medal

CRIMINAL APPEAL, COURT OF. English court of law established in 1907. It consists of the Lord Chief Justice of England and all the judges of the king's bench division, but usually only three or five of them sit. It has power to reverse the finding and judgement of any judge and jury in any trial on indictment before quarter sessions, assizes, the central criminal court, or the king's bench division. In 1926 a court was set up in Scotland.

CRIMINOLOGY. The scientific analysis and classification of penal wrongdoing and penal offenders. It owes its origin to Cesare Lombroso (1836-1909) of Turin, who sought to make a physical classification of criminals. He evolved the theory that the criminal belongs to a class of individual predestined to crime and recognizable by abnormal physical and other characteristics. His theories have been disputed, but they have been the means of focussing the attention of later investigators on the problem and of introducing more humane treatment of criminals.

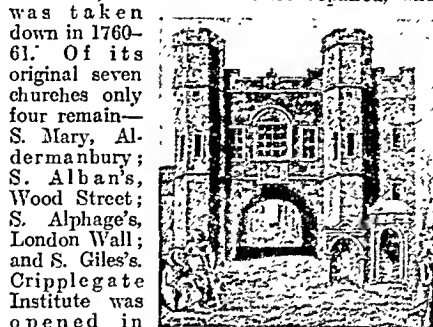
CRINAN CANAL. Artificial waterway of Argyllshire (q.v.). It connects Loch Gilp, an arm of Loch Fyne, with Loch Crinan, an arm of the Sound of Jura, and was constructed between 1793 and 1801. It is 9 m. long.

CRINOIDEA or **CRINOIDS** (Gr. krinon, lily; eidos, form). Order of Echinoderms, known as sea lilies, or feather-stars. They are provided in many cases with a long stalk by which they support themselves in the ooze at the sea bottom, living generally in colonies. The skeleton is capable of preservation in the fossil state. See illus. below.

CRINOLINE (Lat. crinis, hair; linum, flax, linen). Stiffening material of horsehair and linen or cotton. From it the large hooped

skirts worn in the 19th century took their name, as did the frame over which skirts were worn. The term is also given to certain strawlike material used for hats. See Farthingale.

CRIPPLE-GATE (A.S. cripel, burrow; or cripel, den, covered way in a fortification). Name of one of the old gates and of a ward in the city of London. opened from Hart Street into Fore Street. It was rebuilt 1244 and 1491, was several times repaired, and was taken down in 1760-61. Of its original seven churches only four remain—S. Mary, Aldermanbury; S. Alban's, Wood Street; S. Alphage's, London Wall; and S. Giles's. Cripplegate Institute was opened in 1896. The ward is divided into Cripplegate Within and Cripplegate Without.



Cripplegate. Ancient gate of the City of London, removed 1760-61
From an old print

CRISPI, FRANCESCO (1819-1901). Italian statesman. Born Oct. 4, 1819, at Rihera, Sicily, he was called to the bar at Palermo. He took part in the revolutionary movement of 1848, and had to retire to Piedmont. In 1859 he was active in organizing the Sicilian insurrection of 1860. On the Italian Union, 1861, Crispi entered the Italian parliament; he held anti-clerical views, and favoured the Prussian alliance. In 1876 he became president of the chamber, and joined the Depretis Ministry in 1878. Driven into temporary retirement by personal charges, he reappeared in 1887, and succeeded Depretis as prime minister. He retained office with a brief interval (1891-93) till the disaster at Adowa in 1896 compelled his resignation. He died at Naples, Aug. 12, 1901.

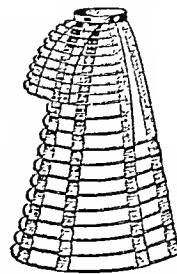
CRISPIN (d. c. 286). Saint and martyr. A Roman citizen, according to tradition he travelled with his brother, S. Crispinian, in Gaul as a missionary of Christianity, and is the patron saint of leather workers. His festival is Oct. 25.



Crinoides. Head of sea lily. See above

CRISTOBAL. Port of the Panama Canal Zone, the official Atlantic terminus of the canal. All seahorne traffic for Colón and Panama proceeds through the ports of Cristobal and Balboa. Pop., with Colón, 32,000.

CRIVELLI, CARLO (c. 1430-95). Italian painter. Probably a native of Venice, he painted in tempera. He is represented in the National Gallery, London, by The Dead Christ, the altar-piece of the Virgin enthroned with Saints, and The Annunciation, the last named being his masterpiece.



Crinoline. Frame of Crinoline worn in 1871

to the Adriatic Sea. Important towns are Zagreb, Osek (Esžék), Zemun (Semlin), and Warasdin. Area, 16,920 sq. m.; pop., 2,739,593.

CROCE, BENEDETTO (h. 1866). Italian philosopher and critic. Born at Pescasseroli, Aquila, Feb. 25, 1866. Many of his works have been translated into English, notably Aesthetic as Science of Expression, 1909; Philosophy of the Practical, Economic and Ethic, 1913; Historical Materialism and the Economics of Karl Marx, 1914; and Logic as the Science of the Pure Concept, 1917. He was minister of public instruction 1920-21.

CROCHET WORK (Fr. crochet, little hook). Fancy work done with a thread and small steel hook, or with wool and small book of bone.

CROCKER LAND. Land reported to have been sighted by Peary in 1906 off Axel Heiberg Island in the Arctic regions, but proved by D. B. MacMillan, an American explorer, to have been a mirage.

CROCKET (old Fr. croquet; mod. crochet, little hook). In architecture, a small ornament, generally foliated, sculptured on the external edges of a gable, on the ridges of a spire, on the side pieces of woodwork such as choir stalls, etc. Crockets are employed on vertical mouldings, but never on horizontal ones.



Crocket, from a tomb in York Minster, 1255

CROCKETT, SAMUEL RUTHERFORD (1860-1914). Scottish novelist. Born near New Galloway, Kirkcudbrightshire, Sept. 24, 1860, he became minister of the Free Church of Penicuik in 1886, but resigned in 1895. His first success was The Stickit Minister, 1893. This was followed in 1894 by The Raiders and The Lilac Sunbonnet, and later by a long list of popular romantic fiction. Crockett died April 19, 1914.



S. R. Crockett, Scottish novelist
Moffat

CROCKFORD'S. London gaming house. It originated with William Crockford (1775-1844). The play, chiefly hazard, was high, and Crockford is said to have made £1,200,000 out of his venture. He died May 24, 1844.

The house in St. James's Street is now the Devonshire Club, which has some relics of Crockford's. Crockford's is familiar to a later generation as the name of an annual clerical directory (Church of England).

CROCODILE (Crocodylia). Order of large reptiles, which includes the true crocodiles, alligators, caimans, and gavials. All are lizard-like in form, with the skin protected by an armour of horny, overlapping plates. In crocodiles the top of the wind-pipe passes up into the posterior portion of the nasal cavity, so that the reptile can breathe when its mouth is full of water. The eggs are deposited in deep holes in the sand, and are hatched by the heat of the sun. Crocodiles are distributed throughout all the tropical districts, and are found in the neighbourhood of rivers, lakes, and marshes. The order includes about a score of species, but the true crocodiles constitute less than a dozen. All are carnivorous. See Alligator; Caiman; Gavial.

Crocodile is a name of the river of S. Africa better known as Limpopo (q.v.).

CROCUS (Gr. krokos, saffron). Hardy flowering plants of the order Iridaceae. Natives of Western Asia and the Alps, they were introduced into Britain in 1605. They are 3 ins. in height, and are yellow, white, purple, and variegated. Crocuses flourish in any garden soil in the open ground, and will also grow in bowls in fibre, or pebbles, and in water in an ordinary room.



Crocus. Flowers and leaves of the purple crocus, *C. vernus*

The autumn crocus, so named from the similarity of its flowers to those of the ordinary crocus, is really the meadow saffron.

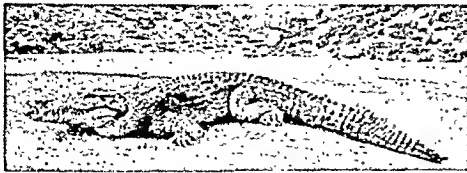
CROESUS (595-546 B.C.). Last king of Lydia, the son and successor of Alyattes. Powerful and proverbially wealthy, he appreciated Greek culture, welcomed Greeks at his court at Sardes, and gave handsome donations to the temples of Apollo. It is said that Solon, the Athenian lawgiver, told Croesus that no man could be called happy until his life had ended happily. Croesus came into conflict with the Persian empire, and was totally defeated by Cyrus. His capital, Sardes, was taken, and he was condemned to be burnt to death. At the stake Croesus remembered the remark of Solon, and uttered the name of the lawgiver three times. Cyrus heard him and, learning the reason, spared his life.

CROFTER. One who rents a croft or small holding. The name is now almost confined to tenants of this kind in the highlands and islands of Scotland, although the word croft is an old English word for an enclosed field. A certain number of the crofters are fishermen.

In the 19th century some of the great landowners took to evicting the crofters, or depriving them of the common lands on which they had pastured their beasts. The crofters claimed security of tenure, and in 1886 the first Act for their protection was passed. This set up a permanent commission to look after them, and they were given fixity of tenure and fair rents.

In 1911 the commission was replaced by a Land Court which has authority over the whole country, and takes in all holdings not more than 50 acres in extent and let at a rent of not more than £50 a year.

CROIX DE GUERRE. French military and naval decoration instituted April 8, 1915, awarded for service in the Great War. It is of bronze, with a red and green ribbon, and is worn after the legion of honour and the médaille militaire. It was bestowed upon British soldiers and also upon French towns.



Crocodile. The crocodile of the Nile, *Crocodylus vulgaris*

CROMAGNON. Primitive European race of the upper palaeolithic and trans-neolithic ages. A skull called the old man of Cromagnon, with several other human skeletons, was discovered in 1868 in a grotto in the Dordogne; other typical bones come from Wales and Mentone. The mean stature was 5 ft. 10 ins. See table, p. 98.

CROMARTY. Burgh and seaport of Ross and Cromarty. Near the entrance of Cromarty Firth, 20 m. N.E. of Inverness, it has a wireless station. During the Great War Cromarty was used as a coaling station and as a base for cruiser squadrons. On Dec. 30, 1915, the British armoured cruiser Natal was accidentally blown up here. Pop. 1,110.

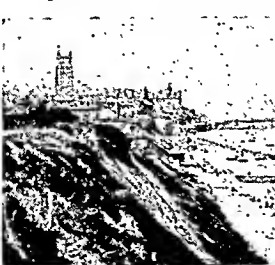
CROMARTYSHIRE. Former county of Scotland. It consisted of lands along Cromarty Firth, and detached portions scattered over Ross-shire, with which county it was incorporated under the Local Government (Scotland) Act of 1889. See Ross and Cromarty.

CROME, JOHN (1768-1821). British painter. Born in Norwich, Dec. 22, 1768, he acquired the rudiments of art during his apprenticeship to a house painter. He delighted in painting the scenery round Norwich. In 1803, with kindred spirits, he formed the Norwich Society, which held annual exhibitions. He showed thirteen pictures at the Royal Academy and five at the British Institution. To the Norwich exhibitions he sent in no fewer than 288 works. He died April 22, 1821. Crome's Mousehold Heath is in the National Gallery, together with other of his paintings.



John Crome, British painter

CROMER. Urban district and watering place of Norfolk. On Cromer Bay, known locally as the Devil's Throat, 24 m. N. of Norwich, and 140 N.N.E. of London, it has stations on the L.M.S. and L.N.E. joint railways. Picturesquely placed on the top of cliffs, it has a fine stretch of sand, promenade,



Cromer. Sea-front with parish church and pier in the distance
H. N. King

pier, and golf links. The chief building is the Perpendicular church of S. Peter and S. Paul. Near are the Garden of Sleep, famous for poppies; Sheringham, a popular watering place; Felbrigg, with its woods and other beauty spots; while the Broads can be reached from here. Pop. 5,435.

CROMER, EVELYN BARING, 1ST EARL OF (1841-1917). British administrator. Born Feb. 26, 1841, a son of Henry Baring, M.P.,

he went to India as secretary to Lord Northbrook in 1872. Having held positions in Egypt, he returned to India as financial member of the council in 1880. In 1883 Baring was appointed British agent and consul-general in Egypt, a post which he held until 1907. Made a baron in 1892 and an earl in 1901, he died Jan. 29, 1917. He wrote *Modern Egypt*, 1908; *Ancient and Modern Imperialism*, 1910; and a number of other books.



Croix de Guerre. Front of the decoration

Cromer's son, Rowland Thomas (b. 1877), who succeeded to the earldom, was appointed lord chamberlain in 1922.

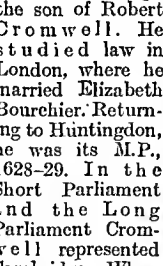
CROMFORD. Market town of Derbyshire. It is 2 m. N. of Wirksworth, on the L.M.S. Rly. and Cromford Canal. Here Sir R. Arkwright, in 1776, erected the first cotton mill in Derbyshire. Market day, Sat. Pop. 904.

Cromlech (Welsh, crooked stone). Term popularly used in Britain for an exposed megalithic structure known as a dolmen (q.v.).

CROMPTON. Urban dist. of Lancashire. It is now included in the parl. bor. of Oldham. On the L.M.S. Rly., cotton manufacture and coal mining are the chief industries. Market day, Thurs. Pop. 14,930. See Oldham.

CROMPTON, SAMUEL (1753-1827). British inventor. Born at Firwood, near Bolton, Dec. 3, 1753, to assist his mother he spun yarn at home. The difficulties he encountered suggested the idea of an improved spinning jenny, which he produced in 1779. It was known as the mule, being a cross between the rollers of Hargreaves and the jenny of Arkwright. Crompton handed over the invention to the public for a small voluntary payment. He was later awarded a grant of £5,000. He died June 26, 1827.

CROMWELL, OLIVER (1599-1658). Lord Protector of the commonwealth of England. Born at Huntingdon, April 25, 1599, he was the son of Robert Cromwell. He studied law in London, where he married Elizabeth Bourchier. Returning to Huntingdon, he was its M.P., 1628-29. In the Short Parliament and the Long Parliament Cromwell represented Cambridge. When civil war broke out Cromwell organized his own district, and at Edgehill commanded a troop of horse. He then raised his Ironsides who showed their quality at Marston Moor and under him the new model army was victorious at Naseby.



Oliver Cromwell, Lord Protector

After the portrait by S. Cooper

In 1648 Cromwell crushed the Welsh rising and defeated the Scots at Preston. A member of the Rump, he signed the warrant for the king's execution. In 1649 he put down civil war in Ireland. He routed the Scots at Dunbar, 1650, and the next year crushed the invading army of the young king at Worcester.



1st Earl of Cromer, British administrator
Elliott & Fry

thus ending the war. In 1653 Cromwell dissolved the Rump and formed a council of State.

After the dismissal of the short-lived Barehones Parliament he was declared Lord Protector, with almost unlimited executive powers. His first elected parliament met in 1654; he dissolved it after five months, and placed the country under military administration. Offered the Crown by the Second Parliament in 1657, Cromwell refused it. He died Sept. 3, 1658.

Cromwell left two sons and four daughters, all of whom married, Bridget being the wife of Ireton and then of Fleetwood. Of the sons, Richard (1626-1712) was named protector after his father's death. In 1660 he retired and left England, but returned about 1680 and died July 12, 1712. Henry (1628-74) was lord deputy in Ireland, 1657-59.

CROMWELL, THOMAS (c. 1485-1540). English statesman. Born at Putney, he was abroad for some years as soldier and trader. After his return he was employed by Wolsey, who made him his secretary and secured for him a seat in Parliament.

After Wolsey's fall, 1529, Henry VIII took Cromwell into his own service. He became a privy councillor, 1531; chancellor of the exchequer, 1533; and in 1534 secretary to the king and master of the rolls. In 1535, Cromwell was nominated vicar-general, and became the king's vice-regent in all ecclesiastical matters. The visitation of the monasteries which he organized resulted in the suppression of the lesser houses in 1536. In 1539 he was made earl of Essex and lord great chamberlain. In 1540 he was arrested for high treason, tried, and sentenced. He was beheaded July 28, 1540. See Wolsey, Thomas.



Thomas Cromwell,
English statesman



Piet Cronje,
Boer soldier

tender. Cronje died Feb. 4, 1911.

CRONOS or **CRONUS** In Greek mythology, king of the gods before Zeus, and identified by the Romans with Saturn (q.v.). The son of Uranus (heaven) and Ge (earth), he dispossessed his father, who had imprisoned the Cyclopes (also his children) in Tartarus. To avoid a like fate at the hands of his own offspring, he devoured the children he had by Rhea. The latter concealed from her husband the birth of Zeus, Poseidon, and Pluto, and Cronos was afterwards dethroned by Zeus.

CROOK. Urban dist. of Durham. It is 4 m. from Durham on the L.N.E.R. Coal-mining is the principal industry. Market day, Sat. Pop. 13,000.

CROOKES, SIR WILLIAM (1832-1919). British scientist. Born in London, June 17, 1832, he held positions in the observatory at Oxford and at Chester before settling in London. There he devoted special attention to electrical and wireless problems, and questions associated with the wheat and water supply, beet sugar manufacture, and sewage, and wrote a number of books on these subjects. Crookes discovered thallium in 1861, and introduced the



Sir William Crookes,
British scientist
Elliott & Fry

radiometer in 1875. He discovered radiant matter in 1879; devoted much time to the investigation of radium, and invented the spinthariscopes. Knighted in 1897, he was given the O.M. in 1910. He died April 4, 1919.

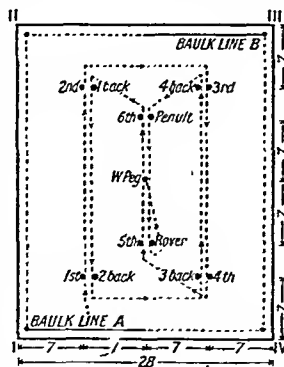
CROOKS, WILLIAM (1852-1921). British labour politician. Born at Poplar, London, he early identified himself with the trade union movement and democratic politics in his native quarter. Elected to the L.C.C. in 1892, he was mayor of Poplar in 1901. Returned as M.P. for Woolwich in 1903, he was re-elected in 1906, 1910, and 1918, and in 1916 was made a privy councillor. He died June 5, 1921.

CROPREDY. Village of Oxfordshire, 4 m. N. of Banbury, on the G.W.R. The Cherwell flows through it, as does the canal between Oxford and Birmingham. Near the bridge over the stream the parliamentarians in the Civil War were defeated by Charles I.

CROPS. The produce of anything grown in the soil. In Great Britain the chief crops are wheat, barley, oats and rye, but turnips, swedes, mangolds, potatoes, peas and beet are also included in the term, as are clover and other grasses. In warmer countries there are crops of cotton, rice, millet, maize and many other utilities. The crops grown on a farm are determined not only by climatic considerations, but also by economic conditions, transport facilities, etc.

ROTATION OF CROPS. If the same crops are grown year after year on the same land the soil will become impoverished. To avoid this the rotation of crops has been introduced. There are several systems of rotation in use, but for the most part they are adaptations of the principle of alternating root crops and leguminous crops with cereal crops. This is the old four-course rotation of English farming: roots, barley, clover, wheat.

CROQUET (Fr. croquet, crook, hooked stick). Outdoor game evolved from pall mall (q.v.). It is played on a level lawn measuring



Croquet. Plan of ground. Only those portions indicated by a continuous line need be marked. Measurements are given in yards

particular order. The game is played between two sides, each consisting of one or two players, playing alternately with four balls, and the game is won by the side which first completes the course with both balls. Skill is required to take advantage of the position of a partner's or opponent's ball.

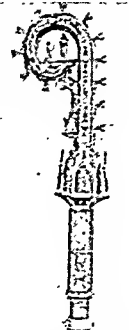
There is a Croquet Association, 4, Southampton Row, London, W.C.1, and championship matches are played annually.

CROSBY or **GREAT CROSBY.** Urban district and watering place of Lancashire. It stands on the Mersey estuary, 6 m. N.W. of Liverpool on the L.M.S. Rly. The church of S. Luke is Gothic. The Merchant Taylors' school, founded 1618, was transferred to a new

building in 1878. Pop. 16,229. Little Crosby, also an urban district, is near Pop. 1,123.

CROSBY HALL. Mansion in London. Built by Sir John Crosby before 1475, it stood in Crosby Place, Bishopsgate. Later it became a meeting house, a literary institute and a restaurant. The best example in London of domestic architecture of the 15th century, it was removed in 1910 to Chelsea, where it now stands at the corner of Cheyne Walk and Danvers Street. It is now a woman's hostel.

CROSIER or **CROZIER** (Lat. crux, cross). Name given to the pastoral staff presented as a symbol of authority to a bishop at his consecration. Made of metal or wood pointed at the base and curled at the head like a shepherd's crook, it was probably an adaptation from a staff carried on journeys. It was first mentioned as a liturgical ornament at the Council of Toledo, 633.

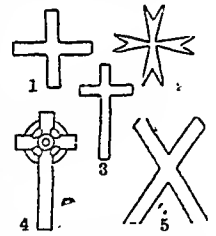


Crosier. The Reichenau crosier, a 14th century example
Victoria & Albert Museum

CROSS (Lat. crux). Word applied to the wooden gibbet on which Christ was crucified and to modifications of it in architecture and ornament. Since the 4th century the Latin cross, on which Christ was crucified, has served as the symbol of Christianity. As an instrument of punishment on which malefactors

were hanged, the cross was originally an upright stake. The punishment was abolished by Constantine the Great, who caused the cross to be represented on the imperial standard.

Much of the church architecture of Europe is based on the form of the Latin cross. It served as a distinguishing mark of the Crusaders; it is a common feature of market places and village greens; it is used in many forms in heraldry. The festival called the Invention of the Cross, May 3, commemorates the finding, in Palestine, by S. Helena, mother of Constantine, of what was believed to be the true cross. See Ankh; Calvary; Crucifix.



Cross. 1. Greek. 2. Maltese. 3. Latin. 4. Celtic. 5. S. Andrew's

CROSSBILL (*Loxia curvirostra*). Common European bird, a winter visitant to Great Britain. The mandibles of its beak cross one another, an arrangement adapted for extracting the seeds from the fir cones on which it feeds. The young birds are greenish brown, but after the first moult the males become rose-coloured. After the second moult they are olive brown, with a greenish tinge on the back. The females are grey, with green on the head and breast.



Crossbill, a winter visitor to Britain

CROSSBOW. Medieval weapon formed of a how fixed crosswise upon a stock with a notch to which the cord was stretched and then released by a trigger. Its missile was an arrow, or the bolt and quarrel. After 1300 it was largely superseded in England by the longbow. See Arbalist.

CROSS-EXAMINATION. In British legal practice, putting questions to a witness after he has been examined-in-chief by the

side which calls him. In cross-examination leading questions may be asked; and in addition to questions relevant to the issue, the witness may be asked questions to show that he is mistaken or to test his memory, or to attack his character, and so impugn his veracity. See Evidence.

CROSS FELL. Mt. of Cumberland, one of the chief peaks in the Pennine Range. It is 10 m. N.E. of Penrith, near the source of the South Tyne river. Its height is 2,930 ft.

CROSSLEY, ADA (1874-1929). Australian contralto singer. Born March 3, 1874, in Gippsland, Victoria, she first appeared on the stage with the Philharmonic Society, in Melbourne, 1892. Her first appearance in London was at the Queen's Hall in 1895. Madame Crossley, as she was professionally known, married in 1905 F. F. Muecke, an Australian surgeon. She died Oct. 17, 1929.

CROSSWORD. Form of word puzzle reputed to have originated in America. It is a variation of the word square, and the words required are indicated in short descriptive phrases called clues.

They were introduced into England about 1923, and soon became very popular, many of the daily and weekly papers giving one in each issue. In 1930 *The Times* made a crossword a regular feature.

CROSSWORD. Popular name applied to various plants because of the arrangement of the petals or the leaves. Thus, the order Cruciferae is known as the Crosswort family because all species have the four petals placed at right angles one to another, presenting the form of a cross. One British species of *Bedstraw* (q.v.) is named Crosswort because each whorl of four leaves has a similar disposition, and several species of the allied genus *Crucianella* are known as Crossworts for a like reason.

CROTCHET (Fr., little hook). Musical note consisting of a solid head with a stem, ♪. Its time-value is one-fourth of a semibreve (♩), one-half of a minim (♫). The crotchet is the normal beat-note, though the quaver (♫) and minim often take its place.

CROTON. Large genus of trees and shrubs, including a few herbs, of the order Euphorbiaceae, natives of all the warmer regions. The sexes are in different flowers, the females being destitute of petals. The three-celled capsules contain as many seeds. From those of *C. tigrum* Croton oil is obtained.

CROTON or **CROTONA.** Greek city of Italy, the modern Cotrone. Founded by Achaeans in 710 B.C., it became one of the richest and most powerful cities of Magna Graecia. It was the birthplace of Milo the athlete, and the original home of the society founded by Pythagoras about 540.

CROUCH END. Residential district of N. London, between Highgate and Hornsey. In the borough of Hornsey it has a station on the L.N.E.R. Christ Church, built in 1862, in Early English style, had its tower and spire added in 1867.

CROUP. Disease of the larynx and wind-pipe in children. Two distinct conditions are comprised in this term; membranous or diphtheritic croup, and spasmodic croup.

Membranous croup is nearly always a sign of diphtheria. The first symptoms are hoarseness and cough, followed in a day or two by difficulty in breathing, lividity of the fingers and lips, owing to insufficient oxygenation of the blood, and general signs of acute illness. (See Diphtheria.)

Spasmodic croup is due to a nervous spasm affecting the muscles of the larynx. The symptoms generally occur first at night, the child awakening with difficulty in breathing, a harsh "crowing" cough, and some blueness

of the face. After an interval the symptoms pass off suddenly. The condition is rarely serious. Inducing vomiting by giving a teaspoonful of ipecacuanha wine affords relief.

CROW. Name given to the Corvidae family of birds, which includes the raven, crow, rook, magpie, jackdaw, and jay. The majority of the family, except the jay, have black or black and white plumage, and conspicuously large and stout beaks. They are found nearly all over the world. They are omnivorous in diet. In Great Britain, six distinct species are usually recognized: the raven, rook, carrion crow, hooded crow, jackdaw, and ebon, in addition to the magpie and the jay.



Crowberry, berries of this dwarf shrub

CROWBERRY (*Empetrum nigrum*). Evergreen dwarf shrub of the order Empetraceae, the only species of its genus. It is native of N. temperate and Arctic regions, and of parts of S. America, and grows in bogs on hills and moors. A wiry, leath-like, trailing plant, it has slender oblong leaves whose margins curve under and form a closed tube. The minute flowers, with pink petals, are succeeded by small insipid berries, black, purple, or red.

CROWBOROUGH. Village of Sussex. It is 23½ m. N.E. of Brighton, on the Southern Rly., in the heart of the best Sussex moorland. Crowborough Beacon, 792 ft., on the fringe of Ashdown forest, commands splendid views of the surrounding country. Pop. 5,846.

Crowfoot. Name of various species of ranunculus (q.v.).

CROWLAND or **CROYLAND.** Market town of Lincolnshire. On the Welland, in the Fen district, 7 m. N.E. of Peterborough, Crowland owes its origin to a Benedictine abbey founded by King Ethelbald in 716. The abbey was demolished by the Danes in 866; refounded, it was destroyed by fire in 1091, a magnificent Norman edifice taking its place in 1113. Most of this was also burnt down, and rebuilt in 1170. Pop. 2,700.



Crowland, Lincolnshire. Remains of the 12th cent. Benedictine Abbey

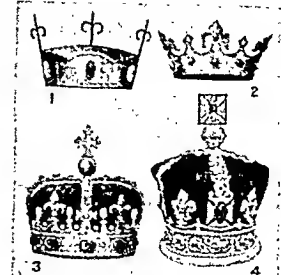
CROWN. Circlet, usually of precious metal, worn on the head as a mark of sovereignty. In England the Saxon kings wore crowns which consisted of a broad ornamented band topped by trefoils. The trefoils were succeeded by floral rays. The existing imperial crown, that made for Queen Victoria, is a mass of precious stones, the headband surmounted by fleurs-de-lis and crosses pattée, and by four half-hoops, in the form of branches of oak leaves in diamonds and pearl acorns supporting a mound and cross pattée. The Koh-i-noor diamond was inserted in the crown worn by Queen Alexandra at her coronation, while for that of George V the Cullinan diamond was added.

THE CONSTITUTIONAL POSITION. The supreme power in the British Empire as vested in the sovereign and exercised by his ministers is called the crown. The crown bestows titles and honours and appoints to all high positions, whether civil, ecclesiastical, military or naval. The crown acts as plaintiff or defendant in

cases in which the state is concerned. The crown office is a department of the High Court of Justice from which writs are issued.

CROWN

LANDS. These are lands belonging to the ruler of Great Britain in his capacity as sovereign. Windsor Forest for example. They were surrendered by George III in 1760 in return for a fixed income from the state and this arrangement has been continued. They are managed by the commissioners of crown lands and in 1929 produced a revenue of £1,733,000.



Crown. 1. Crown of William the Conqueror. 2. Of Henry V. 3. Of Queen Elizabeth. 4. Imperial state crown

CROWN AGENTS. The crown agents for the colonies act as the business agents in Great Britain for the governments of the colonies and protectorates. They are appointed by the Colonial Secretary and have offices at 4, Millbank, London, S.W.

CROWN COLONY. A crown colony is a territory over which the crown retains the power of legislation, such as Hong Kong or Ceylon. They have councils and legislatures, but the Colonial Office nominates some of their members and can veto their decisions.

CROWN. English silver coin, value five shillings. Introduced by Henry VIII, it was first coined in gold. Edward VI introduced the silver crown and half-crown piece; occasionally double-crowns were minted both in gold and silver. Since Charles II's reign it has been coined only in silver.

CROWN PRINCE. Title borne by the heir to the throne in certain monarchical countries, e.g. Sweden, Rumania, etc. Other countries, e.g. Great Britain and Spain, have a special title for the heir. See Asturias.

CROW'S NEST. Place at the foremast head of a ship, in which a look-out man is stationed. It is found mostly in whalers and other vessels that maintain a constant watch.

CROW'S NEST. Pass of the Canadian Rockies. Near the boundary of Alberta and British Columbia, about 50 m. N. of the U.S. border, it is traversed by the S. branch of the C.P. Rly., at an alt. of 5,500 ft. The Crow's Nest coalfield is important.

CROYDON. County borough and market town of Surrey, the chief English airport. It is 10 m. S.E. of London, of which it is virtually a suburb, although it has its own municipal organization. There are several stations in the town and suburbs on the Southern Railway. Trams and omnibuses also connect it with London. The centre of the town is a long high street, part of the main road between London and Brighton. Here is Whitgift's hospital, still an almshouse, erected by the archbishop of that name in 1596. The municipal buildings form a fine block. The chief church is S. John the Baptist, erected on the site of one destroyed by fire in 1867.

The town has a polytechnic. Whitgift Grammar School is the chief of many schools, and in 1929 it was decided to erect new buildings for it in Haling Park, once the residence of Lord Howard of Effingham. There are several theatres and cinema houses, including the Davis, one of the largest in the country, opened in 1929. The town has a number of industries, including bell founding, but is chiefly a residential district for Londoners. It is in the

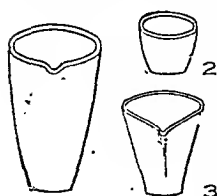
metropolitan police district and sends two members to Parliament. There are several parks and open spaces, including Addington Hills.

A very old place, Croydon existed in Anglo-Saxon times. Before coal was brought by sea to London, in the 16th century, the metropolis obtained its charcoal from Croydon, which was the centre of this industry.

Croydon was made a borough in 1883, and a county borough in 1888. It includes Norbury, Upper and S. Norwood, Addiscombe, Waddon (q.v.), Selhurst, Thornton Heath, and other places. It became the official Continental air terminus for London in 1920. The station is at Waddon, Market days, Thurs. and Sat. Pop. 212,400.

Croydon, in Queensland, 94 m. by rly. E. of Normanton, its port on the river Norman, is a mining centre in a rich pastoral district.

CRUCIBLE. Instrument in which ores are smelted or metals melted out of contact with the fuel, and in which chemical operations



Crucible. 1. Plum-bago. 2. Porcelain. 3. Clay

requiring great heat are conducted. While to some extent displaced by electrical and mechanical furnaces, the crucible still plays an important part in the manufacture of steel, brass, and bronzes, and in the refining of metals.

It is usually a vessel of fireclay or of plum-bago, with a cylindrical body, with sides tapering or rounding off to a flat solid bottom. The top is open, and generally formed with a short spout. It may be of any size from that of a large thimble to one capable of holding 200 lb. of melted steel.

Crucible cast steel is a metallurgical product. Shear steel, while directly utilisable for many purposes, for others requires further treatment. Bars are therefore cut into small pieces and melted in crucibles, the product being crucible cast steel.

CRUCIFIX (Lat. crux, cross; figere, to fix). Cross bearing the figure of Christ crucified. Persecution imposed reticence on the early Christians as to the sacred sign of their faith, and the crucifix was only displayed gradually on public monuments towards the close of the 6th century.

The practice of placing the crucifix on the altar during Mass dates from about the 11th century. In the Eastern Church the crucifix is not allowed. In the Church of England it was discarded and forbidden under Queen Elizabeth, but has been widely restored since the later years of the 19th century. The wayside crucifix, often with the figure of life size, is commonly found in Catholic countries of the Continent, placed often at cross-roads. See Calvary; Cross; Oxford Movement.

CRUDEN, ALEXANDER (1701-1770). Author of the Concordance to the Bible. Born at Aberdeen, May 31, 1701, he came to London in 1722. A private tutor, and then a bookseller, he published his Concordance in 1737, and was subsequently corrector to the press. His mental eccentricities caused him to be confined in asylums on several occasions. He also was interested in prison reform. He died Nov. 1, 1770.



Alexander Cruden, Scottish author. After T. Fry

CRUELTY. The movement to prevent cruelty to animals began in Great Britain about 1809. In 1822 Richard Martin, M.P., secured the passing of an Act to protect animals from serious bad treatment, and in 1835 bull fighting, dog fighting, and cock fighting were declared illegal. Other progress was made, until in 1911 an important measure, the Protection of Animals Act, was passed. This forbade quite a number of practices such as the cropping of dogs' ears or the dishorning of cattle. Other sections dealt with the business of the knacker and the slaughtering of cattle. In 1919 the use of anaesthetics for major operations on horses and cattle was ordered. Much of this work has been done under the lead of the Royal Society for the Prevention of Cruelty to Animals, 105, Jermyn St., London, S.W.1.

The movement to prevent cruelty to children was started by the Rev. B. Waugh, who founded the National Society for the Prevention of Cruelty to Children in 1884. Its offices are at 40, Leicester Square, London, W.C.2.

CRUFT'S. Annual exhibition of dogs—in full, Cruft's Great International Dog Show Society. This was founded by Charles Cruft in 1884, and is held the second week of Feb. each year at the Royal Agricultural Hall, Islington, London, various prizes being awarded.

CRUIKSHANK, GEORGE (1792-1878). British caricaturist and illustrator. Born in London, Sept. 27, 1792, the son of Isaac Cruikshank (1756-1811), a caricaturist, he was self-taught, and sold his first etching in 1804. He began with caricature, and then took up the illustrating of books by woodcuts or etchings. He illustrated Defoe, Goldsmith, Fielding, Sterne, Smollett, Scott, Dickens, and Harrison Ainsworth. Cruikshank later espoused the cause of teetotalism, and his series of pictures called *The Bottle*, 1847, and his huge cartoon of *The Worship of Bacchus*, 1862, now in the National Gallery, achieved great popularity. He exhibited at the R.A. and the British Institution, and his oil painting, *Cinderella*, is at South Kensington. He died Feb. 1, 1878.



George Cruikshank, British artist

His elder brother, Isaac Robert Cruikshank (1789-1856) was a caricaturist and miniature painter. He collaborated with George Cruikshank and other artists.

CRUISER. Warship designed primarily for speed. At one time cruisers were divided into armoured and unarmoured, but this distinction is now obsolete. The most powerful are called battle cruisers, designed to combine speed and power and to act with battleships. Such were the *Lion*, *Tiger*, and others of that class, and the *Hood*, the most powerful ship in the British Navy.

Ordinary cruisers vary in strength from 10,000 tons to 4,190 tons, and show equal variations in strength of armour and in gun power. The Washington Conference of 1921-22 limited the size of cruisers to 10,000 tons, but made no decision about their number. Four new 10,000 ton cruisers of the London class were completed in 1929, forming the First Cruiser Squadron, Mediterranean. In 1930 the question of limiting the number to be built by each power was considered at the London Conference. See *Battleship*; *Hood*; *London*, etc.; also illus. pp. 77, 120, 210, 305, etc.

Crummock Water. Lake in the W. of Cumberland. Situated among mountains, 7 m. S.W. of Keswick, its length is 2½ m.

CRUSADES. Name given to the expeditions undertaken by Christian Europe with the primary object of recovering from the Saracens, and retaining in Christian hands, the Holy Places in Palestine. They took place between 1100 and 1300. Their name was taken from the Cross, which was adopted as their symbol.

The First crusade started in an ill-organized form in 1096 under Peter the Hermit and a knight named Walter the Penniless. Hordes of enthusiasts followed the banner of the Cross across Europe, but the whole force was shattered by the Turks at Nicea. A better, well-organized army was assembled in 1097 at Constantinople, captured Edessa and Antioch in 1098, and stormed Jerusalem in 1099, Godfrey of Bouillon becoming first king of Jerusalem. The fall of Edessa brought about the Second crusade (1147), headed by Louis VII of France and the emperor Conrad III. It was a disastrous failure. In 1186 the sultan Saladin (q.v.) defeated the Christians at the battle of Tiberias, and in 1187 captured Jerusalem. This roused Western Europe to unite in the Third crusade in 1189, in which Richard I of England took part. But the crusade ended by a treaty in 1192 which secured nothing more than safe access to Holy Places for Christian pilgrims.

The pitiful Children's Crusade of 1212 resulted in thousands of children perishing of hunger and exhaustion or being sold as slaves.

CRUSTACEA (Lat. crusta, crust, shell). Large class of the Arthropoda. Three subclasses are usually recognized—Entomostraca, Malacostraca, and Cirripedia. About 6,000 species are known. In size they range from the crabs and lobsters to the "water-fleas" scarcely visible to the naked eye. All have segmented bodies, the head being formed by the union of the first five to seven segments. Most crustaceans breathe by gills, and the majority are aquatic, inhabiting both the sea and fresh waters. In many of the larger forms the outer covering of chitin is more or less impregnated with lime, when part of it forms the carapace familiar in crabs and lobsters. In some instances the young are miniature replicas of their parents, but in the majority of genera the life cycle consists of a series of metamorphoses. See *Arthropoda*.

CRUTCHED FRIARS OR **CROSSED FRIARS** Order of mendicant friars. In 1169 Pope Alexander III gave them a rule similar to that of the Augustinians. They carried wooden staves surmounted with the cross—hence their name *Fratres Cruciferi* (cross-bearing brothers). Besides founding houses in several places in England, they settled in London, near Tower Hill, 1249, on a site still known as Crutched Friars. See *Monasticism*.

CRYPT (Gr. kryptein, to hide). Vault beneath the pavement of a church. Usually their floorage corresponded with that of the transept and choir of the church above. Crypts are not found earlier than the 6th century, and then only of unimportant size. During the Carolingian era (9th and 10th centuries) they became an important feature of church architecture. In the 13th century, when the choir was constructed level with the nave, crypts were used rather as places of sepulture than of worship, and were built mainly as underbuildings to correct a slope in the site of the main church. See *Catacomb*.

CRYPTOGAMIA (Gr. kryptos, hidden; gamos, marriage). One of the chief divisions of vegetable life, distinguished by the non-production of seeds. It includes plants very diverse in their organization, e.g. ferns, mosses,

scaweeds, fungi, bacteria, and slime-fungi. With the exception of the ferns, horsetails, and club-mosses, they are all simple cellular plants, the cells not being combined or developed into vessels and tissues. The modes of reproduction differ in the various classes. In some there is a simple throwing off of vegetable bodies known as spores, in others the reproductive body is produced as the result of the union of sexual elements akin to the production of a seed.

CRYPTOGRAPHY (Gr. *kryptos*, hidden; *graphē*, writing). Art of secret writing. It embraces all modes of making records and communications unintelligible except to those acquainted with the key, as well as all methods of concealment. Cryptograms may be either secret writings or the systems according to which they are written. Most systems, literal or verbal, proceed by rearrangement, replacement, or both in combination with or without deceptive interpolations. In the example shown the inner ring is revolved until a prearranged letter is brought against A in the outer circle. A word is then spelt out on the outer circle, the corresponding letters on the inner making the coded word.

Cryptography. Cryptograph from Lord Worcester's Century of Inventions

Greatly developed after the Renaissance for political and military purposes, cryptography was widely adopted in the 18th century. Its principles underlie modern systems of shorthand and of telegraphic communication. See Cipher; Code; Writing.

CRYSTAL (Gr. *krystallos*, ice). Body formed by the solidification of a chemical element or compound. It is also the name of a transparent quartz from which ornaments are made often called rock crystal. A fine kind of glass is called crystal glass.

When a substance solidifies from its solution in a liquid, or from the state of fusion or vapour, it usually appears in the form of crystals, which under favourable conditions of growth are bodies approximating to geometrical solids, bounded by plane faces and increasing in size by the deposit of fresh material on these surfaces. Crystallisation may take place in three different ways. When a solution holding a substance such as salt or sugar is evaporated, the salt or sugar becomes crystalline; when a molten metal cools, it takes by cooling directly to a solid, or of water in the form of a cloud of snow. The more slowly the cooling takes place, the larger and more distinct will be the crystals. Members be; while if the rate of cooling be of diphtheria, the crystals may be minute. In the case of diphtheria, the crystals may be minute. In the case of diphtheria, the crystals may be minute. In the case of diphtheria, the crystals may be minute.

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Spasmodic croup is due similarly disposed. affecting the muscles of the face may symptoms generally occur first of pairs of child awakening with difficulty of the same a harsh "crowing" cough, and some.

CRYSTAL DETECTOR. It is a property of certain combinations of crystalline substances, or of a crystal and a metal in contact, that when an alternating electric current is applied to them they offer a very much higher resistance to its passage in one direction than in the other. The effect is that the alternating current is rectified, or converted into a unidirectional current. This property is utilized in the crystal detector used in many broadcast receiving sets. The oscillating current received on the aerial is changed into a unidirectional current which can be perceived in a telephone. See Detector; Wireless.

CRYSTAL GAZING OR SORRYING. Practice of gazing into a crystal, a pool of water, or a globule of ink in order to see visions. Formerly much in use by necromancers for fortune telling, it is still practised for this purpose although it is illegal in England.

CRYSTALLINE ROCKS. This is rocks composed wholly or chiefly of crystals or crystalline particles which originated in their present position. The mode of origin may be igneous, such as granite and lava; or aqueous, such as gypsum, rock-salt, and the calcite of stalactites.

CRYSTALLOID (Gr. *krystallos*, ice, crystal; *eidos*, form). Substance possessing crystalline characters. It expresses the opposite attribute to colloid. A distinction between crystalloids and colloids is that the former pass through a membrane, while colloid bodies are retained. By this method—dialysis—the two classes can be separated.

CRYSTAL PALACE. One of London's great public buildings, at Sydenham. Constructed mainly of glass and iron, it was originally the habitation of the Great Exhibition of 1851 in Hyde Park, the Albert Memorial now being approximately on its site. The palace was opened at Sydenham in 1854. The main building, exclusive of wings and colonnades, is 1,850 ft. long, while the grounds cover nearly 300 acres. Since 1857 the Handel Triennial Festival has been held here. In 1914 it became a recruiting and training centre for the Royal Naval Volunteers and other units. In June 1920, the palace, having become the property of the nation, resumed its earlier character.

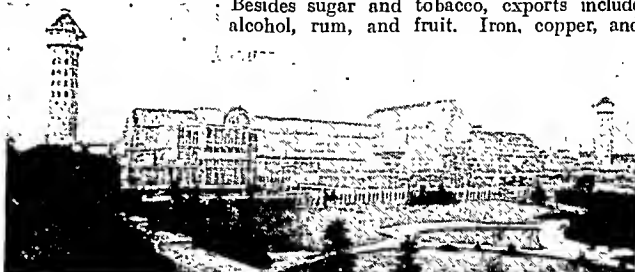
CSEPEL. Island and port of Hungary. It is in the Danube, just below Budapest. Some 30 m. long, it was formerly a royal domain. Its chief town is Ráczkeve, which is united by rail with Budapest. The port was opened in 1928 to deal with the agricultural produce of the country. Pop. 35,988.

CTESIPHON Village and ancient city of Mesopotamia (Iraq). On the E. side of the Tigris, 25 m. S.E. of Bagdad, it was formerly a city of Assyria and later capital of Parthia. Conquered by the Romans (A.D. 116 and 199), it was here that Julian the Apostate defeated the Persians in 363. In the 6th century the city flourished again as the seat of the Sassanid

Chosroes I; part of his palace, with a gigantic arch, still remains. Ctesiphon was devastated by the Arabs under Omar in 637. A village was built on the site, which was the scene of a battle fought between the British and the Turks on Nov. 22, 1915. It was occupied by the British in March, 1917. See Mesopotamia.

CUBA. Largest of the W. India Islands, head of the group known as the Greater Antilles. It is separated from the mainland of Central America by the Yucatan Channel and from Florida by the Florida Straits. Its shores are washed by the Atlantic Ocean on the N. and by the Caribbean Sea on the S. Havana is the capital. Other important towns include Santiago, Camagüey, Cienfuegos, Cárdenas, Trinidad, and Santa Clara. There is a university at Havana. Area, 44,164 sq. m. Pop. 3,579,507.

The island is mountainous, though a marshy depression covers much of the Zapata peninsula. The coast is remarkable for the number and excellence of its harbours. The staple products are sugar and tobacco, Cuba being the largest producer of sugar in the world. Cattle breeding is extensively carried on. The forests yield mahogany, cedar and dyewoods. Besides sugar and tobacco, exports include alcohol, rum, and fruit. Iron, copper, and



Crystal Palace. General view of this great structure and part of the grounds

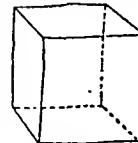
manganese are mined. Gold is found, and there are deposits of asphalt. Oil is known to exist over large areas. Air services are in operation between Havana and the U.S.A.

The island was a possession of Spain from its discovery in 1492 till 1898, when, after the war with the U.S.A., it became practically an independent state. The U.S.A. intervened in a rebellion in 1898, but on May 20, 1902, Cuba was formally given her independence. The U.S.A. has coaling stations in the bay of Guantánamo and Bahía Honda. In 1906 there was an insurrection against the government. The U.S.A. intervened and governed provisionally until 1909, when a purely Cuban government was again established. The government consists of president, vice-president, senate and house of representatives. Cuba is a member of the League of Nations. See map, p. 475.

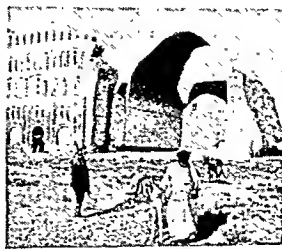
CUBE (Gr. *kybos*, a die). In geometry, term for a solid bounded by six equal squares so placed that the angle placed between any pair of adjacent faces is a right angle. In algebra the cube of a quantity is the quantity multiplied into itself twice over. Cube root is a mathematical expression for a number which, when multiplied by itself twice, equals a number, e.g. 2 is the cube root of 8, 10 of 1,000, 0.5 of 0.125, $\frac{1}{3}$ of $\frac{1}{27}$.

CUBEBS (Arab *qabāba*). Dried fruit of Piper cubeba of Java. Cubebs, or its tincture, or the oil expressed from it, are used sometimes in cases of bronchitis and hay-fever.

CUBHUNTING or **CUBBINO**. Preliminary training given to the young hounds before regular hunting begins. Early in Sept., as a rule, the work of ontoring the young hounds begins. See Fox-hunting.

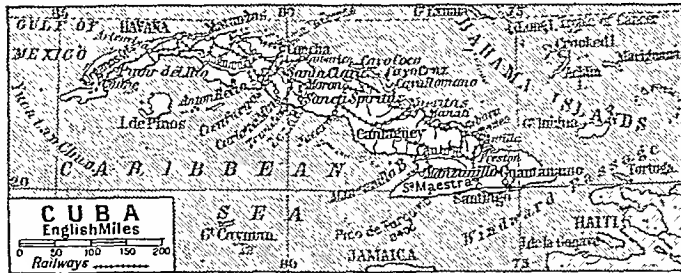


Cube



Ctesiphon. Part of the palace, once a residence of the Parthian kings

CUBISM. Theory of art which holds that reality can be expressed only by volumes and their relationship to one another. As its name suggests, it involves the study of the cubic



Cuba. Map of the largest of the West India Islands. See article p. 474

capacity of things, i.e. the space occupied by things in nature, which it expresses by means of planes and surfaces. It holds that form and colour are one and inseparable; that the ordinary representation of things as they appear visually is superficial realism. Cubism is generally held to be the invention of Pablo Picasso, a Spanish painter resident in Paris. Other exponents are Derain, Metzinger, Léger, and Wyndham Lewis. See Futurism.

CUBIT (Lat. *cuhitum*, elbow). Ancient measure of length. Approximately only, it applied to the length from the elbow to the tip of the longest finger. The Hebrews had two cubits, the ordinary cubit, and a longer one used by Ezekiel for measuring the Temple.

CUCHULLIN. Figure in Irish legendary history. He is credited in story and song with deeds of superhuman heroism. Alone he defended the frontier of Ulster against the forces of Queen Maeve of Connacht and her allies. His name, meaning the hound of Chulinn, was gained by the over-mastering of a great dog. Pron. Coooollooin.

CUCKOO (Lat. *cuculus*). General name of a family of birds (Cuculidae) containing about 200 species. The common cuckoo (*Cuculus canorus*) visits Great Britain early in spring and usually departs in August, spending the winter in S. Africa. It is a grey bird with lighter underparts barred with black, and in flight resembles a hawk. It is promiscuous in its breeding habits and relies on other birds for nesting purposes, the eggs being usually deposited singly in the nests of smaller birds. When the young cuckoo is hatched it ejects the young or eggs of its foster parent.

CUCKOO FLOWER (*Cardamine pratensis*). Perennial herb of the order Cruciferae, a native of N. temperate and arctic regions, also of Abyssinia, the Himalaya, and Chile. It has a short rootstock and a rosette of long leaves broken into a number of roundish leaflets. The pale four-petalled lilac flowers are succeeded by two-valved pods.



Cuckoo-flower, a perennial herb

CUCKOO FLY (Chrysididae). Family of small, parasitic, metallic-green wasps. The fly deposits its eggs in the nest of a solitary wasp or bee. Its larvae not only consume the food stored, but sometimes the rightful larvae. When seen by the owner of the nest, the adult fly is fiercely attacked, when it rolls itself into a ball. The name is also given to the ichneumon fly (q.v.).

CUCKOO PIXT. In botany, one of the names of the wake-robin (q.v.), a common wildflower.

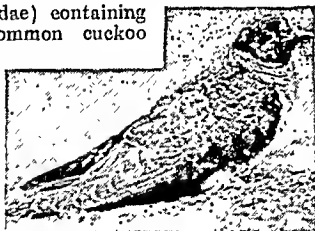
CUCKOO SPIT. Name popularly given to a spittle-like secretion found in summer time on many plants. This is produced by an insect, the frog-hopper, or froth-fly, as a protective covering for its larvae. It is found notably on the cuckoo-flower.

CUCUMBER (Lat. *cucumis*). Familiar fruiting plant, used as a vegetable, of the order Cucurbitaceae and genus *Cucumis*. A native of the E. Indies and parts of Africa, it was introduced into Britain in 1573, where it is usually grown under glass, though some small fruit and gherkins may be obtained out of doors in the warmer parts of the country.

CUDBEAR (*Lecanora tartarea*). Lichen of the order Parmeliaceae. It forms a greyish-white crust on rocks, studded with clusters of brownish, saucer-like bodies from which the spores are produced. By treating it with an alkaline substance a crimson dye is obtained. Large quantities are exported from Norway and Sweden.

CUDDALORE or **KUDALUR.** Town of India, in the S. Arcot district of Madras. It is on the Coromandel coast, 118 m. by rly. S. of Madras. The ruins of Fort St. David, built in 1690, lie 1½ m. E. of New Town. In 1758 and 1795 two indecisive actions were fought off the coast between the English and French. Pop. 50,527

CUDDESDON. Village of Oxfordshire. It is on the Thames, 5½ m. S.E. of Oxford. Cuddesdon Palace is the residence of the bishop of Oxford. A college for training candidates for ordination in the Church of England was founded here in 1854.



Cuckoo. Young specimen of the European species
W. S. Berridge F.Z.S

CUDWEED (*Gnaphalium sylvaticum*). Perennial herb of the order Compositae. A native of Europe, Asia, and N. America, it is covered with silvery silky wool, its leaves are narrow, and the small flower-heads disposed in a spike-like raceme. The brownish-yellow bracts surrounding the heads are chaffy and persistent, so that the flowers are known as everlasting. The name cudweed is given to other species of *Gnaphalium*, and to species of an allied genus, *Filago*.

CUDWORTH. Urban dist. of Yorkshire. (W.R.) It is 4½ m. N.E. of Barnsley, on the L.N.E. and L.M.S. rlys. Stone quarrying is carried on. Pop. 7,607.

CUDWORTH, RALPH (1617-88). English philosopher, the chief representative of the Cambridge Platonists. He was master of Clare College, 1645-54, and of Christ's from 1654 till his death on June 26, 1688. Cudworth attacked the sensualism of Hobbes and all forms of atheism and fatalism. His chief work was *The True Intellectual System of the Universe*, 1678.

CUE. Long tapering rod of wood used for striking the balls in billiards and bagatelle. The word is also used to define the last word spoken by one actor in a play, such word being spoken of as the cue for the actor who is to follow. In music the term indicates a few small notes sometimes inserted after a long rest to indicate the context, as a guide to the entry of the vocal or instrumental part.

CUFFLEY. Hamlet of Hertfordshire, 13½ m. N. of London (Cuffley and Goff's Oak sta.) by L.N.E. Rly. There is a memorial on the spot where, on Sept. 3, 1916, Lieut. W. L. Robinson brought down the first Zeppelin in England.



Cucumber, the edible fruits

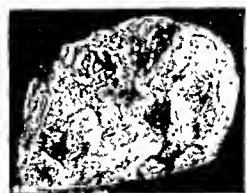
CUINCHY. Former village of France. About 2 m. S. of La Bassée, it was the scene of fighting between the British and the Germans in Jan.-Feb., 1915. On Jan. 25 the Germans attacked and gained ground, but this was regained by the Guards on Feb. 1 and 6. It was in this fighting that Michael O'Leary won the V.C.

CUIRASS (Fr. *cuirasse*; Lat. *corium*, leather). Armour for protecting the body. Originally of leather, it consisted of a breast and back plate, overlapping on the shoulders and meeting beneath the arms. It succeeded the coat of mail in the 14th century, and is still worn in England by the household cavalry. See Armour: Breastplate.

CULEBRA. Town and hill of Panama, Central America, on the Panama Rly. High on the slope of the hill, it is the healthiest spot in the canal zone. The Culebra cut for the canal was a long and crucial factor in the construction. See Panama Canal.

CULLERCOATS. Seaside resort of Northumberland. It adjoins Tynemouth and has a station on the L.N.E. Rly. It has a fine stretch of sands, wireless and lifeboat stations, and white fish industry. Armstrong College has a marine biological institute here. Pop. 4,389.

CULLINAN DIAMOND. Largest known diamond, presented in 1907 by the Transvaal government to King Edward VII. It weighed 1¼ lb. The largest gem cut from it, known as the "Star of Africa," is in the British sceptre, and the next largest in the British crown. It was discovered in 1905 at the Premier mine, in the Transvaal, the site of which was called Cullinan after the name of the purchaser.



Cullinan Diamond, the largest known diamond

CULLODEN or **DRUMMOSSIE MOOR.** Tract of land in Inverness-shire, about 7 m. E. of Inverness. Here the royalists under the duke of Cumberland inflicted a decisive defeat on the Jacobites on April 16, 1746. The battlefield is marked by a cairn, and a boulder—the Cumberland Stone—shows the spot whence the duke directed the battle. Near is Culloden House, where the Culloden Papers were discovered in 1812. In 1928 the Culloden estate was sold by the family of Forbes, who had owned it since the early part of the 17th century. See Charles Edward; Jacobites.

CULME-SEYMOUR, SIR MICHAEL (1836-1920). British admiral. Born at Berkhamstead, March 13, 1836, he entered the Navy in 1850. He was commander-in-chief in the Pacific, 1885-87, of the Channel Squadron, 1890-92, in the Mediterranean, 1893-96, and at Portsmouth, 1897-1900. He retired in 1901, and died Oct. 11, 1920.

His eldest son, Michael, born Aug. 29, 1867, was director of mobilisation, 1916, and commanded the forces in the Black Sea, 1918-19. In command of the North America and West Indies station, 1923-24, he was made second sea lord, Mar., 1924, and died April 2, 1925.

CULROSS. Burgh and seaport of Fifeshire. It is on the N. shore of the Firth of Forth, 7 m. S.W. of Dunfermline on the L.N.E. Rly. A royal burgh since 1588, the ruins of a Cistercian abbey date from 1217. Linen is manufactured. Pop. 508. Pron. Coor-rus.

CULTER. Town of Aberdeenshire. It is on Culter Burn, at its junction with the Dee, $7\frac{1}{2}$ m. S.W. of Aberdeen by the L.N.E. Rly. Paper-making, which has carried on here since 1750, is the chief industry. Pop. 5,744.

CULTURE (Lat. cultura, cultivation). Word used for the art of cultivating the land, e.g. agriculture, and by an extension for other processes of development. It is thus used in bacteriology and medicine. Its more general use, however, is for a stage of intellectual and moral development. Kultur, the German form of this word, became prominent during the Great War. By it the Germans meant their particular form of life and thought.

CULVERIN (Old Fr. coulevrin, snake-like). Form of cannon used in the 16th century, so called from the snakes which were wrought for its handles.

CUMAE (Gr Kymē). Ancient Greek settlement in S. Italy. Founded about 1030 B.C., 14 m. W. of Naples, it acquired great wealth and power. It was one of the sources of Greek civilization in S. Italy. The rock on which stood the Acropolis is honeycombed with caves, from one of which the Cumaean Sibyl brought the Sibylline Books to Rome. The remains include part of the walls, an amphitheatre, arch temples, and a necropolis.

CUMBERLAND. County of England. It is bounded N.W. by the Solway Firth, and fronts the Irish Sea on the W. The coast is low and sandy along the Solway Firth, but below Maryport becomes high and rugged

Penrith, and Egremont. The area is 1,520 sq. m. Pop. 273,173.

The surface is generally mountainous, and falls into two natural divisions separated by the valley of the Eden. The N.E. and E. is occupied by the N. extension of the Pennine Chain, which culminates in Cross Fell (2,930 ft.) and the S. and S.W., except for a narrow coastal strip, embrace the Cumbrian Mts. and much of the Lake District. The highest summits in England are found here, including Seafell Pikes, Seafell, Helvellyn, and Skiddaw. The lakes comprise Ullswater, Bassenthwaite Thirlmere, Buttermere, Crummock Water, Wastwater, and Ennerdale Water. Besides the Eden, the chief rivers are the Derwent, Esk, Dutton, and Liddel Water. The climate is moist, a very heavy rainfall being recorded.

Sheep (Hardwick breed) and cattle rearing and dairy farming are largely practised, and the fishing industry, especially the salmon fisheries in the Solway Firth, is valuable. The mineral wealth consists of coal and haematite iron ore, which are worked in great quantities. Other industries include shipbuilding, iron and steel working, and woollen and cotton manufacture. The L.M.S. and L.N.E. Rlys. serve the county. Antiquities include stone circles, Roman camps, standing stones, and earthworks. Remains of Hadrian's Wall can be traced, and there are peel towers on the Scottish border. See Lake District.

CUMBERLAND. River of the U.S.A. Rising on the W. slope of the Cumberland Plateau, near the Virginia border, it flows S.W. through S. Kentucky into Tennessee, and enters the Ohio. It drains an area of 18,500 sq. m. and is 685 m. long.

CUMBERLAND, DUKE OF. English title. The first holder of the dukedom of Cumberland was Prince Rupert, the cavalier, from

1644-82, when it became extinct. Prince George of Denmark, husband of Queen Anne, held it from 1689 to 1708; William Augustus, third son of George II, from 1721 to 1765, and Henry Frederick, a brother of George III, from 1766 to 1790. William Augustus (1721-65) was born in London, April 15, 1721. He was the commander who crushed with such severity the Jacobites at Culloden, April 16, 1746.

The later dukedom of Cumberland and Teviotdale was created in 1799 for Ernest Augustus, a son of George III. He became king of Hanover, but his grandson, another Ernest Augustus (1845-1923), not allowed to inherit the kingdom of Hanover, was known as the duke of Cumberland. The duke's only son, Ernest Augustus (1887), married the only daughter of the Kaiser in 1913. In 1917, by Act of Parliament, he was deprived of his dignities and status as a British peer. He died Nov. 14, 1923.

CUMBERLAND, RICHARD (1732-1811). British dramatist. Born Feb. 19, 1732, his comedy, *The Brothers*, was produced at Covent Garden in 1769, and in 1771 his best-known play, *The West Indian*, was brought out by Garrick at Drury Lane. He died May 7, 1811.

CUMBERNAULD. Colliery and iron mining centre of Scotland, in the detached portion of Dumbartonshire. It is 15 m. N.E. from Glasgow, near the Forth and Clyde Canal, on the L.M.S. Rly. Pop. 5,261.

CUMBRAE, GREAT. Island of Buteshire, between the island of Bute and Ayrshire, in the Firth of Clyde. The island is about $3\frac{1}{2}$ m. long and 2 m. broad. In 1929 two mineral wells were discovered. S. of Great Cumbrae lies Little Cumbrae, which is about 1 m. long.

CUMBRIAN MOUNTAINS. Hill range of the Lake District, England. It is parted from the Pennine Chain by the valleys of the Lune and Eden, which are joined by the pass over Shap Summit. The range is in Cumberland, Westmorland, and Lancashire, and extends nearly 40 m. N. to S., and about 35 m. E. to W. Seafell is the highest point.

CUMMIN OR **CUMIN** (*Cuminum cyminum*). Herb of the order Umbelliferae. A native of S. Europe and N. Africa, in general appearance it is much like fennel. Its fruits (cumin seeds), similar to those of caraway (q.v.), were formerly put to similar uses.

CUMNOCK OR **OLD CUMNOCK.** Colliery town of Ayrshire. It is on the Lugar, 34 m. by rly. S. of Glasgow, on the L.M.S. Rly. Alexander Peden, the Covenanter, is buried here. New Cumnock is 5 m. away. Pop. Old Cumnock, 5,491; New Cumnock, 6,281.

CUMNOR OR **CUMNER.** Village of Berkshire. It is 4 m. S.W. of Oxford, with a station on the G.W.R. The church has a massive square tower, Jacobean pulpit, relics of Amy Robsart (q.v.), and the tomb of Anthony Forster, steward of her husband, Robert Dudley, earl of Leicester. Of Cumnor Hall (Cumnor Place), the theme of Mickle's ballad which inspired Scott's *Kenilworth*, nothing remains save the stones which, in 1814, were used in the reconstruction of Wytham Church.

CUNARD, SIR SAMUEL (1787-1865). British shipowner. Born at Halifax, Nova Scotia, Nov. 21, 1787, he began business at Halifax as the owner of a fleet of whalers, but in 1838 he came to England. With others, he established, in 1839, the British and N. American Royal Mail Steam Packet Co., and in 1840 the first vessel crossed the Atlantic, going from Liverpool to Boston in 14 days 8 hours.

The firm prospered and became the Cunard Line. In 1859 Cunard was made a baronet. He died in London, April 28, 1865.

CUNAXA. Place about 50 m. N. of Babylon. Here in 401 B.C. was fought the battle between the forces of Cyrus the Younger and those of his brother Artaxerxes Mnemon, in which Cyrus was killed. See Anabasis; Cyrus.

CUNEIFORM (Lat. wedge-shaped). Ancient cursive script composed of nail-shaped or arrow-headed elements, developed in W. Asia. The form was determined by the impress of a chisel-pointed stylus upon humid clay tablets, cones, cylinders, and prisms. The bone or metal stylus, edged with unequal



Cumberland. Map of the north-west border county of England, famous for its lakes, moors, and mountains

in parts. Carlisle is the county town, and others of importance are Workington, Whitehaven, Maryport, Keswick, Cockermouth, and Penrith.



William, Duke of Cumberland

After Sir J. Reynolds



Ernest, Duke of Cumberland

After G. L. Saunders

facets, produced wedges of different sizes. They were upright, horizontal or diagonal, and rudimentary school-exercises comprising one each of these elements are extant. When

OLD BABYLONIAN.	ASSYRIAN.	LATE BABYLONIAN.	MEANING.
			"god."
			"king."
			"day."
			"gate."
			"house."
			"month."

Cuneiform. Examples of three types of cuneiform script, with the English meanings

after clay script became established, inscriptions were chiselled upon hard materials—stone, metal, glass, and gems—the wedge form was scrupulously reproduced

CUNHA, Tristão da (c. 1460-1540). Portuguese navigator. Whilst commanding a Portuguese expedition of 16 vessels to India in 1506 he discovered the island named after him in the S. Atlantic. He thoroughly explored the E. coast of Africa, visiting Zanzibar and Madagascar, and conquered Soeotra.

His son, Nuno da Cunha (1487- c. 1538) went out to the Portuguese Indies, 1508, and became governor-general in 1528. In 1529 he captured Mombasa, dying at sea about 1538

CUNLIFFE-LISTER, Sir PHILIP (b. 1884). British politician. Born May 1, 1884, the youngest son of Colonel Y. G. Lloyd-Greame, he was called to the bar in 1908. Elected M.P. for Hendon, 1918, he became parliamentary secretary to the board of trade two years later, receiving a knighthood From Oct., 1922, to Jan., 1924 he was president of the board of trade; in Nov., 1924, he again assumed that office, which he resigned in June, 1929. He took the name of Cunliffe-Lister in 1924 as his wife inherited the estates of the 3rd Lord Masham, a rich Yorkshire peer.



Sir P. Cunliffe-Lister, British politician

CUNNINGHAM, ALLAN (1784-1842). Scottish poet. Born in Keir, Dumfriesshire. Dec. 7, 1784, he became a stonemason, removing to London in 1810. His best-known prose work is *Lives of Eminent British Painters*, 1829-33. Of his lyrics a notable one is the song beginning, *A wet sheet and a flowing sea*. He died Oct. 30, 1842. Of his sons, Joseph Davey (1812-51) and Sir Alexander (1814-93) entered the Bengal engineers. The former wrote the *History of the Sikhs* (1849); Peter (1816-69) wrote a life of Drummond of Hawthornden, 1833; Francis (1820-75) entered the Indian army, and brought out editions of the works of Ben Jonson, Marlowe, and Massinger.

CUP. Name given for a drinking vessel. At an early date special cups were made of the precious metals and ornamented in various ways. These were usually on stands, and they survive in the loving-cup and in the one used at the Sacrament, and known as the chalice.

At an unknown date, certainly by 1840, cups began to be given as prizes for sporting competitions. There are the America Cup, the Ascot Cup, the Association Cup, and hundreds of other trophies. See America Cup; Association Cup, etc.

CUPAR. Burgh and co. town of Fifeshire. It stands on the river Eden. 44 m. N.E. of Edinburgh by the L.N.E.R. Flax spinning and linen weaving are carried on. The chief buildings are the town hall, county hall, and the Duncan Institute. The town possesses a public park and an old burgh cross. Market days, Tues. and Thurs. Pop 4,145.

CUPID (Lat. cupido, desire). In classical mythology, the god of sensual love, known also as Amor among the Romans and Eros among the Greeks. He was the son of Aphrodite (the Roman Venus), the goddess of love, and is represented as a beautiful youth or as a little boy with wings. Cupid's weapons were a bow and arrows.



Cupid, from the statue by Praxiteles, Capitoli Museum, Rome

CUPOLA. Term properly applied to a concave roof or ceiling of moderate diameter. A large cupola is generally called a dome. The cupola is a feature of both Byzantine and Mahomedan architecture. The classical revival led to its reintroduction into European architecture. Sir Christopher Wren placed a cupola on the summit of the dome of St. Paul's Cathedral, and used cupolas at the corners to repeat and intensify the effect of the dome.

In fortification the cupola is a revolving turret in which heavy guns are placed.

In metallurgy the name cupola is given to a small blast furnace used by the ironfounder for melting the metal from which he makes his castings. It is worked in all essentials in a similar manner to a blast furnace.

CUPPING. Term used for the process of drawing blood. For this purpose a special glass cup was used. The exhaustion of the air, which takes place as the hot air in it cools, draws the blood to the skin under the cup, whence it can be removed.

CUPREINE. Alkaloid occurring in the bark of Cinchona cuprea, a tree of S. America. From the same bark quinine is also obtained, the eupreine being separated from the mixture of the two alkaloids by treatment with ammonia and boiling ether.

CURAÇAO. Largest island of the Dutch West Indies. It lies in the Caribbean Sea, 40 m. N. of the Venezuelan coast. With five other smaller islands—Bonaire, Aruba, St. Martin (the N. part of which belongs to France), St. Eustache and Saba—it forms a Dutch colony. Tobacco, sugar, cotton, and cacao are grown. Curaçao is administered by a governor assisted by a council. The capital is Willemstad. The area of the colony is 403 sq. m., pop. 61,479; of Curaçao, 210 sq. m., pop. 41,014.

The liqueur known as euraçao or curaçao owes its specific quality and flavour to the macerated peel of oranges. First made in Curaçao, it now comes chiefly from Holland and Great Britain. Sometimes rum is added, and when made with fine brandy it is called Grand Marnier. It has 35 to 40 p.c. of alcohol.

CURARA OR **CURARE**. South American arrow poison produced from species of Strychnos and other plants. It is a blackish-brown dry extract with a bitter taste, and contains an active principle known as curarine. It is made by S. American Indians by boiling the various barks and leaves and straining and evaporating the liquid until it forms a thick solid, suitable for smearing on the tips of arrows. Curara has been used in medicine for treating epilepsy, tetanus, and hydrophobia, doses of $\frac{1}{2}$ gr to $\frac{3}{4}$ gr. being administered hypodermically.

CURASSOW. Family of large game birds, found in Central and S. America, of which there are several species. They are nearly as large as turkeys, are usually of glossy black or purple plumage, and have crests of curled feathers. They live in the forests, but are often domesticated. The name is derived from the island of Curaçao.

CURATE (Lat. curatus). Word used in the English Prayer Book for a clergyman, incumbent or assisting curate, who has a cure or care of souls. It is now commonly applied only to an assistant to a vicar or rector, or to one appointed to officiate in the vicar's or rector's absence, i.e. a curate-in-charge.

CURATOR (Lat. curare, to take care of). One who guards or protects, now used chiefly for the official in charge of a museum or art gallery. In Rome the curator was a man who took charge of a minor or imbecile and his property, and this use persists in Scots law. Later, it was used for officials in charge of museums and the like.

CUREL, FRANÇOIS DE (1854-1928). French dramatist. Born June 10, 1854, at Metz, his novel *L'Été des Fruits Sees* was published in 1885, followed by *Le Sauveteage du Grand Duc*, 1889. In 1892 he produced *L'Envers d'une Sainte*, the first of a series of plays which won for their author a recognized position as a dramatist: the last being *La Danse devant le Miroir*, 1914. Elected a member of the French Academy, 1918, he died April 23, 1928.

CURFEW (Fr. couvrir, to cover, few fire). Custom of ringing a bell every evening as a signal to put out fires and go to bed. In England its introduction is usually attributed to William the Conqueror, who fixed the hour at eight. It was in force in other countries of Europe, the reason for its prevalence being doubtless the necessity of doing whatever possible to prevent the wooden houses of the time from catching fire. The custom survives today in a few places.

CURIA. Name of one of the traditional 30 divisions (curiae) of ancient Rome. It was also applied to the Senate house, and later to the Senate itself. The word became the Latin equivalent for the English court.

The Roman Curia of to-day is the collective name for various offices at Rome responsible to the pope for the government of the Roman Catholic Church throughout the world.

CURIE, PIERRE (1859-1906). A French physicist. Born in Paris, May 15, 1859, and educated at the Sorbonne, he began his studies on radio-active bodies in 1896, assisted by his wife, and their joint discovery of radium was announced in 1898. Pierre Curie was run over and killed in Paris, April 19, 1906.

His wife, born Nov. 7, 1867, at Warsaw, was soon afterwards appointed to succeed him as professor of general physics at the Sorbonne. She received the Nobel prize for chemistry, 1911, and in 1919 became professor of radiology at Warsaw. See Radium.



Pierre Curie and Mme. Curie, French physicists and discoverers of radium



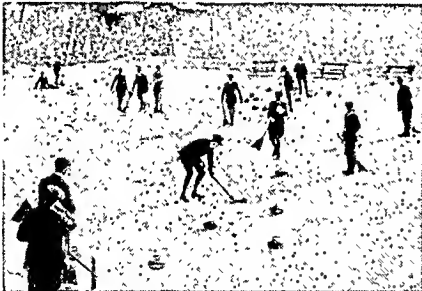
CURIUS, MANIUS (d. 272 B.C.). Roman general, three times consul. Of plebeian family, in 290 B.C. he defeated the Sabines and Samnites, who had been at war with Rome for 50 years, and in 275, by his victory at Beneventum, forced Pyrrhus, king of Epirus, to abandon his Italian campaign. His military talents and simple life made him one of the best representatives of the old Roman republic.

CURLEW (*Numenius arquatus*). Common British bird, of which three recognized species exist. It is distinguished by its long curved beak, and is found along the shore and on moorlands, where it nests on the ground. It feeds mainly on insects and worms, and its strange, wild cry has given it the Scottish name of the whaup.



Curlew. Common British bird of shore and moorland

CURLING. Winter sport of Scotland. It consists in sliding rounded stones along the surface of a sheet of ice towards a mark. Curling takes place on a rink not more than 42 nor less than 32 yds. long. At each end a "diagram" is drawn consisting of three concentric circles with radii of 7 ft. (the "house"), 4 ft., and 2½ ft. The tee is in the centre of the "house." Each player uses stones of so-called granite with two handles to propel them along the ice. The four-side game is predominant. One shot is scored by every stone of one side lying nearer to the tee than the nearest of the opposite party. The game is controlled by the Royal Caledonian Curling Club, founded in 1838.



Curling rinks at St. Moritz, Switzerland. This winter sport was formerly peculiar to Scotland

CURLL, EDMUND (1675-1747). London bookseller. Born in the west of England, he came to London about 1705. He published topographical works of permanent value, and many standard works, including Swift's *Meditation upon a Broomstick* (1710). His quarrel with Pope, which lasted over 20 years, is preserved in *The Dunciad* and in his own *Curliad*, 1729. He died Dec. 11, 1747.

CURRAGH, THE. Tract of common land in Co. Kildare, Irish Free State. It is 32 m. S.W. of Dublin, covers 4,885 acres, and is famous for its beautiful turf. It was the property of the crown, and a ranger was appointed. George IV allowed it to be used as a racecourse, and its meetings soon became celebrated.

The Curragh is even better known for its military camp. From a small beginning, when Volunteers used to assemble here for exercise, it developed into Ireland's chief military station. It was handed over by the British to the Irish Free State, May 16, 1922.

CURRENT. Hardy flowering shrub of the order Saxifragaceae and genus *Ribes*. Bearing red, white, and black fruits, they are natives of Britain. The name comes from Corinth in Greece, where the similar grape-currant was first cultivated and exported. Flowering currants are varieties of a double flowering species with pink, white, and red flowers. Its average height is from 6 ft. to 8 ft.

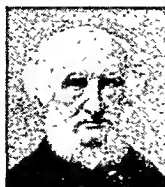
CURRENCY. (Lat. *currere*, to run). Word used mainly as a synonym for money. Both forms of money, paper and metallic, are included in this term.

Gold coins have almost entirely disappeared from circulation. Currency Note was the official name for a kind of paper money issued by the British Government during the Great War. The notes, value 10s. and £1, first appeared in Aug., 1914, by the authority of the Currency and Bank Notes Act of that year. Currency notes were legal tender for any amount, and were payable in gold at the Bank of England, but they did not rest on a gold basis. From Nov., 1928, currency notes for £1 and 10s. were issued by the Bank of England, not by the Treasury as before.

CURRENT. Stream set up in the surface waters of the ocean, largely by the agency of winds. Currents are relatively warm when they flow towards regions colder than those in which they originated; relatively cold when they move towards warmer latitudes. Stream currents arise when the configuration of the land and the general movements of oceanic waters cause the surface waters to take on a river-like form; the best known current is the warm Gulf Stream.

CURRENT. In electricity, "the adjustment along a conductor of a difference of potential between two points." A simpler definition is the transition of electrical energy along a conductor. For practical purposes current is generated chemically, as in a battery, or mechanically, as by a dynamo. The effect in either case is to exert a difference of potential between the terminals. Upon closing the external circuit a current flows which, so long as the generator continues to create a difference of potential, continuously reduces and adjusts the difference and restores equilibrium. The unit of current is the ampere, equal to a rate of flow of one coulomb per second. See *Accumulator*; *Battery*; *Dynamo*.

CURRIE, SIR ARTHUR WILLIAM (b. 1875). Canadian soldier. Born at Napperton, Ontario, Dec. 5, 1875, he settled in British Columbia in 1893. A member of the Canadian militia, he was a lieutenant-colonel, and led a brigade in the second battle of Ypres, 1915. Soon promoted to a division, he succeeded Byng in 1917 as commander of the Canadian Corps. In 1919 he became inspector-general in Canada. In 1920 he became principal of McGill University, Montreal. He was knighted in 1917.

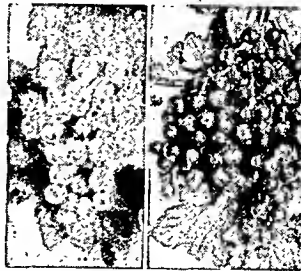


Sir Donald Currie, Scottish shipowner
Elliott & Fry

CURRIE, SIR DONALD (1825-1909). Scottish shipowner and philanthropist. Born at

Greenock, Sept. 17, 1825, he founded a service of sailing ships between Liverpool and Calcutta in 1862, the first boats of the Castle Line.

In 1872 he commenced a service from Liverpool to the Cape. He was Liberal M.P. for Perthshire, 1880-85, and Unionist M.P. for W. Perthshire, 1885-1900. Currie was made K.C.M.G. in 1881, and G.C.M.G. in 1897. He died April 13, 1909.



Currant. Fruit and leaves of, left, white currant; right, red currant

declared that the chasm could only be filled up through Rome's greatest possession being thrown into it, and Curtius leapt into it. The site was afterwards called Lacus Curtius.

CURWEN, JOHN (1816-80). British music reformer. Born at Heckmondwike, Nov. 14, 1816, he entered the Congregational ministry. He studied the tonic sol-fa system invented by Miss Glover, and in 1843 published his *Grammar of Vocal Music*. He founded the Tonic Sol-fa Association in 1853, and the college in 1869. He died in Manchester, May 26, 1880.

His son, John Spencer Curwen (1847-1916), succeeded his father as principal of the Tonic Sol-fa College.



John Curwen, British musician
National Port. Gallery

CURZON OF KEDLESTON, GEORGE NATHANIEL CURZON, MARQUESS (1859-1925). British statesman. Born Jan. 11, 1859, he had a distinguished career at Oxford and was elected fellow of All Souls in 1883. After travelling extensively in the East he became M.P. for Southport, 1886, was under-secretary for India, 1891-92, under-secretary for foreign affairs, 1895-98, and viceroy and governor-general of India, 1898-1905. Curzon was created a baron in 1898, taking an Irish peerage; he was made an earl of the U.K., 1911, and a marquess in 1921.



Marquess Curzon of Kedleston
Russell

In 1915 Curzon became lord privy seal, and was in charge of the air board; he became in Dec., 1916, a member of the war cabinet and lord president of the council. In 1919 he succeeded A. J. Balfour as foreign secretary, resigning in Jan., 1924. Made lord president of the council, Nov., 1924, he died March 20, 1925.

A nephew, Richard Nathaniel, became Viscount Scarsdale; the earldom and marquessate became extinct. His eldest daughter became Baroness Ravensdale. A younger daughter, Cynthia, married Sir Oswald Mosley, and was elected M.P. for Stoke in the socialist interest in 1929. Consult *Life*, Lord Ronaldshay, 1928.

CUSHENDUN, RONALD JOHN McNEILL, BARON (b. 1861). British politician. Born April 3, 1861, he was editor of the *St. James's Gazette*, 1900-04. He was M.P. for a division of Kent, 1911-27. In 1922 he was made under-secretary of state for foreign affairs, and he



Baron Cushendun, British politician
Russell

returned to that office in Nov. 1924. In 1925 he became financial secretary to the Treasury, and in 1927 he entered the Cabinet as chancellor of the duchy. He was then made a peer. In 1928 Lord Cushtendun, as acting foreign secretary, signed the Peace Pact in Paris and represented Britain at the disarmament conference at Geneva. He resigned in June, 1929.

Cushion Pink. Variant name for the moss campion (*Silene acaulis*). See Campion.

CUSTARD APPLE (*Anona reticulata*). Small tree of the order Anonaceae. A native of Brazil, it has aromatic lance-shaped leaves, and flowers brown outside and pale yellow within. The fruit, about the size of a tennis ball, consists of numerous cells completely fused, but whose boundaries are shown by the netted pattern of the exterior. The sour-sop (*A. muricata*) of the W. Indies has a much larger and prickly fruit, weighing 2 lb. or more. The sweet-sop has egg-shaped fruit.



Custard Apple. Fruit and leaf of *Anona reticulata*

CUSTOM HOUSE. London public building where all the duties on goods entering the Port of London are paid. It stands at the E. end of Lower Thames Street, on the river front. The present building dates from 1814. There are custom houses at Liverpool and other seaports. The custom house at Tilbury was enlarged in 1930.

CUSTOMS. In the United Kingdom, the duties collected on certain classes of imported goods. The controlling authority is the Board of Customs and Excise, a British government department forming part of the Treasury and having its head office at the Custom House, London, E.C.

The first customs duties were levied by the English kings at a very early date on wine, and then on cloth, entering the country. In time other imports were taxed in this way until hardly anything escaped, and, as a consequence, smuggling flourished. In 1842-46 Peel, in establishing free trade, abolished most of these duties. Those retained were mainly on goods such as sugar, wine, tea, and tobacco, that were not produced at home. In the case of those also produced at home, e.g. spirits, the customs duty was balanced by an excise duty. See Excise.

At the present day over £100,000,000 of revenue is raised by customs duties, chiefly on wine, tobacco, spirits, and sugar. The duty on tea was abolished in 1929. The McKenna duties on motor cars, watches, etc., are also collected by the customs officials, as were the safeguarding duties on lace, cutlery, gloves, etc., until their abolition in 1930. See Safeguarding.

The Customs Union was an association formed by a number of states which agreed to have a common tariff on goods imported from abroad, and no tariff on goods passing from one to the other. Such a union is sometimes called a Zollverein.

CUTCH. State of India, in the Western India States agency. It is bounded N. and N.W. by Sind, W. by the Indus and Arabian Sea, and S. by the Indian Ocean and the Gulf of Cutch. Area, 7,616 sq. m. excluding the Runn. Two ranges of hills traverse the state from E. to W., reaching an elevation of 900 ft. The capital is Bhuj. The ruler is a maharao, with a salute of 17 guns. Pop. 484,547.

The Runn of Cutch is a salt morass in the N. and E. of the state. In the wet season it divides into two shallow lakes, called the

Great Runn (7,000 sq. m.) and the Little Runn (2,000 sq. m.). See India

CUTHBERT (c. 635-687). English saint. Born probably in E. Lothian. He entered the monastery of Melrose in 650, and later, as its prior, devoted much time to preaching. Prior of Lindisfarne, 664-676, he then lived as a hermit on Farne Island, until made bishop of Lindisfarne in 685. In 687 he returned to his cell on Farne Island, where he died, March 20. His festival is kept on March 20.

CUTLASS (Lat. cultellus, small knife). Heavy, straight-bladed sword with a broad hand-guard over the hilt. It was carried by sailors for boarding purposes, but in the British navy is now issued only to the crews of small ships.

CUTLER. One engaged in the making of cutlery. This industry, which is chiefly carried on in Sheffield, includes the manufacture of knives, razors, scissors, etc., which from 1925 until the end of 1930 was protected by a safeguarding duty of 33½ per cent.

The Cutlers' Company is one of the London livery companies. It dates from the 14th century. The hall, No. 4, Newgate Street, E.C., dates from 1883. There is also a Cutlers' Company in Sheffield.

CUT-OUT. Device for interrupting an electric circuit automatically when the current exceeds or falls below a certain limit. The simplest form of overload cut-out is the fuse of lead alloy, which has a current capacity lower than the rest of the circuit, and heats up and melts before the circuit can be damaged.

CUTTACK. District and city of India, in Bihar and Orissa. The dist. is bounded E. by the Bay of Bengal, and embraces the deltas of the Mahanadi and Brahmani rivers and a lull tract to the N. and W. The chief harbour is at False Point, on the Mahanadi estuary. The area is 3,858 sq. m.; pop. 2,064,678.

The city is the administrative headquarters of the Cuttack dist. It stands at the head of the Mahanadi, and is known for its filigree work. Pop. 51,007.

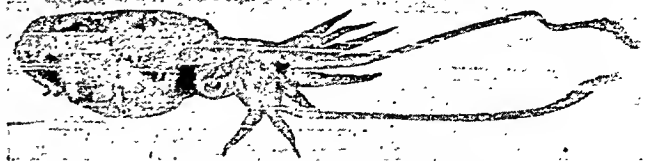
CUTTER. Single-masted sailing-boat fitted with foresail, main-sail, and jib, as well as a topsail, and balloon or flying jib. The term is also applied to a boat for the use of a ship's company.

CUTTLE

OR CUTTLE

FISH. Name given to any cephalopod, but more correctly applied to the genus *Sepia*. They are provided with sucker-bearing tentacles round the mouth, which serve the double purpose of crawling on the rocks and of catching prey. In general form they resemble a bag, with a head at one end, which bears a pair of staring eyes and a ring of tentacles. They can swim backwards in rapid jerks by expelling water forcibly from the gill cavity. An ink bag secretes a brown fluid which, ejected into the water, forms a dense cloud and conceals the animal from an enemy. The common cuttle abounds round

the British coasts. The body is usually about 8 ins. long and is greyish brown. Cuttles feed



Cuttle. Common cuttle fish swimming with its long tentacles extended

largely on small crustaceans, and in their turn form an important food for various fishes and whales. See Argonaut; Cephalopoda

CUVIER, GEORGES

LÉOPOLD CHRÉTIEN

FRÉDÉRIC DAGOBERT,

BARON DE (1769-1832)

French anatomist. Born

Aug. 24, 1769, at Mont-

béliard, he went in 1789

to Paris, where he be-

came successively

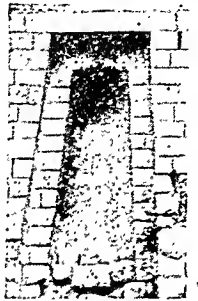
assistant professor of

comparative anatomy in

the Jardin des Plantes

and professor of natural

history in the Panthéon



Cuzco, Peru. Wall in the ancient palace of Pachacutec. The large stone on the left is remarkable as containing 12 angles. Above, doorway of Inca architecture. See below

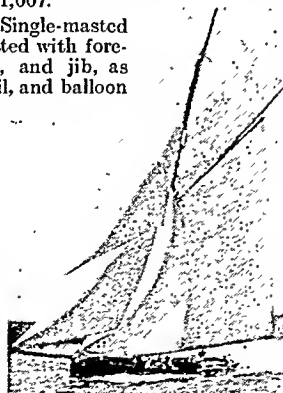
and Collège de France. Le Règne Animal distribué d'après son Organisation, 1817, is his chief work. He died May 13, 1832.

CUXHAVEN. Seaport of Germany, in the state of Hamburg. It stands at the mouth of the Elbe, 70 m. by rly. N.W. of Hamburg. The new port can accommodate the largest vessels, while the old does duty for coasting vessels. Cuxhaven was a port of call for the ships of the Hamburg-Amerika steamship company. It has a 14th century castle. In 1873 the villages of Cuxhaven and Ritzbüttel were amalgamated to form the present town, which is a free port and a wireless station. It was raided by British aircraft and war vessels on Dec. 25, 1914. Pop. 17,648.

CUYP, ALBERT (1620-91). Dutch painter. Born at Dordrecht, he first found adequate appreciation in England. The finest examples of his work can be seen at the National Gallery, notably the River Scene with Cattle, and at Dulwich. Pron. Koip.

CUZCO. City of Peru. It stands in a mountain dip, 11,400 ft. above sea level, 205 m. N.W. of Arequipa, and was formerly the capital of the Incas. It has a fine cathedral, a university (founded 1598), an Augustinian convent, and a mint. The site of the Inca Temple of the Sun is occupied by a Jesuit church. The city abounds in ancient Peruvian architectural remains.

The city was founded early in the 11th century by Manco Capac, the first Inca of Peru. When captured by Pizarro in 1533, the Spaniards were astonished to behold its beautiful temples, palaces and shrines, and well-planned streets. Gold and silver had been lavishly used in decorating the buildings. Pop. 37,000. See Inca; and illus. above.



Cutter. The "Bloodhound," belonging to the Marquess of Ailsa

CWM. Welsh word meaning an upland hollow, corresponding to the English combe. It is used in place names Cwm in an industrial district in Monmouthshire, England, 3 in. from Ebbw Vale. Cwmdu in Glamorganshire, 3 m. from Bridgend. Both have stations on the G.W. Rly. Cwmmaman is an urban district in Carmarthenshire. Pop. 5,300. There are other places, compounds of Cwm, in Wales.

CYANAMIDE or **NITROJEN.** Product obtained by heating calcium carbide in an atmosphere of nitrogen in an electric furnace. Cyanamide is employed alone as an agricultural fertiliser or converted into ammonium sulphate. Cyanides and nitric acid are made from it.

CYANIC ACID. Pungent liquid, a compound of cyanogen. It gives off a vapour that causes a rapid flow of tears, and applied to the skin raises a blister.

CYANIDE OF POTASSIUM. Poisonous salt (KCN). It is obtained by fusing together potassium carbonate and potassium ferrocyanide (yellow prussiate of potash). It is also made from cyanamide, and by passing hydrocyanic acid vapour into a solution of caustic potash. It is used largely in gold mining for extracting small amounts of gold from "tailings." Cyanide of potassium forms a double cyanide with silver, and on this account is used in electro-plating baths. It is also used for making hydrocyanic acid.

CYANOGEN. Poisonous gas with an odour resembling peach kernels, first prepared by Gay-Lussac in 1815, by heating dry cyanide of mercury in a tube and collecting over mercury the gas evolved. Cyanogen burns with a blue flame and is readily liquefied. With metals it forms the poisonous compounds known as cyanides; while with hydrogen it unites to form hydrocyanic acid, and with oxygen to form cyanic acid.

CYANOMETER. Meteorological instrument for estimating the intensity of blueness in the sky. The earliest type consisted of a scale of blues on a strip of porcelain with which the blue of the sky was compared. A more satisfactory apparatus is one in which a small area of white surface is illuminated by any particular tint desired.

CYANOSIS. Blueness or lividity of the skin due to distension of the small vessels with venous blood. The condition may be due to cold, or to interference with the circulation or aeration of the blood from asphyxia, or to disease of the respiratory system or the heart.

Cybele. In Greek mythology, another name of the nature goddess Rhea (q.v.).

CYCLADES (Gr. *kyklos*, circle). Archipelago in the Aegean sea, constituting a department of Greece. About 220 in number, their land area is about 1,040 sq. m. In ancient times they were supposed to form a circle round the sacred island of Delos. Mountainous in character, the loftiest point (3,300 ft.) is on Naxos, the largest of the group. The chief town is Hermoupolis, on Syra. Pop. 129,702.



Cyclamen leaf, stalk, and flower

CYCLAMEN (Gr. *kyklamēnos*). Half hardy and greenhouse perennial plant of the order Primulaceae. A native of Europe and S.W. Asia, its height is 4 ins. to 1 ft. It has a solid tuberous rootstock, or corm. The flowers are pink, white, or purple, the five joined petals of the corolla being

recurved upwards. The fertilised seed heads bend and are pushed into the soil by a twisting of the stalk. The cyclamen is sometimes called sowbread.

CYCLE (Gr. *kyklos*, circle). In astronomy, a recurrent period of a definite number of years in which an event, such as an eclipse, takes place. The Metonic cycle of the moon (19 years) is used for determining the date of Easter. The solar cycle is a period of 28 years.

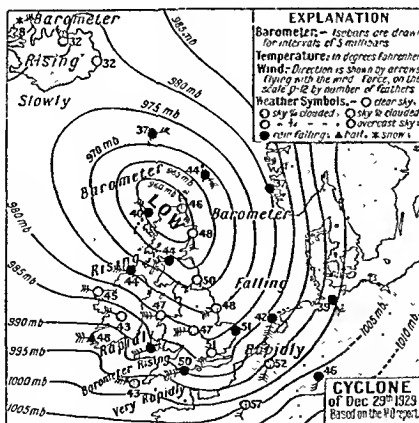
The term is also applied to the operation of an engine from, say, the commencement of its power stroke to the corresponding position at the commencement of the next power stroke. In an alternating current of electricity a cycle is a complete alternation. The frequency of alternations is measured in cycles per second. In wireless transmission the kilocycle (kc.), equal to 1,000 cycles per second, is generally used.

CYCLING. Popular term for riding a bicycle or tricycle, either as a pastime or as a convenient means of locomotion. It is usually confined to machines propelled by man-power.

Cycle racing as a sport first took the form of informal road races. Later, these were supervised by the National Cyclists' Union, the Great North and Bath roads providing favourite courses. Track racing was initiated in the days of the high-wheeled bicycle over level grass and cinder tracks; but with the advent of the safety machine and pneumatic tires, cement tracks, with banked-up corners, were made. Surprising records have been created by the aid of pacing. The headquarters of the National Cyclists' Union are at 11, Great James Street, London, W.C.1.

The Cyclists' Touring Club, organized in 1878 as the Bicycle Touring Club, has members throughout Europe, America, and the East. Under its auspices British road books, Continental road books, handbook and guide (biennial), and a monthly gazette are issued. The headquarters are at 3, Craven Hill, London, W.2. See Bicycle; Motor Cycle.

CYCLOID (Gr. *kyklos*, circle; *eidōs*, form). Curve described by any point on the circumference of a circle rolling along a straight line. The base of the cycloid will be equal to the circumference of the circle.



Cyclone. Map of a cyclone which moved across the British Isles on Dec. 29, 1929.

From the Daily Weather Report of the Meteorological Office by permission of the Controller of H.M. Stationery Office.

CYCLONE (Gr. *kyklōn*, whirling round). Region of low barometric pressure in which the winds blow spirally inwards towards the centre of the system. The pressure is always lower towards the centre. Cyclones are of two types: (1) those of small diameter but great intensity; (2) those of great diameter but comparatively small intensity. To the first class belong cyclones originating in tropical regions, where their movement

is first westwards and later polewards. Hurricanes, tornadoes, and typhoons are cyclonic storms of this group. To the second class belong the easterly-moving low pressure systems of temperate latitudes.

CYCLOPES (Gr. *kyklos*, circle; *ops*, eye). In Greek mythology, giants with one eye in the middle of the forehead.



Cyclopes. The giant Polyphemus in a fresco by Giulio Romano. Ducal Palace, Mantua.

In Homer's *Odyssey* they are represented as shepherds living in Sicily. Their chief representative is Polyphemus (q.v.). Other traditions represent the Cyclopes as Titans who provided Zeus with thunderbolts, or as the assistants of Hephaestus or Vulcan, in his workshop under Mt. Etna.

CYCLOPS. Minute copepod crustacean, common in ponds and ditches. Just visible to the naked eye, it swims with a curious darting movement. It has one median eye and carries its eggs in two external sacs or pockets.

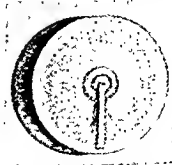
CYGNUS (Lat. swan). Name of one of Ptolemy's constellations. It lies right at the keystone of the arch of the Milky Way, and a long undulating line of stars skirting the western edge forms the neck of the swan. On Aug. 20, 1920, a new star was discovered in this constellation.

CYLINDER (Gr. *kyklindros*, roller). Solid defined by the revolution of a rectangle about one of its sides. The side about which the rectangle revolves is called the axis of the cylinder. Mathematically, the cylinder is supposed not to have flat ends, but to stretch to infinity in each direction. The cross section of a cylinder, perpendicular to the axis, is always a circle of the same diameter. If the cutting plane is at an angle to the axis, the section is an ellipse.

In engines, cylinder denotes the chamber in which the piston works. The word is used to describe the type or size of engine, i.e. horizontal or vertical cylinder engines, or 4-, 6-, 8-cylinder engines.

CYLINDER SEAL. This is the name given to an ancient gem of cylindrical form, engraved round the convex surface in intaglio.

CYMBAL (Gr. *kymbalon*). Percussion instrument used in orchestras and military bands. It consists of two circular metal plates with a "boss" in the centre of each, through which a looped leather strap passes, into which the player inserts his hands. They are struck together by a sliding movement rather than a direct blow, in order to secure a ringing tone.



Cymbals as used in a modern orchestra

CYMMRODORION. Word meaning the kingdom or realm of the Welsh, and used for societies that aim at preserving Welsh

nationality. In 1877 one of these, dating from 1820, was re-established as the Honourable Society of Cymmrodorion. Its offices are at 64, Chancery Lane London, W.C.

marble, and salt are worked. The ancient Phoenician and Roman copper mines are now worked mainly for by-products of copper. The forests are carefully preserved and developed.

capital from Ecbatana to Susa. Alarmed at his growing power, the rulers of Lydia (Croesus), Babylon (Nabonidus), and Egypt (Amasis), and even Sparta, combined against him. In 546 Cyrus overthrew Croesus and made himself master of the coast of Asia Minor. In 539 Babylon fell into his hands without a blow. In 529 Cyrus was killed while fighting against a nomad tribe.

CYRUS THE YOUNGER (d. 401 B.C.) Second son of Darius Nothus, king of Persia. He plotted against his brother, the reigning monarch, Artaxerxes Mnemon, but was forgiven and reinstated in his satrapy of the coast of Asia Minor. In the spring of 401, however, he raised an army against Artaxerxes and was killed at the battle of Cunaxa (q.v.).

CYST (Gr. kystis, bladder). Cavity in the tissues containing more or less fluid. Most of the many varieties of cysts arise in connexion with glands which normally secrete material. In a retention cyst there is accumulation of the normal secretion. Sebaceous cysts occur in the skin and are formed by the dilation of the sebaceous glands. Dermoid cysts contain skin structures, bone, teeth, etc., and are found in the skin and ovaries.

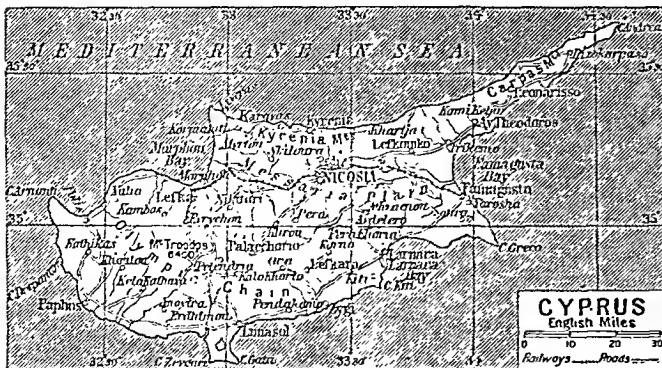
CYSTIDS, CYSTIDEA OR CYSTOIDEA. Group or class of fossil Echinodermata. The body is spherical, and in general construction approaches to that of the Crinoidea (q.v.).

CYTISINE. Poisonous alkaloid obtained from laburnum (*Cytisus laburnum*) and furzes (*Ulex Europaeus*). Cases of poisoning have frequently resulted from eating laburnum. The treatment consists in using the stomach pump or administering emetics, followed by stimulants and hot baths.

CYTOLOGY (Gr. kytos, cell; logos, account.) Branch of biological science dealing with the fundamental units of animals and plant structure. See Cell.

CZECHOSLOVAKIA. Republic of Central Europe, one of the states that arose after the Great War. It comprises the whole or part of five areas formerly belonging to the empire of Austria or the kingdom of Hungary, namely, Bohemia, Moravia, Silesia, Slovakia, and the autonomous territory of Carpathian Ruthenia. It is bounded N. by Germany and Poland, S. by Austria, Hungary and Rumania, E. by Poland and Rumania, and W. by Germany. Important towns are Prague (the capital), Brno (Brünn), Ostrava, Bratislava (Pressburg), Plzen (Pilsen), and Kosice. Its area is 54,207 sq. m. Pop. 14,600,000.

The country is one of the richest in natural resources and one of the most highly industrialised in Europe. Crops include wheat, rye, barley, oats, sugar beet, bops and fruit. Among the minerals are coal, iron, radium, gold, silver, graphite, and rock salt. The forests form an important part of the natural wealth. The industries include the



Cyprus. Map of the Mediterranean colony which, formerly a Turkish possession, was annexed by Great Britain in Nov. 1914

CYNIC (Gr. kynikos, dog-like). Greek philosophical school, so called either from the Kynosarges, a gymnasium near Athens, in which its founder Antisthenes (q.v.) taught, or from the surly behaviour of its members. They held virtue to be the only good, and vice, or surrender to the passions, the only evil. Virtue could be learnt by enduring privations and renouncing the world. Virtue was in itself sufficient to give happiness, and needed nothing else but the strength of Socrates. Cynicism, which represents merely the negative side of the teaching of Socrates, was the forerunner of Stoicism.

CYPRESS. Hardy evergreen tree of the order Coniferae and genus *Cupressus*. They are natives

of Japan, N. and Central America, and the Himalayan Mts. Their height ranges from 4 ft. to 80 ft. The foliage is usually dark green, though there are yellow and cream-coloured variegated varieties.



Cypress. Luxuriant specimens of this hardy evergreen tree
Leonard Bastin

CYPRIAN (c. 200-258). Saint, bishop and martyr. Converted to Christianity about 246, he became bishop of Carthage, 249. During the Decian persecution, 250, he retired into hiding, but in 251, 252, and 256 he presided over councils of African bishops. Cyprian was exiled to Curubis in 257, but recalled in 258, he was beheaded at Carthage, Sept. 14. His writings are mainly concerned with church discipline.

CYPRUS (Gr. Kypros). Island in the E. Mediterranean, about 60 m. W. of Latakia, Syria. Its surface consists of two mt. chains running from E. to W., with a wide alluvial plain, called the Mesaoria or Messaria, between them. Important towns include Nicosia (the capital), Limasol, Larnaca and Famagusta. Its area is 3,584 sq. m. Pop. 310,715.

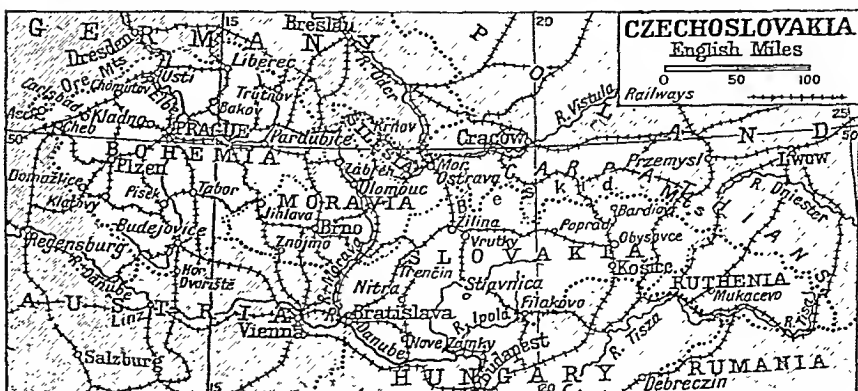
Agricultural products include wheat, barley, vetches, oats, olives, carobs, raisins, and other fruits. Sheep, goats, cattle, and other live stock are reared. Asbestos, gypsum, amber,

vention with the sultan of Turkey, concluded in 1878, it was ceded to Great Britain for administrative purposes. On the entrance of Turkey into the Great War, in Nov., 1914, the island was annexed by proclamation on Nov. 5. In 1925 it became a British colony, under a governor.

CYRENAICA. E. portion of Libya (Libia Italiana). It is bounded on the W. by Tripolitania, on the E. by Egypt, and on the N. by the Mediterranean. Barley and bananas are grown. There are sponge and tunny fisheries, and, at Benghazi, salt pans. Ostrich feathers from central Africa are exported from Benghazi. There are about 100 m. of rly. and some 20 wireless stations. The principal towns are Benghazi, the capital, and Derna. In 1925 Egypt ceded to Italy the oasis of Jaghub. Area, 235,640 sq. m. Pop., about 235,000, of whom about 10,000 are Italians.

CYRENE. Ancient city of N. Africa. Between Alexandria and Carthage, it is on a tableland 1,800 ft. high, about 9 m. from the coast. Originally a Greek colony, it became the chief city of Cyrenaica. It was famed for its medical school, and was the birthplace of Aristippus, founder of the philosophical school known as Cyrenaics, and of the poet Callimachus. Excavations carried on since the Italian annexation have brought to light many ancient statues and monuments.

CYRUS THE ELDER (c. 600-529 B.C.). King of Persia and founder of the Persian empire, surnamed the Great. According to his own statement in an inscription on a cylinder found in the ruins of Babylon, he was "the son of Cambyzes, the son of Cyrus, the son of Teispes, the son of Achaemenes." In 549 Cyrus overthrew his suzerain Astyages, united Media and Persia, and transferred the



Czechoslovakia. Map of the republic which, after the Great War, was formed out of portions of the empire of Austria-Hungary and is peopled by Czechs, Moravians, and Slovaks

manufacture of textiles, iron and steel, glass, chemicals, pottery, leather, furniture, matches, and beer. There are upwards of 8,500 m. of rlys., mostly the property of the state. The country has no seaports, but has the right of access to Stettin and Hamburg. The Danube is the principal waterway. Bratislava (q.v.) has a broadcasting station. Regular commercial and passenger air services are maintained with Paris, Warsaw, Vienna, Berlin, and other towns. A national bank was set up in 1926. The unit of currency is the krone, of which about 163 go to the £ sterling.



Czech girl in national costume

The republic owes its existence to the recognition that Czechs, Moravians, and Slovaks are branches of the same Slav people, and to the national aspirations which followed that recognition and led to a long struggle for autonomy throughout the 19th century. The principal parties in the republic are the national democrats, agrarians, popular, social democrats, and socialists.

The republic came into existence Oct. 28, 1918, and was formally recognized by the treaty of St. Germain, Sept. 10, 1919. A national council took on the control of affairs, and a national assembly chose T. G. Masaryk as president. This election was confirmed in 1920, and in 1927 he was re-elected for seven more years. In 1920 the assembly decided upon a constitution. This consists of a parliament of two houses: a chamber of deputies of 300 members chosen for six years, and a senate of 150 members chosen for eight years. All adults vote for the deputies, and all over 26 for the senators.



Czechoslovakia. A Slovak peasant and his bride

Under the direction of Masaryk and Edvard Benes (q.v.), Czechoslovakia has made tremendous progress. Peace has been maintained and full advantage taken of the opportunity for industrial development. Until 1926 the dominant political party was a coalition of Czechs, but in 1926 this broke up. A coalition in which Slovaks and Germans were also represented then came into power, and this ministry, in which Benes had charge of foreign affairs, was in office in 1930.

CZENSTOCHOWA OR **CZESTOCHOWA**. Town of Poland, in the county of Kielce. On the river Warthe, 50 m. S.W. of Piotrkow, it is celebrated for its monastery containing an image of the Virgin, which attracts thousands of pilgrims. The monastery was attacked by a Swedish army in 1655, but heroically defended by its monks, assisted by a few soldiers. The town is a textile centre. Pop. 80,473.

CZERNOWITZ. Town of Rumania, formerly the capital of the Austrian prov. of Bukovina (q.v.). On the Pruth, and now known as Chernauti, it is an important point 167 m. S.E. of Lemberg (Lvov) by rly. It is the seat of a Greek archbishop and has a university. It has a trade in grain, and paper is manufactured. Pop. 87,128.

During the Great War Czernowitz changed hands six times, being first occupied by the Russians in Sept., 1914, and finally evacuated in Aug., 1917.

D. Fourth letter of the English and Latin alphabets. It is a soft dental or teeth-sound, the corresponding hard letter being t. D is used to express the numeral 500. See Alphabet: Phonetics.

DAB (*Pleuronectes limanda*). Marine flat fish common in European waters except the Mediterranean. It is of brownish colour, white beneath, and closely related to the plaice and flounder. Usually about 10 ins. long, it is often confused with the lemon sole.

Dabchick. Popular name for the bird, the lesser grebe. See Grebe.

D'ABERNON. EDGAR VINCENT, 1st VISCOUNT (b. 1857). British financier and diplomatist. Born at Slinfold, Sussex, Aug. 19, 1857, he entered the army in 1877, retiring in 1882. From 1883-89 he was financial adviser to the Egyptian Government. In 1899, as Sir Edgar Vincent, he was elected M.P. for Exeter, after being governor of the Imperial Ottoman Bank. He lost his seat in 1906. In 1914 he was made a peer, and during the Great War was chairman of the board that controlled the liquor traffic. Earlier he had been chairman of the Dominions Royal Commission. D'Abernon was British ambassador to Berlin, 1920-6, and was made a viscount in 1926. He published his *Memoirs*, 1929.



Lord D'Abernon, British ambassador

DACCA. Division, district, and city in Bengal Presidency, India. The city was the capital of E. Bengal and Assam during 1905-12, when that prov. was a separate government. It stands on the N. bank of the Burhi Ganga, an arm of the Dhaleswari, and is the chief trading centre of E. Bengal, being noted for its muslins and for gold and silver work. The university of Dacca was established in 1919 as a university for Bengal. The division has an area of 16,244 sq. m. and a pop. of 12,837,311. Pop. district, 3,125,967; city, 119,450.

DACE (*Leuciscus vulgaris*). Small roach-like fish of silvery appearance. It is usually found in shoals, and is common in many English and Continental rivers. The name, also spelt dare and dart, has reference to the swift movement of the fish.

DACHSHUND (Ger. badger-dog). Breed of small German dog. It was introduced into England by the Prince Consort, and has an extremely long body, very short legs, and a smooth and silky coat. It is very plucky, a capital follower of scent, and is used in some places for drawing badgers.



Dachsund. Prize-winning specimen of this German breed of dog

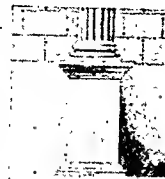
DACIA. Prov. of the Roman empire. Bounded N. by the Carpathians, S. by the Danube, E. by the Hierasus (Pruth), and W. by the Tysia (Theiss). It was conquered A.D. 101-107 and made a Roman province by Trajan. Under Aurelian (270-275) it was given up to the Goths, who were then attacking hard the N.E. frontier of the Empire.

DACOIT (Hind. dakait, robber). Term applied to organized bands of robbers in India.

The Bengal government, in 1793, offered ten rupees per head for their apprehension. In Indian law dacoity means robbery with violence by not less than five men.

Daddy Long Legs. Popular name for the crane fly (q.v.).

DADO (Ital. *dic, cuhe*). In architecture, the space between the base and capping, or sur-base of a pedestal supporting a column or pilaster. It is also a synonym for a wainscot (q.v.) and is applied to the prepared surface surmounted by a moulding that has replaced the panelled dado in the majority of modern houses.



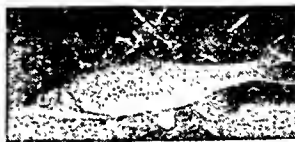
Dado of a Corinthian column

DAEDALUS (Gr. *Daidalos*, skilled artificer). In Greek mythology, Athenian sculptor, architect, and inventor of various tools and instruments. He won the favour of King Minos of Crete, and constructed the subterranean labyrinth for housing the Minotaur (q.v.). For having supplied Ariadne with the clew of thread by which Theseus (q.v.) escaped from the labyrinth, Daedalus and his son Icarus were also confined there. Daedalus then made wings of feathers fastened with wax, with which they flew across the sea. Icarus mounted too high, the sun melted the wax, and he fell and was drowned, but Daedalus reached Cumae in Italy. See Crete.

DAFFODIL (Lat. *nsphodelus*). Hardy bulbous plants of the order *Amaryllidaceae* and genus *Narcissus*. Natives of all parts of the world, they grow to a height of 3 ins. to 2 ft.; and flower from Feb. to May. The familiar yellow flowering daffodils technically represent the Magni Corouati group of narcissi. There are a great many florists' varieties, developments providing pure white sorts, as apart from the yellows, and others with apricot-coloured cups. See Narcissus.



Daffodil. Flowers of the wild species



Dace, a small fresh-water fish of lively and gregarious habits

Daffodil was the name of a British steamship used to support the Vendictive in the attack upon Zeebrugge, April 23, 1918. After the war, Daffodil returned to Liverpool, where she was a ferry steamer.

DAGENHAM. Urban district of Essex, on the Thames, 3 m. E. of Barking and 11 m. E. of London. Its growth is largely due to the housing estate at Becontree (q.v.). A site near the docks was bought by the Ford Motor Co., and in 1928 the erection of works to turn out 200,000 cars a year was begun. The works include blast furnaces, the first in the south of England. Pop. 65,000.

DAGGER (Welsh *dagr*). Short two-edged weapon early adopted for fighting at close quarters. Ancient Greek soldiers carried a weapon called the belt-companion (parazonion), which the Romans later copied. In fencing, a dagger is a short blunt blade. See Dirk; Poniard; Stiletto; also illus. p. 483.

DAGHESTAN OR **DAGESTAN**. Autonomous republic of the Russian Socialist Federation of Soviet Republics, bounded E. by the Caspian Sea. The area is 11,470 sq. m., and the capital is Makhach-Kala. Pop. 786,877.

DAGO. Term used by American and British sailors and generally in the U.S.A. for a Spaniard, Portuguese, or Italian. It is a corruption of the Spanish name Diego (James).

DAGO or **HIUMAA**. Island in the Baltic, with Ösel almost shutting in the Gulf of Riga. Having belonged successively to Danes, Swedes, and Russians, it is now included in Estonia. Agriculture, cattle-rearing, fishing, and sealing are carried on. Its area is 370 sq. m. Pop. about 16,500.

DAGON. National god of the Philistines. Identifiable with the early Babylonian Dagan, he represents a primitive Canaanite corn-god. He had temples at Gaza (Judges 16) and Ashdod, with image (1 Sam. 5).

Dagonet, Sir. Fool and jester at King Arthur's court. Dagonet was the pen-name of G. R. Sims (q.v.) in *The Referee*.

DAGUERRE, LOUIS JACQUES MANDÉ (1789–1851). French discoverer of photography. Born at Cormeilles, Seine-et-Oise, Nov. 18, 1789, in 1822 he started a panoramic show known as the Diorama. In collaboration with J. Nicéphore Niépce (d. 1833) he succeeded in producing the daguerrotype process, made public in 1839. This was the first process of photography to yield a technically fine result. It consists in exposing in a camera a plate of silvered copper on which a film of silver iodide has been formed by iodine vapour. Daguerre died July 12, 1851.

DAHABIYEH or **DAHABEEAH**. Nile passenger boat. Low and flat, with sharp prow and broad stern, it has either one or two masts and is also propelled by oars or hauled by ropes from the banks. The crew quarters are in front; behind are dining cabins.

DAHLIA. Half-hardy, herbaceous, tuberous-rooted plant, of the order Compositae, named after Andrew Dahl, a Swedish botanist. The plants reach a height of four feet, and the blossoms have colours of every shade except blue. Natives of Central America, they were introduced into England in 1789, and hybridisation has led to many new breaks from the original six-petalled single dahlia. The cactus variety has outward curving petals.

DAHOMÉ or **DAHOMÉY**. French colony in W. Africa. Between Togoland and Nigeria, it extends N. from the Bight of Benin to the colony of the Upper Volta. Formerly a native kingdom, it was annexed by France in 1894. The littoral, 70 m. in length, contains the ports of Porto Novo, the capital, and Kotonu. From the last a rly. runs to Savé, 156 m. Area 38,000 sq. m. Pop. 878,500.

DAIL EIREANN. Gaelic name for an assembly or parliament. It was given by the Sinn Féiners to the one that met in the mansion house, Dublin, early in 1919. Since the establishment of the Irish Free State in 1922 Dail Eireann has been the name of its chamber of deputies. It consists (1930) of 153 members elected by proportional representation, the voters being all citizens of both sexes who are over 21 years of age. The deputies are paid. See Sinn Féin; Irish Free State.

DAIMLER, GOTTLIEB (1834–1900). German engineer. Born at Schorndorf, Württemberg, March 19, 1834, he came to England and was employed at the Whitworth works, Manchester. Returning to Germany, with Dr. Otto of Cologne he perfected the Otto gas engine. From 1882 he devoted himself to experimenting with high-power gas and oil engines and petroleum motors. Daimler died March 6, 1900. See Motor Car.

DAIREN (Tairen, Dalny, Talienwan). Treaty port in the Liaotung Peninsula, Manchuria, China, the S. terminus of the S. Manchuria Rly. Leased to Russia in 1898, it was ceded to Japan by the Treaty of Portsmouth, 1905. A Chinese customs station was established here in 1907. The city is the headquarters of the administration of the territory of Kwantung, leased by Japan. Dairen has a good ice-free harbour, protected by a breakwater 1,000 yards long, and has rly. connexion with Port Arthur. Pop. 254,433.

DAIRY. Place where milk is kept and butter and cheese are made, and therefore a necessary adjunct to most farms. The primitive dairy of the farm has to some extent, however, been supplanted by cooperative dairies where butter and cheese are made by modern methods with the aid of modern machinery. Dairy farming is a very important branch of agriculture and a vital industry in Great Britain. Great progress on the technical side has resulted from scientific experiment, as was demonstrated at international dairying congresses at Washington in 1923 and in Paris in 1926. In 1928 arrangements were made to set up a dairy research institute for Scotland. See Butter; Milk.

DAISY (A.S. day's eye). Hardy herbaceous perennial of the order Compositae and genus *Bellis*. Common in Britain and Europe, its height is 3 ins. or 4 ins., and the flowers are white and red. There is also a species, *B. aeneafolia*, with variegated leaves. The tall-growing so-called daisies are single *chrysanthemums* (q.v.); the Michaelmas daisy and the Christmas daisy are species of *aster* (q.v.). One species has variegated leaves.

DAK or **DAWK**. Indian term for transport by relays of runners or horses; hence post, post office. Dak hungalows are rest-houses built at intervals along the principal routes.

DAKOTA. Two states of the U.S.A. N. Dakota is largely an undulating prairie, relieved in the N. by the Turtle Mts. and in the S.W. by buttes. In the E. is the Coteau des Prairies, and between the Missouri and James rivers is the Coteau du Missouri, from 2,000 ft. to 2,750 ft. high: W. of the Missouri the Bad Lands intervene. The Red River of the North traces the E. frontier. The Minnewaukin, or Devil's Lake, is saline, and has no outlet. Bismarck is the capital. Dakota was admitted to the Union in 1889. The area is 70,837 sq. m. Pop. 641,000.

In the state of South Dakota the surface is mainly an undulating plain. Bad Lands

extend along the White river, a right bank affluent of the Missouri. The Grand, Moreau, Cheyenne, and Bad in the W., and the James and Big Sioux in the E., are tributary to the Missouri, which divides the state. The mineral products are chiefly gold and silver. There is a university. Pierre (q.v.) is the capital. The area is 77,615 sq. m. Pop. 704,000.

The Dakotas, or Sioux, are a N. American Indian tribe of Siouan stock. The word means allies. They are of a high physical and mental type. See American Indians; also illus. p. 73.

DAKOTIAN. Lowest formation of the upper Cretaceous system in N. America, situated in the W. plains between the Rocky Mts. and the Mississippi. Its fossil fresh-water fauna, reptiles, birds, and flowering plants show that its sandstones, clays, and conglomerates, with lignite and coal seams, were laid down in vast lakes and river-plains.

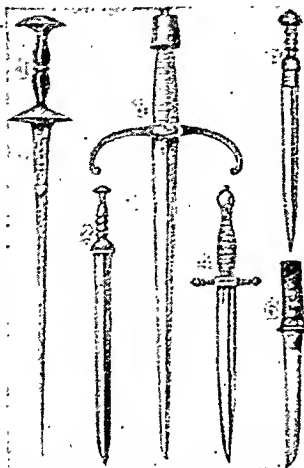
DALAI LAMA. Title of one of the joint heads of Lamaism, the other being the Tashi or Teshu Lama. The Dalaï or Grand Lama lives in seclusion at Lhasa, and the Tashi Lama at Tashi Lunpo. The Lamas claim to be reincarnations of Buddhist saints. See Lamaism; Tibet; also illus. above.

DALBEATTIE. Burgh of Kirkcudbrightshire. It is on the Dalbeattie Burn, near its confluence with the Urr Water, 5 m. E. of Castle Douglas, on the L.M.S. Rly. Its quarries have supplied the material for many important works, including the Thames Embankment. Market day, Sat. Pop. 3,357.

DALCROZE, EMILE JACQUES (b. 1865). Swiss composer. Born at Vienna, July 6, 1865, while professor of harmony at the Geneva Conservatoire he became impressed with the value of rhythm and rhythmic motion, and in collaboration with E. Claparède he reduced his practice to a system. In 1910 he established near Dresden a special school of eurythmics. Later, classes were established at Bryn Mawr College, S. Wales, and schools in U.S.A.

DALE, ROBERT WILLIAM (1829–95). British Congregational divine. Born in London, Dec. 1, 1829, he became assistant and afterwards sole minister (1859) of Carr's Lane Chapel, Birmingham, where he remained until his death. He was chairman of the Congregational Union, 1869 and 1878, and Yale Lecturer, 1877. His most important work was *The Atonement*, 1875. He died Mar. 13, 1895. His son Sir A. W. W. Dale (1855–1921), who wrote his father's life, was vice-chancellor of Liverpool University, 1909–19.

DALGETY. Township of New South Wales, 296 m. S.S.W. of Sydney. One of the spots first selected for the federal capital, it was discarded in favour of Canberra (q.v.).



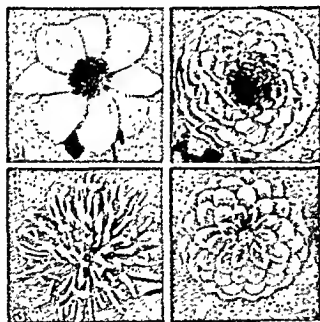
Dagger. 1. French. 16th century. 2. Two-edged dagger, Mandingo, Africa. 3 and 4. Old Indian daggers, dug up in London. 5. West African. 6. Japanese. See p. 482.



Dalai Lama. Portrait of Tibetan high priest taken at Lhasa.



Daisy. *Bellis perennis*, the common field daisy.



Dahlia. Some of the chief varieties of the flower. 1. Single Dahlia. 2. Double Dahlia. 3. Cactus Dahlia. 4. Fancy Dahlia.

DALHOUSIE, EARL OF. Scottish title borne since 1633 by the family of Ramsay. Sir George Ramsay was created Lord Ramsay in 1618, and in 1633 his son, 2nd baron, was made earl of Dalhousie. The titles came in 1764 to George Ramsay, 8th earl. His eldest son, George (1770-1838), succeeded as 9th earl in 1787. He was made a peer of the U.K. in 1815, and was succeeded in 1838 by his son, James Andrew Brown Ramsay (1812-60). Born April 22, 1812, in 1847 he was appointed governor-general of India, was created marquess in 1849, and died Dec. 19, 1860.

As the marquess died without sons, the titles of baron, the one of 1815, and marquess became extinct. The earldom passed to his cousin, Fox Maule, 2nd Baron Panmure. In 1874 he died without sons, and his barony became extinct, but a cousin, George Ramsay, became 12th earl of Dalhousie. He was made a peer of the U.K. as Baron Ramsay, in 1875. In 1887 Arthur George Maule Ramsay (1878-1928) became the 14th earl. He died Dec. 23, 1928, and was succeeded by his son, John Gilbert Ramsay (b. 1904).

Dalhousie University, founded at Halifax in 1818 to serve as a university for Nova Scotia, was named after the 9th earl, governor of Nova Scotia and later of Canada.

DALKEITH. Burgh and market town of Midlothian. It stands between the N. and S. Esk rivers, $8\frac{1}{2}$ m. S.E. of Edinburgh, by the L.N.E. Rly., in a colliery district, and is noted for its corn market. Dalkeith Palace, built 1770, is a seat of the duko of Buccleuch, whose eldest son is known as earl of Dalkeith. Market day, Mon. Pop. 7,232.

DALLAS. City of Texas, U.S.A. It stands on Trinity river, 230 m. N.W. of Houston, and is an important trading centre for the surrounding cotton-growing district. The annual state fair of Texas is held here. Pop. 211,600.

DALLING AND BULWER, WILLIAM HENRY LYTTON EARLE BULWER, BARON (1801-72). British diplomatist, usually known as Sir Henry Bulwer. Born in London, Feb. 13, 1801, elder brother of the novelist, he was ambassador in 1849 at Washington, where he concluded the Clayton-Bulwer Treaty, and at Constantinople, 1858-65. Made a peer in 1871, he died May 23, 1872.

DALMATIA. Former Austrian province, now a part of Yugoslavia, with the exception of the former capital, Zara, which was assigned to Italy by the Treaty of Rapallo.

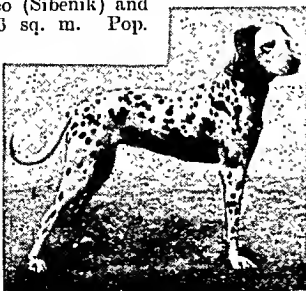
Bounded W. by the Adriatic Sea and E. by the Velchit Mts. and the Dinaric Alps, Dalmatia consists of many islands on the E. side of the Adriatic, a comparatively narrow coastal strip populated by hardy fisherfolk, and a wider mountainous area of karst formation. The chief towns are Sebenico (Sibenik) and Spalato (Split). Area, 4,916 sq. m. Pop. 621,429. See Yugoslavia.

DALMATIAN DOG.

Breed of dogs formerly much in favour for following the carriage. It appears to have originated in a cross between a hound and a pointer, and is noticeable for the black or brown spots with which its white coat is besprinkled.

DALMATIC (late Lat. *Cætica*). Ceremonial vest-

formerly deacon in the R.C. Bukovina. It is also now known as Cernusky by a 167 m S.E. or Originally of white linen, it is the seat of a of fine wool or silk since has a university. It h from the 13th century paper is manufactured. It as the chasuble of During the Great War Cædmatian origin, hands six times, being first oc. 4th century. Russians in Sept., 1914, and finalyent years in Aug., 1917.



Dalmatian Dog. Example of this handsome breed of carriage-dog

DALMELLINGTON. Village of Ayrshire. It stands on the Doon, 15 m. S.E. of Ayr, on a branch of the L.M.S. Rly. Coal and iron mining are important industries. Pop. 6,155.

DALMENY. Parish and village of Linlithgowshire. It stands at the mouth of the river Forth, at the S. end of the Forth bridge, $9\frac{1}{2}$ m. N.W. of Edinburgh, on the L.N.E.R. It has an interesting Norman church, and near is Dalmeny House, a seat of the earl of Rosebery, whose eldest son bears the title of Lord Dalmeny. The ancient Barnboulge Castle is at Dalmeny. Pop. 2,188.

Dalny. Treaty port in Manchuria, better known as Dairen (q.v.).

DALOU, AIMÉ JULES (1838-1902). French sculptor. Born in Paris, Dec. 31, 1838, he first exhibited at the Salon in 1867. Coming to London in 1871, he undertook the mastery of the classes at South Kensington. Dalou's example and enthusiasm profoundly influenced British sculpture. Much of his work may be seen in Paris, notably the immense bronze *Triumph of the Republic* in the Place de la Nation.

DALRY. Town of Ayrshire, $23\frac{1}{2}$ m. S.W. of Glasgow, on the L.M.S. Rly. Worsted and woollens are manufactured. Near are large ironworks as well as coal mines and slate quarries. Pop. 7,243.

DALSERF. Colliery centre of Lanarkshire. It is 7 m. S.E. of Hamilton, on the L.M.S. Rly. The parish contains most of the town of Larkhall. Pop. 18,620.

DALSTON. Suburb of E. London, included in the Hackney met. bor. It has a junction on the L.M.S. and L.N.E. Railways, and a German hospital opened in 1845. There is a place of this name in Cumberland, 4 m. from Carlisle. It has a station on the L.M.S. Rly. and a peel tower.

DALSWINTON.

Village of Dumfriesshire, 7 m. N.W. of Dumfries. On a loch on his estate here Patrick Miller experimented with a steamboat as early as 1788.

DALTON, JOHN (1766-1844). English natural philosopher and chemist. Born at Eaglesfield, near Cocker-mouth, Sept. 6, 1766, after keeping a school for some years he became professor of mathematics and natural philosophy in 1793 at New College, Manchester. He died July 26, 1844. Having discovered that he was colour-blind, Dalton published in 1794 the first scientific paper on the subject. In 1808 Dalton published the first volume of his *New System of Chemical Philosophy*.

Dalton formulated the atomic theory. His "hypothesis" explains in quantitative form the ways in which chemical combination takes place. Dalton's law of multiple proportions states that where two elements combine to produce two different substances the proportions by weight bear definite relationships. From his experiments with gases Dalton laid down two laws: (1) The pressure exerted by, and the quantity of, a vapour which saturates a given space are the same for the same temperature, whether the space is a vacuum or is filled by a gas. (2) The pressure exerted by a mixture of a gas and a vapour, of two vapours, or of two gases, is



John Dalton, English chemist

equal to the sum of the two pressures which each would exert if it occupied the same space alone. Dalton's laws are only entirely true if the gases are perfect gases.

DALTON-IN-FURNESS. Urban dist. and market town of Lancashire, $3\frac{1}{2}$ m. N.E. of Barrow-in-Furness, on the L.M.S. Rly. The town carries on a large malting trade, and there is coal in the vicinity. George Romney was born here. Adjacent are ruins of Furness Abbey (q.v.) and the tower of Dalton Castle. A canal, nearly 4 m. in length, communicates with the sea. Market day, Sat. Pop. 12,303.

DAM. Structure of earth or masonry built across valleys to impound rivers and create storage reservoirs of large capacity for irrigation or town supply purposes. Earth dams are limited in height to 100 ft. A trench is dug along the axis of the dam to an impermeable stratum, such as rock or clay, and the bottom made quite staunch. In the trench is founded a core wall of concrete or puddled clay, or clay mixed with gravel, and this wall is brought up simultaneously with the earthen banks. The slopes of the banks vary generally from 1 in 2 to 1 in 5. The inner slope is protected by a heavy piling of stone or concrete slabs. The earthen dam constructed to impound Gatun Lake, which forms an important part of the Panama Canal, is more than 1 m. long, with a base width of nearly $\frac{1}{2}$ m.

Masonry dams are used for all heights, and are universal for heights exceeding 100 ft. In section a masonry dam has roughly the form of a right-angled triangle, the right angle being at the base on the water side. Masonry dams arched in plan are sometimes used in narrow gorges with very steep sides. Dam foundation sites are prepared with the greatest care. For the interior of the dam, uncoursed rubblework is more generally used, and uncoursed squared ashlar work for the faces. Some masonry dams allow all excess water to pass over the crest and down the lower face. The alternative—which must be adopted for all earthen dams—is a separate masonry spillway, or weir, usually at one end, with a face stepped to break the fall of the water. The Nile dam and barrages have a number of sluice openings, which are controlled by gates, at intervals.

One of the largest dams in the world was opened in 1928 at Bhatgur, Bombay. Called the Lloyd Dam, it is 5,333 ft. long, and the area of the lake is $1\frac{1}{2}$ sq. m. It is intended to feed the Nera canal system and so irrigate 2,000,000 acres of the Deccan. See Assnan: Nile; also illus. p. 151.

DAMAGES. In English law, the sum awarded by the judge or jury to a successful plaintiff or petitioner. In actions based on contract the measure of damages is the actual pecuniary loss sustained. In actions of tort it varies; but as a rule is not limited to the pecuniary loss.

Damaraland or **DAMALAND.** Alternative names of the region of South-West African Protectorate also known as Hereroland (q.v.).

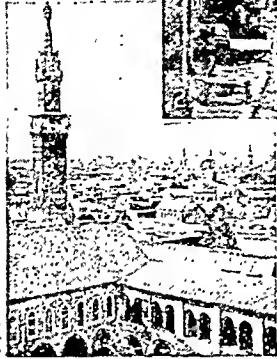
DAMASCENING or **DAMASKEENING.** Ornamenting a metal surface with a pattern. The Crusaders brought home swords made and thus adorned at Damascus, whence the name of the process. The pattern was either etched



Damascening. Ewer of brass damascened in silver and inlaid with black composition. Victoria & Albert Museum

in the blade or the steel was engraved and strips of gold, silver, or copper were hammered into the incisions—a process of inlaying metal on metal. The process is widely carried on in Persia and in parts of India, where it is known under the name of Kufi work. See Casque.

DAMASCUS. Capital of Syria. It lies 70 m. S.E. of Beirut, and 180 m. S.W. of Aleppo, with both of which it is connected by railways, on a large and fertile plain, watered by the Barada and its canals. From a distance it is most attractive with



Damascus. 1. View of the city beyond the octagonal minaret of the Omniad Mosque. 2. Part of the "Street called Straight"

Street Called Straight (Acts 9, 11), and a Jewish quarter S. of this, the main body of the town being Moslem.

The most striking feature is the enormous Omniad Mosque, erected on the site of a Christian church. The octagonal minaret which surmounts its S.W. side is one of the most graceful of its kind. The city has a wonderful bazaar and a Syrian university. From remote times it has been a great commercial centre. It has lost its industry of sword-making, for which it once was famous.

Having been held by the Romans and Arabs, Damascus was taken by the Turks in 1516 and was for 100 years the capital of the Caliphate. During the Great War it was entered early on Oct. 1, 1918, by the British and the Arab army of the Hejaz, and its administration was handed over by General Allenby to its Arab notables. In Oct., 1925, serious fighting broke out in Damascus between the French troops and the rebels, when many buildings were damaged. Pop. estimated at 300,000.

DAME (Lat. domina, mistress, lady). Strictly, a word of two meanings in English. (1) It is the legal designation of the wife or widow of a baronet or knight, who strictly is Dame Alice Brown, although by courtesy she is styled Lady Brown. (2) The title conferred upon women appointed to the first or second class of the Order of the British Empire, founded 1917, and prefixed to their Christian name and surname. Dames are either dame grand cross, G.B.E., or dame commander, D.B.E. See British Empire, Order of the.

DAME'S VIOLET

(*Hesperis matronalis*). Perennial herb of the order Cruciferae. A native of Europe and temperate Asia, it has erect downy stems 2 ft. or 3 ft. high, lance-shaped leaves, and lilac four-petalled flowers which are fragrant in the evening.



Dame's Violet, a fragrant herb

DAMIEN, FATHER (1840-88). Belgian missionary priest, whose real name was Joseph de Veuster. Born at Tremeloo, Jan. 3, 1840, he joined a religious order, was sent to Hawaii in 1864, and was ordained priest at Honolulu. In 1873 at his own request he became resident priest to the 600 lepers on the island of Molokai; in 1885 he became infected with leprosy but continued his work, and on March 28, 1888, he died of the disease. He is buried at Molokai.



Father Damien, Belgian missionary
From a drawing by E. Clifford

DAMIETTA. City of Lower Egypt. On a tongue of land between Lake Menzala and the chief E. mouth of the Nile, 113 m. by rly. N.E. of Cairo, it was founded about 1260 near the site of an older city, which was several times captured by the Christians during the Crusades and taken by Louis IX of France in 1249. Owing to the silting-up of the harbour, its export trade is now inconsiderable. Damietta was once famous for a fine cotton cloth called dimity and also for its leather-work. Pop. 34,907.

DAMMAR. Gum-resin obtained from several trees. White dammar is the product of *Vateria indica*, an Indian tree of the order Dipterocarpaceae. The stem is notched to induce the flow of juice, which hardens on exposure to the air. Black dammar is similarly obtained from *Canarium strictum* in Malabar, and a third kind from the Kauri pine (*Dammara australis*) of New Zealand and the Amboyna pine (*Dammara orientalis*), two species of Coniferae.

DAMOCLES. Favourite of Dionysius the Elder, tyrant of Syracuse. Having declared Dionysius to be the happiest man on earth, Damocles was invited by the tyrant to take his place at a banquet, where he saw above his head a sword suspended by a single hair. Terrified, Damocles at once confessed himself mistaken. Pron. Dam-o-kleez.

DAMON AND PYTHIAS. Two Pythagoreans, whose names have become proverbial as types of devoted friends. Pythias, having been condemned to death for conspiring against Dionysius, tyrant of Syracuse, was allowed to visit his friends, and Damon undertook to die in his stead should he fail to return. Pythias kept his word and was pardoned by Dionysius.

DAMPER. In musical instruments, a mechanical means for checking the vibrations of strings. In the pianoforte there is a damper or pad of felt connected with each key which is released from the string as long as the key is held down. The right or "loud" pedal releases the whole set of dampers, and causes all strings struck to continue their sounds as long as the vibrations last or the pedal is depressed.

The term damper is applied also to an iron or steel plate adjustable across the flue of a fire or furnace to regulate the draught of air.

DAMPIER, WILLIAM (1652-1715). English navigator. Born at East Coker, near Yeovil, he went to sea at an early age. In 1699 he went in command of the *Rochester* to explore the coasts of Australia and New Guinea. During 1703-7 he was in command of a privateering expedition to the South Seas, and from 1708-11 he served as pilot on another privateering expedition. He pub-



W. Dampier, English navigator
After Sherwin

lished *A New Voyage Round the World, 1697, and Voyages and Descriptions, 1699*. He died May, 1715.

The Dampier Archipelago is a group of high rocky islets off the N.W. coast of Australia, formerly German, now administered by the Australian Commonwealth. Dampier Land is a fertile peninsula on the N.W. of Western Australia. Of the two straits off New Guinea known as Dampier Strait the first, between the N.W. coast of New Guinea and the island of Waigeu, affords the best passage between the Indian and Pacific Oceans. The other is off the N.E. coast of New Guinea, separating it from New Britain.

DAMSON (*Prunus domestica*, var. *damascena*). Fruit-bearing tree of the order Rosaceae, and belonging to the same family as the plum. The fruits are usually purple in colour, though there is a yellow variety. They have a somewhat acid flavour, if eaten raw. See Plum.

DAN. Name of one of the 12 tribes of Israel, descended from Dan the son of Jacob (Gen. 30). From the hill country S.W. of Ephraim they moved to the valleys of Ajalon, but later migrated N. and occupied the country round Laish, which they renamed Dan (Joshua 19; Judges 18). Dan is also the name of a city near the sources of Jordan, formerly called Laish (Judges 18).

DANAË. In Greek mythology, daughter of Acrisius, king of Argos. Her father shut her up in a tower, since an oracle had foretold that he would meet his death at the hands of a son born of Danaë. Zeus visited her in a shower of gold, and a son, Perseus (q.v.), was born. The oracle was ultimately fulfilled when Perseus accidentally killed his grandfather Acrisius with a quoit.



Danaides. Ancient Greek statue of a Danaïd
Vatican, Rome

DANAÏDES. In Greek mythology, the fifty daughters of Danaus, king of Argos. They were promised in marriage to the fifty sons of their uncle Aegyptus, but Danaus, fearing a plot against his life, bade his daughters murder their husbands on their wedding night. All obeyed except Hypermedea. The guilty Danaïdes were condemned in

Hades for ever to pour water into pitchers with holes in them. Pron. Dan-ā-ideez.

DANBURY. Parish and village of Essex, 41 m. E.S.E. of Chelmsford. Near are Danbury Place, until 1877 a palace of the bishop of Rochester, and Danbury Hill, one of the highest points in Essex, with Danish remains. Pop. 1,181.

DANCE OF DEATH. Allegorical representation of the fact that death comes sooner or later to all. It took the form of a morality play acted in booths, or of pictures, sculptures, and tapestries, or of recitations. Death figured as a skeleton in progress to the grave.

DANCING. Rhythmical physical movements generally performed to a musical accompaniment. It originated as a ceremonial

act in primeval society, in association with the incidents of births, marriage, the seasons, warfare, disease, and death, and plays an important part in the lives of primitive peoples of to-day. It figured in the religious rites of Egypt, Greece, and, to a lesser extent, of Rome, and survives to-day in eastern ritual.

The early Christian Church took over the dance as well as the drama. That dancing was performed in medieval churches is seen from the name choir, coming from the Greek chorus, and in the frequent injunctions against it. Various forms, however, received recognition, such as the dance of the seises in Seville cathedral, authorised in 1439. This dance is still the greatest event of the Corpus Christi festivities.

The art was secularised in the 15th century, when many dances originated in Spain and Italy, and were later developed in France. At this period some of the most popular were the pavane, the sarabande, and the minuet. Later came the gavotte, originally a peasants' dance, and still later the cotillon, while such dances as the schottische, quadrille, polka, and waltz belong to the 19th century. Within recent years a large number of negro dances have been introduced into Europe, chiefly from America.

Most countries have their peasant dances. In Spain two schools of folk dancing can be distinguished, the *Classico* and the *Gypsy*. The English Morris dance dates back to the reign of Edward III, the sailor's hornpipe to the 16th century. Scotland has sword-dances and reels, and Ireland has the jig, reel, and hornpipe dances. The best German peasant dances are to be seen in Bavaria.

Dancing mania was a form of hysteria prevalent in Germany and other European countries in the 14th and 15th centuries. Those affected threw themselves into wild paroxysms of excitement, in which they danced, gesticulated, and screamed. See Ballet; Drama; Duncan, I.



Dandelion. Flowers of *Taraxacum officinale*

flower-heads are borne singly on long, hollow, leafless stalks; all the florets are strap-shaped. The fruits contain one seed each, and are surmounted by a beak from which radiate fine silky hairs, which combine to form the well-known dandelion-clock. The juice is milky and intensely bitter. The leaves of the dandelion, blanched, are used in salads, and from the roots is obtained the laxative medicine taraxacum.

Dandenong. Town of Victoria, Australia. It is an important rly. junction 18 m. S.E. of Melbourne. Pop. 4,300.

DANDIE DINMONT TERRIER. Breed of small dogs formerly known as Border terriers, and called after one of the characters in Scott's *Guy Mannering*. Less than a foot high, it weighs generally about 20 lb., and is of slate-blue or yellow colour.

DANDOLO, ENRICO (c. 1120-1205). Doge of Venice. In 1171 he was ambassador to Constantinople, and twenty years later became doge. In 1203 he took Constantinople and established the Latin

empire. He died there, June 23, 1205, and was buried in S. Sophia.

Three of his descendants became doge: Giovanni, 1280-89; Francesco, 1329-39; and Andrea, 1343-54, who was the historian and friend of Petrarch.



Enrico Dandolo, Doge of Venice Ducal Palace, Venice

skin, the commonest of which is scabborrhoea, in which the sebaceous or oil glands of the skin are abnormally active.

DANEGLD. Tax on land originally levied in England to buy off the Danes. The first occasion was in 991, when Ethelred the Unready, with the consent of the witan, raised money which he gave to the Danes. The tax was abolished by Edward the Confessor, but in 1034 it was revived by William the Conqueror, although this money was not devoted to the original purpose.

The Danelagh was that part of England conquered by the Danes and handed over to them by the treaty of Wedmore in 878. It was the north and east of the country.

DANEWORT or **DWARF ELDER** (*Sambucus ebulus*). Perennial herb of the order Caprifoliaceae, a native of Europe, N. Africa, and W. Asia. From a creeping root-stock numerous annual stems arise to the height of 3 ft. or 4 ft., with leaves, flowers, and berries similar to those of the elder-tree (*Sambucus nigra*). The danewort is a powerful emetic and purgative.



Danewort, flower and leaves

DANIEL. Daniel is mentioned as an historical personage in Ezek. 14, 14-20, where he is bracketed with Noah and Job, and in Ezek. 28, 3, as a pattern of marvellous wisdom.

The Book of Daniel, written by him, falls into two divisions: (a) the life of Daniel, the interpreter of dreams, and of his three friends, Hananiah, Mishael, and Azariah, in exile in Babylon (Dan. 1-6); (b) the visions of Daniel (Dan. 7-12). The historical allusions suggest that the book, in its present form, can hardly be a record contemporary with the life of Daniel. Many scholars think that it must have arisen in the period of the Maccabean struggle (168-160 B.C.).

DANTE ALIGHIERI (1265-1321). National poet of Italy. Born at Florence in May, 1265, he took part in the government of the city. In October, 1301, he went on an embassy to Boniface VIII to deter him from sending Charles of

Valois as peacemaker into Tuscany. During his absence Charles entered Florence, and Dante's party was proscribed. Dante was banished, and a later decree condemned him to be burned alive if he fell into the power of the Commune.

During the ensuing years Dante wandered, "a pilgrim, almost a beggar," through northern and central Italy. In May, 1315, the Florentine government decreed a general

readmission of exiles: but Dante refused to accept recall, on conditions that did not recognize his innocence. The poet's last years were divided between Verona and Ravenna, which he came his settled abode. He died Sept. 14, 1321. A few years before his exile Dante had married Gemma Donati, by whom he had four children.



Dante Alighieri, from a 15th century bronze bust National Museum, Naples

Commedia was not completed until a few months before Dante's death. It is an allegory of human life in the form of a vision in which Dante is led by Virgil through Hell and Purgatory to the Earthly Paradise, where he is met by Beatrice, who guides him through Paradise to an experience of eternity and the anticipation of the Beatific Vision. To Italy Dante gave a national voice and a national consciousness.

DANTON, GEORGES JACQUES (1759-94). French revolutionary leader. Born Oct. 28, 1759, at Arcis-sur-Aube, he was an advocate in Paris when the Revolution broke out. In 1790 he was commander of the National Guard in his quarter, and in the following year became administrator of Paris. His oratory and abilities brought him to the front, and in 1792 he was made minister of justice. In the Convention Danton was a foremost leader of the Mountain, and sat with Marat, Robespierre, and Camille Desmoulins. By 1794 he was satisfied that the military position was safe, and that the Terror might be abated, but Robespierre mistakenly believed the Terror popular and sacrificed Danton, who was guillotined April 5, 1794.

DANUBE (Ger. Donau). River of Europe. If its source is assumed to be at Donaueschingen, in the Black Forest, its course totals 1,780 m.; if at the junction of the Brigach and Breg, it is 20 m. shorter. It becomes navigable at Ulm. The river is computed to have 300 affluents. Those on the right bank comprise the Isar, Inn, Raab, Drave, Save, and Morava; on the left are the Regen, Waag, Theiss, Sareth, and Pruth. Near Orsova are the celebrated Iron Gates, where the river is obstructed by rocks in the river bed. It flows into the Black Sea by five channels. Some important schemes are projected for linking up the Danube with the Rhine, Main, Elbe, Oder, and other rivers.

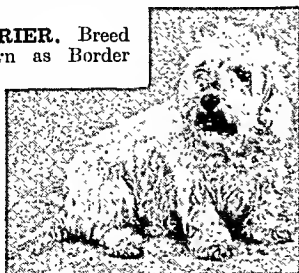
Two international commissions control the Danube. The European commission set up in 1856, now consisting of Britain, France, Italy, and Rumania, looks after the river from



Georges Danton, French revolutionist



Dante's house in Florence where he was born in 1265



Dandie Dinmont. Venns, a Dandie Dinmont owned by King George V Gambier Bolton, F.Z.S.

Braila to its mouth. The international commission created in 1919 controls the river from Ulm to Braila. On it are representatives of the four countries mentioned as well as Czechoslovakia, Austria, Bavaria, Bulgaria, Hungary, Yugoslavia, and Württemberg.

DANZIG (Polish, Gdansk). Former city of Germany, now, with the surrounding territory, a free city under the League of Nations. The city stands on the Vistula, about 4 m. from its mouth, at its junction with the Mottlau, 280 m. N.E. of Berlin. The territory included within the administration of the city has an area of about 754 sq. m. Pop. 390,000.

From early times a prosperous shipping centre, Danzig's importance is due to its position near the Baltic. The older parts of the city largely retain their medieval aspect. The Long Street has many beautiful old buildings. The town hall is a magnificent Gothic building of the 14th century. The finest church is S. Mary's. The trade is largely in timber, corn, and sugar.

Danzig began as a Slavonic settlement called Gdansk. About 1308 it was secured by the Teutonic Order, but after 1450 it became practically independent, for its membership of the Hanseatic League had brought it much wealth. In 1793 it became Prussian.

The Poles desired the port, among other reasons, in order to secure an outlet to the sea. The treaty of Versailles, 1919, laid down the aims of a treaty to be negotiated between Danzig and Poland, and a Danzig-Polish treaty came into force in Nov., 1920, according to which Danzig and Poland constitute a single customs territory. Another treaty was concluded in Oct., 1921, arranging for joint economic administration. The free state is governed by a president, a senate, and a diet of 120 members elected for four years. In 1924 the Bank of Danzig was founded, and a new currency introduced with 25 gulden to the pound sterling. A great new port is being created at Gdynia (q.v.).

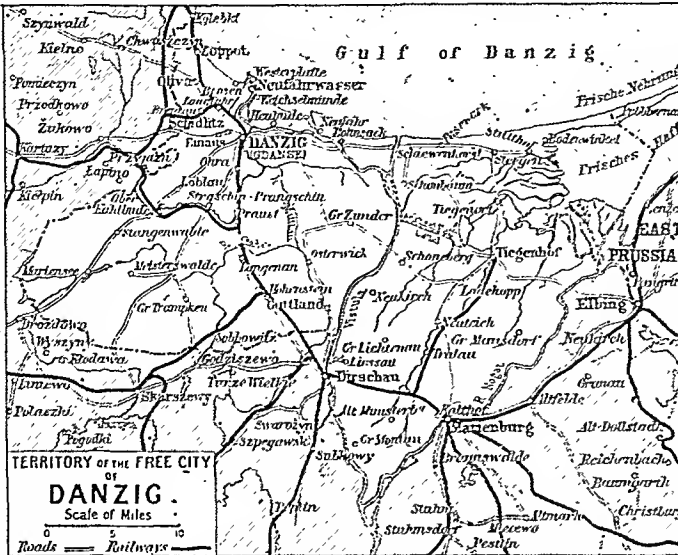
Danzig. The Langemarkt, with the beautiful 14th century Town Hall

DAPHNE (Gr. laurel). In Greek mythology, the daughter of a river god. When pursued by Apollo, she prayed for deliverance, and was turned into a laurel tree.

DAPHNIA. Minute crustacean, common in ponds and known as the water-flea. Its body is enclosed in a bivalve shell; it swims with its antennae, and carries its young within the shell.

DARDANELLES. Strait leading from the Aegean Sea to the Sea of Marmora and separating Europe from Asia, called by the

ancients the Hellespont. It is about 48 m. long and its average width is from 3 m. to 4 m. In 1841 the European powers signed an



Danzig. Map indicating the extent of the territory governed by the free city of Danzig under the Treaty of Versailles

agreement permitting Turkey to close the Dardanelles to all ships of war. By the treaty of Lausanne, 1923, it is open to all nations.

The strait was the object of naval attacks in the Great War. On Nov. 3, 1914, British warships bombarded the outer forts at the Dardanelles, and on Dec. 13 a British submarine sank a Turkish battleship. Another attack was made on Feb. 19, 1915, when eight armoured ships engaged the forts at the entrance at long range. Other attacks followed a few days later. On March 18 an attempt to force the Narrows was unsuccessful, resulting in serious loss in ships. See Gallipoli.

The Dardanelles Commission was appointed to inquire into the failure of the expedition sent by Great Britain to Gallipoli in 1915. Lord Cromer was chairman.

DARDANUS. In Greek legend, the son of Zeus and Electra, and the mythical ancestor of the Trojans. The Palladium, the statue of Athena, afterwards removed to Troy, is said to have formed part of his wife Chryse's dowry. Dardanus or Dardania, a town of Mysia in Asia Minor, about 9 m. S.W. of Abydos, was said to have been founded by Dardanus and to have been ruled by Aeneas. At another town of the same



Daphne. Bernini's sculpture. Apollo and Daphne. Rome

name, built later near the old site, peace was concluded between Sulla and Mithradates, King of Pontus (84 B.C.).

DAR-ES-SALAAM (the haven of peace). Port and capital of Tanganyika territory, former capital of German East Africa. It was captured by the British on Sept. 4, 1916. It is the terminus of the rly. to Kigoma. There is a wireless station, and also cable connexion with Zanzibar. Pop. 25,000.

DAREWSKI, MAX (1894-1929). British pianist and composer. Born Nov. 3, 1894, at Manchester, when five years old he composed a waltz, *Le Réve*. When only eight he conducted a full orchestra playing his own compositions. He wrote the music for many revues, and composed a number of songs. He died Sept. 26, 1929.

His brother, Herman, who composed many popular songs and revues, was musical director of the Winter Gardens, Blackpool, 1927-9.

DARFIELD. Urban dist. of Yorkshire (W.R.). It is 5 m. S.E. of Barmsley, on the L.M.S. Rly. Coal-mining is the chief occupation. Pop. 5,566.

DARFUR. Province of the Anglo-Egyptian Sudan, to the W. of Kordofan (q.v.). A range of mts., the Jebel Marra, with peaks nearly 5,000 ft. high, runs N. to S. for more than 100 m., and the country contains the watershed separating the basins of Lake Chad and the Nile. El Fasher is the administrative centre. Its area is 153,000 sq. m. Pop. 750,000.

DARIEN. Name formerly applied to the entire isthmus of Panama. "Silent upon a peak in Darien," Vasco Núñez de Balboa first saw the Pacific in 1513. It is now the name of a district of Panama, the Cordillera of Darien fronting the Caribbean Sea in the E. of the republic.

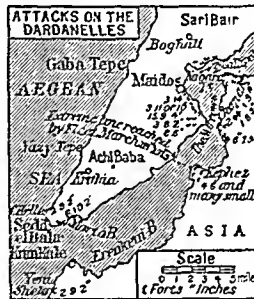
The Gulf of Darien is an opening of the Caribbean Sea, between Panama and Colombia. It is about 200 m. broad at its mouth and penetrates inland for about 155 m. Its S. extension is called the Gulf of Uraba. See Panama.

The Darien Scheme was a project to establish, with headquarters on the isthmus of Darien, a company which should be a counterpart to the East India Company in the E. The experiment failed, largely owing to the unhealthy climate.

DARIUS. Name of three Persian kings (pron. Dar-i-us). Darius I, Hystaspis (522-485 B.C.), belonged to the family of the Achaemenidae, and was the son of Hystaspes. He secured the Persian throne after defeating the usurper Gaumata. Two Babylonian revolts were crushed, and by 519 Darius was undisputed master of the empire. In 513 Thrace and Macedonia were brought under Persian rule. In 501 Darius came into conflict with the Greeks. His first expedition against them under Mardonius in 492 was unsuccessful. A reinforced army penetrated into Attica, but was defeated by Miltiades at Marathon, in 490. Inspired to still greater efforts, Darius set about collecting a vast army, but a rebellion in Egypt checked his plans, and in 485 he died. An able ruler, he greatly improved the organization and internal government of his empire.

Darius II, Ochus (424-404 B.C.), rose against his illegitimate brother, Scyrdianus, murderer of his brother, Xerxes II, and put him to death. He reigned until his death, in 404, and was succeeded by his son, Artaxerxes II. Darius III, Codomannus (336-330 B.C.), was the last of the Achaemenian dynasty.

DARJEELING. District and town of the Bengal Presidency, India, in the Bhagalpur div. It is in the Lower Himalayas, bounded N. by Sikkim, with Nepal on the W. and Bhutan on the N.E. Darjeeling town (alt. 7,346 ft.) was originally purchased as a



Dardanelles. Map of S. extremity of the Gallipoli Peninsula; the figures show number and calibre of guns in Turkish forts in 1915

sanatorium, in 1835. Darjeeling is a great tea centre and the summer headquarters of the governor of Bengal. Pop. district, 282,748.

DARLASTON. Urban dist. of Staffordshire, England. It is on the L.M.S. Rly., 1½ m. N.W. and in the parl. bor. of Wednesbury. It lies in a coal and iron-mining district, and has iron works and blast furnaces. Pop. 18,218.

DARLING. Downs, river, and mtn. ranges of Australia. The Darling Downs are an elevated area on the inland W. side of the Great Dividing Range of S.E. Queensland. They are a great sheep-rearing area, of which Toowoomba and Warwick are the chief centres, and there are mines of cannel coal.

The Darling river, discovered in 1828 by Sturt, is about 1,760 m. in length from its source in Queensland to its junction with the Murray at Wentworth. The river is fed almost entirely by the rains of S. Queensland and N.E. New South Wales.

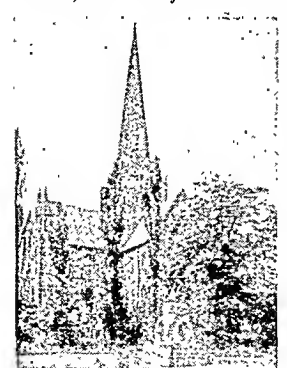


Lord Darling,
British judge
Russell

DARLING, CHARLES JOHN DARLING, BARON (b. 1849). British judge. B. Dec. 6, 1849, called to the bar in 1874, he was M.P. for Deptford, 1888-97, when he was appointed a judge of the King's Bench Division, retiring in Nov., 1923. A writer of light verse, his works include *Scintillae Juris*, 1877; *Seria Ludo*, 1903; *On the Oxford Circuit*, 1909. He was created a peer, Jan., 1924.

DARLING, GRACE HORSLEY (1815-42). British heroine. Born at Bam borough, Northumberland, Nov. 24, 1815, the daughter of the lighthouse keeper on the Farn Islands, she rowed out with her father on Sept. 7, 1838, to a rock where nine survivors from the wreck of the *Forfarshire* steamboat had found a foothold. She was given a gold medal by the Humane Society. She died Oct. 20, 1842.

DARLINGTON. County bor. and market town of Durham, England. It stands on the Skerne, near its junction with the Tees, and is 230 m. from London and 22 from Durham. It is an important station on the L.N.E. Rly. The chief church is S. Cuthbert's, a cruciform building in the Early English style. There is an old grammar school, public library, technical school and other modern buildings. Standing on the Durham coal-field near the Cleveland district, Darlington is an important industrial centre. Here the L.N.E. Rly. has large shops, while there are also ironworks, engineering works, woollen mills, etc. Market days, Mon and Sat. Pop. 65,842.



Darlington. Church of S. Cuthbert, 12th cent., with 14th cent. spire

DARMSTADT. City of Germany, capital of the state of Hesse, 21 m. S.E. of Mainz. It consists of an old and a new town, the latter until 1918 the residence of the grand duke, and

containing the offices of the government of Hesse-Darmstadt. The palace, mainly an 18th century building, stands in its gardens at the end of the Rheinstrasse, the chief street. The chief industries are iron foundries, engineering works, and the making of chemicals, machinery, carpets, and beer. The city is an important rly. junction. Darmstadt was occupied for a time by French troops in 1920. Pop. 87,752.

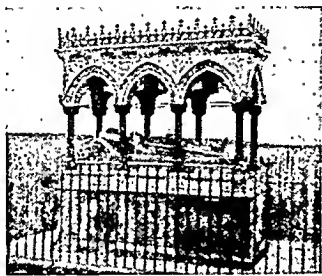
DARNLEY, HENRY STEWART, LORD (1545-67). Second husband and cousin of Mary Queen of Scots. He was born at Temple Newsam, Yorkshire, Dec. 7, 1545. Darnley's marriage with Mary, July 29, 1565, was intended to further political plans, but his incompetence defeated the purpose. He contrived the murder of the queen's secretary, Rizzio, and then betrayed his accomplices. He sought to leave the country, but fell ill at Glasgow, and was brought back to Edinburgh. While lying sick at a house called Kirk o' Field the place was blown up, Feb. 10, 1567. See *Mary Queen of Scots*.



Lord Darnley, husband of Mary Queen of Scots

DART. River of Devon. It consists of the E. Dart and W. Dart, which unite at Dartmeet. It rises in Dartmoor Forest, near Cranmere Pool, and flows S.E. to the English Channel, which it enters below Dartmouth. Navigable to Totnes (10½ m.), it has a length of 46 m.

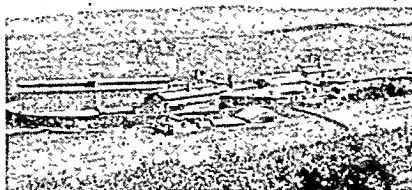
DARTERS. Group of birds, including four species, closely related to the cormorants. Found in Africa, India, Australia, and S. America, they have remarkably long necks, narrow heads, and long, sharp beaks. They frequent rivers and lakes and dive with great skill after fish.



Grace Darling. Her tomb in Bam borough churchyard, Northumberland

DARTFORD. Market town and urban district of Kent. It stands on the Dart, 17 m. E.S.E. of London and 7 m. W.N.W. of Gravesend, and has a station on the Southern Rly. The parish church of Holy Trinity was restored in the 19th century, but retains its Norman tower. The chief industries are engineering works, flour mills, etc. Market day, Sat. Pop. 28,190.

DARTMOOR. Lofty tableland of Devonshire. It lies between Brent and Okehampton and measures about 22 m. by 21 m. Of granite formation, its peculiarity consists in the numerous tors of rock weathered to strange shapes. The average elevation is about 1,200 ft., the highest points being High Willhays, 2,039 ft., and Yes Tor, 2,029 ft. Here the two Darts, the Tavy, Okement, Teign, and other rivers have their source. Numbers of ponies run half wild upon the moor.



Dartmoor. View of Princetown and Dartmoor prison
Valentine

Near Princetown on Dartmoor is Dartmoor Prison. It was erected in 1806 for French prisoners of war. In 1850, having been unoccupied for over thirty years, it was turned into a convict prison.

DARTMOUTH. Seaport, market town, and bor. of Devon. It stands near the mouth of the Dart, on the W. side of the river, 27 m. E. of Plymouth, and 30 m. S.E. of Exeter. The river here forms an almost landlocked harbour, affording safe anchorage. The railway station (G.W.R.) is at Kingswear. Dartmouth's chief buildings are the castle, the churches of S. Saviour and S. Petrox, and some old wooden houses. The Butterwalk is a notable feature. The chief industries are shipbuilding and engineering, while the town is a yachting centre. In 1928 it was decided to reclaim land by extending the embankment across Coombe Mud. Pop. 7,201.

On Mt. Boone, to the N. of the town, stands the Royal Naval College, an institution for the training of officers for the navy.

The title of earl of Dartmouth has been borne by the family of Legge since 1711. His seat is Patshull House, Wolverhampton, and he owns much land in Lewisham. His eldest son is called Viscount Lewisham.

DARTMOUTH. City of Nova Scotia, Canada, in Halifax co. It stands on the E. side of Halifax harbour and a ferry connects it with that city. It is a terminus of the C.N. Rly., and has machine shops, boiler works, sawmills, and other industries. Pop. 7,899.

DARTON. Urban dist. of Yorkshire (W.R.). It stands on the Dearne, 3½ m. N.W. of Barnsley, on the L.M.S., in a coal-mining district. Pop. 11,266.

DARWEN. Borough and market town of Lancashire. It stands on the river Darwen, 20 m. from Manchester by the L.M.S. Rly. The chief buildings are the market hall, public library, several churches, schools, etc. Purely an industrial town, it has cotton and paper mills and blast furnaces, while around are coal mines and stone quarries. Market days, Mon. and Sat. Pop. 37,973.

DARWIN. Port of Northern Australia. There are freezing works and an experimental botanical garden. There is a rly. from Darwin to Katherine, and the overland telegraph connects the town with Adelaide. Its former name was Palmerston. Pop. 944.

DARWIN, CHARLES ROBERT (1809-82). British naturalist. The son of Robert Darwin, a physician, and grandson of Erasmus Darwin the botanist, he was born at Shrewsbury, Feb. 12, 1809. In 1831 Darwin became naturalist to the *Beagle*, proceeding on a voyage in the *South Seas* which lasted until Oct., 1836. In 1839 he published his journal of researches into the geology and natural history of the countries which he visited.



Charles Darwin,
British scientist

By 1858 Darwin had formulated his theory of natural selection, but deferred publication until he had made further investigations. Then, learning that Alfred Russel Wallace had arrived at similar conclusions, he read the paper which Wallace had sent him and his own to the Linnean Society in 1858. In 1859 he published his *Origin of Species*, postponing, however, the presentation of his huge accumulation of additional facts until 1868, when he published *The Variation of Plants and Animals under Domestication*. In 1871 he published *The Descent of Man*. He died April 19, 1882. In 1928 Darwin's house at Downe, Kent, was bought and presented to the British Association.

Four of Darwin's sons achieved distinction in different spheres. The second, Sir George Howard Darwin (1845-1912), was professor of astronomy at Cambridge. Sir Francis Darwin

(1848-1925) was reader in botany at Cambridge and president of the British Association in 1908. He was knighted in 1913 and died Sept 19, 1925. Leonard (h. 1850) entered the Royal Engineers and took part in several scientific expeditions. Later he became an



Erasmus Darwin,
British scientist

authority on eugenics, and was M.P. for Lichfield from 1892 to 1895. Sir Horace Darwin (1851-1928), the fifth son, he came a maker of scientific instruments at Cambridge. During the Great War he was chairman of the Air Inventions Committee. He died Sept. 22, 1928.

Darwin's grandfather, Erasmus Darwin (1731-

1802), was a medical man who gave a good deal of time to scientific research. In certain respects he anticipated the theories of Lamarck. He died April 18, 1802. Francis Galton was another of his grandsons.

DASYURE. Small marsupials, commonly called the native or wild cats of Australia, Tasmania, and New Guinea, though they have no affinities with the cat. They are about the size of a domestic cat, and the brown body is profusely spotted with white. They live in trees, feed on small birds and animals, and are a pest to the poultry farmer.



Dasyure, or wild cat of Australia

DATCHET. Village of Buckinghamshire, England. It is picturesquely situated on the Thames, 2 m. E. of Windsor, with a station on Southern Rly. It has a fine church, S. Mary's, and ruins of a priory. Pop. (parish) 2406.



Date Palm, the fruits of which are edible

DATE PALM (Phoenix daetylifera). Tall tree of the order Palmae. A native of N. Africa, it is extensively grown in the Levant and India. The feather-like leaves, upwards of 12 ft. in length, are divided into numerous slender leaflets. The sweet-scented white male flowers are produced in clusters, the females in a long spike. The red-brown fruits have a sweet pulp surrounding the stony seed

and are highly nutritious as food.

DATE PLUM (Diospyros kaki). Small tree of the order Ebenaceae. A native of China, it has downy, elliptical leaves and whitish-green flowers. The yellow fruits are as large as a small orange, filled with edible pulp surrounding the eight seeds. They are exported dried as a dessert fruit.

DAUBIGNY, CHARLES FRANÇOIS (1817-78). French painter. Born in Paris, Feb. 15, 1817, he exhibited regularly at the Salon from 1846, was a prominent representative of the Barbizon (q.v.) school, and won fame chiefly by river scenes and landscape. His *Vintage*, 1863, in the Louvre is typical. He died Feb. 19, 1878.

DAUDET, ALPHONSE (1840-97). French novelist. Born May 13, 1840, at Nîmes, in 1857 he went to Paris, and until 1865 was secretary to the Duc de Morny. In 1866 he published, under the pseudonym Gaston Marie, *Lettres de mon Moulin*, followed in 1868 by *Le Petit Chose*. Then came the

first of the burlesques of the Provençals, *Les Aventures Prodigeuses de Tartarin de Tarascon*. 1872, succeeded by *Tartarin sur les*



Alphonse Daudet,
French novelist

Alpes, 1885, and *Port Tarascon*, 1890. In 1873 he had published *Contes du Lundi*, and in 1874 *Fromont Jeune et Risler*

Ainé, which is regarded as his masterpiece. His other works included *Jack*, 1876; *Le Nahab*, 1877; *Les Rois en Exil*, 1879; *Numa Roumestan*, 1881; *Sapho*, 1884; *Trente Ans de Paris*, 1888; and *Souvenirs d'un Homme de Lettres*, 1888. He died Dec. 17, 1897. Daudet's son, Léon, was a novelist and journalist. Born in Paris, Nov. 16, 1867, he turned from the study of medicine to that of literature. His works include *L'Astre Noir*, 1893; *Les Morticoles*, 1894; *Le Voyage de Shakespeare*, and *Les Idées en Marche*, 1896; *Suzanne*, 1897; *Sebastien Gourvès*, 1899; *Les Deux Étreintes*, 1901; *Le Pays des Parlementeurs*, 1901; and *La Lutte*, 1907. He has also published a series of outspoken recollections, *Souvenirs Littéraires et Politiques*. As the editor of the Paris daily newspaper *L'Action Française* he was conspicuous as an advocate of royalism, and when a political prisoner in 1927 he made a dramatic escape. Pron. Do-day.



Léon Daudet,
French novelist
Gerschel

DAUPHIN (Lat. delphinus, dolphin). Title borne by the eldest son of the king of France. At first a proper name, it later became a title borne by the rulers of Auvergne and Vienne about 1280, the latter district being sometimes called Dauphiné. In 1349 the dauphin Humbert sold his lands to Charles, who became king of France in 1364. Charles then handed over Dauphiné to his eldest son, who thus became the dauphin of Vienne, and the custom of calling the king's eldest son the dauphin persisted until 1830. A province of France before the Revolution was called Dauphiné. Its chief town was Grenoble.

DAVENANT, SIR WILLIAM (1606-68). English poet and playwright. A godson of Shakespeare, his first play, *Albion*, was produced in 1629. In 1638 he was appointed poet laureate, being knighted in 1643. Under the Commonwealth he suffered both exile and imprisonment, owing his life to Milton. He was the first to introduce scene-shifting, operatic music, and actresses on the English stage. Davenant is best remembered by his beautiful song, "The lark now leaves his wat'ry nest." He died April 7, 1668.



Daventry. Aerial masts of broadcasting station and the parish church of the Holy Cross
Dixon Scott

DAVENTRY. Bor. and market town of Northamptonshire, England. It is 74 m. N.W. of London and 12 m. W. of Northampton on the L.M.S. Rly. and the Grand Union

Canal. Its chief industry is the manufacture of boots and shoes. A high-power broadcasting station (5 X X) was built here in 1925, and another (experimental) station (5 G B) in 1927. Together these constitute the twin-wave regional station for the Midlands. Market day, Wed. Pop. 3,516.

DAVID (c. 1030-990 B.C.) Second king of Israel. The youngest of eight sons of Jesse, of Bethlehem and of the tribe of Judah. In his boyhood a shepherd, he was early designated Saul's successor in the kingdom, and anointed by Samuel (1 Sam. 16). His skill on the harp brought him to the notice of Saul, who appointed him his armour-bearer; and his slaying of the Philistine Goliath resulted in his friendship with Saul's eldest son Jonathan.

When Saul killed himself and Jonathan was slain by the Philistines, David was made king by the men of Judah (2 Sam. 2). The early years of his reign were occupied with war waged by the Israelites who followed the dynasty of Saul against David and Judah. Finally the Israelites accepted David; the king moved the capital from Hebron to Jerusalem and founded the holy city (2 Sam. 5). The greater part of his remaining years was occupied with warfare, and the rebellion of his sons Absalom and Adonijah clouded his last days. Many of the O.T. Psalms are David's work.

DAVID or **DEWI** (d. c. 601). Patron saint of Wales. He was bishop of Menevia (S. David's), and presided over two Welsh synods. After a pilgrimage to Jerusalem he was made metropolitan archbishop of Wales. Venerated in Wales from the 7th century, he was canonised in 1120; his festival is on March 1.

DAVID, FÉLIX-EN CÉSAR (1810-76). French composer. Born at Cadenet, Vaucluse, April 13, 1810, he was a chorister in the cathedral at Aix, and later a conductor. He studied at the Paris Conservatoire, and later travelled in the East. In 1844 his symphonic ode, *Le Désert*, made his name. He died Aug. 29, 1876.

DAVID, GERARD (c. 1450-1523). Flemish painter. One of the most careful of the early Flemish artists, he is represented in the National Gallery, the Louvre, and some of the galleries of the U.S.A. He died Aug. 13, 1523.

DAVID, JACQUES LOUIS (1748-1825). French painter. Born in Paris, Aug. 30, 1748, he gained the Prix de Rome (1774), and accompanied the painter Vien to Italy to study the antique. On his return to Paris in 1780 he was made an academicien. When Napoleon became emperor David was made first court painter, but was exiled on the return of the Bourbons. He died Dec. 29, 1825. His portraits of Madame Récamier and Madame Vigée Le Brun are noteworthy.

DAVIDSON, JOHN (1857-1909). British poet. Born April 11, 1857, he became a schoolmaster. His first volume of verse, *In a Music Hall and other Poems*, 1891, was followed by *Fleet Street Eclogues*, 1893, 2nd series, 1896; *Ballads and Songs*, 1894; *New*



David, as sculptured by Michelangelo
Accad. di Belle Arti, Florence



John Davidson,
British poet
Elliott & Fry

Ballads, 1897; and *The Last Ballad* and other Poems, 1899. His adaptation of *Coppée's Pour la Couronne* was produced in 1890; and his translation of Victor Hugo's *Ruy Blas*, under the title of *A Queen's Romance*, in 1903. He drowned himself at Ponza, March 23, 1909.

DAVIDSON, RANDALL THOMAS DAVIDSON, BARON (1848-1930). British prelate. B. in Edinburgh, Apr. 7, 1848, he was educated at Harrow and Trinity College, Oxford. Ordained in 1874, he was for three years a curate at Dartford. In 1877 he became domestic chaplain to the archbishop of Canterbury (Tait), whose daughter he married and whose life he partly wrote. In 1883 he was appointed dean of Windsor; in 1891 bishop of Rochester, and in 1895 bishop of Winchester. In 1903, on the death of Temple, he was appointed archbishop of Canterbury, and for 25 difficult years he guided the affairs of the Church. In 1928 he resigned and was made a peer as Baron Davidson of Lambeth. He died May 25, 1930.



Lord Davidson,
British prelate
Russell

DAVIES, BENJAMIN GREY (b. 1858). British singer, better known as Ben Davies. Born at Pontardawe, Glamorganshire, Jan. 6, 1858, he studied at the R.A.M., and made his debut at Birmingham as Thaddeus in *The Bohemian Girl*, 1881. For years he held a leading position in opera and on the concert platform.

DAVIES, SIR HENRY WALFORD (b. 1869). British organist and composer. Born at Oswestry, Sept. 6, 1869, he became chorister at St George's Chapel, Windsor. Having been organist at Christ Church, Hampstead, he was appointed organist of the Temple Church, London, in 1898, remaining there until 1923. In 1927 he became organist of St. George's Chapel, Windsor. His compositions include the cantatas *Everyman*, *Hervé Riel* and *Heaven's Gate*, as well as the *music for songs*; his broadcasting talks on music were noteworthy. Davies was knighted in 1922.

DAVIES, HUBERT HENRY (1869-1917). British playwright. Born at Woodley, Cheshire, March 30, 1869, he wrote many popular social comedies. They include *Fifty Years Ago*, 1901; *Mrs. Gorrings Necklace*, 1903; *Cynthia*, 1904; *The Mollusc*, 1907; *A Single Man*, 1910; *Outcast*, 1914. In Aug., 1917, his coat and stick were found on the cliffs at Robin Hood's Bay. It was presumed he had fallen into the sea.

DAVIES, MARY (b. 1855). British singer. Born in London, Feb. 27, 1855, of Welsh parents, she studied at the Royal Academy of Music. She made her debut at the Crystal Palace in 1876, and for 15 years was the principal soprano at the London ballad concerts. She retired in 1900 in order to devote her time to teaching.

DAVIES, WILLIAM HENRY (b. 1870). British poet. He was born April 20, 1870, at Newport, Mon. After serving an apprenticeship to a picture-frame maker, he went to America, where he passed six years of tramping life, fired thereto, perhaps, by the cousin whom he vividly presents in *The Child and the Mariner*. His poetical contributions to periodicals began to attract attention in the early years of the 20th century. He also wrote several volumes of prose, including the *Autobiography of a Super-tramp*, 1908; *Later Days*, 1925; and *Dancing Mad*, 1927.



William H. Davies,
British poet
Bown

DAVIS, JEFFERSON (1808-89). American statesman. Born in Christian co., Kentucky, June 3, 1808, he entered the army in 1828. In 1845 he entered Congress as Democratic member for Mississippi and the following year took an active part in the Mexican war.



Jefferson Davis,
American statesman

From 1847-51 and 1857-61 Davis was a member of the Senate, acting in the interval as secretary of war. Recognized as the leader of the southern states, he steadily maintained the sovereignty of each state. On the secession of the southern states Davis was elected president of the Confederate Congress, Feb. 9, 1861, and was re-elected Feb., 1862. After the surrender of Lee he was captured at Irvinville, Georgia, imprisoned, and charged with treason. After two years he was admitted to bail and released in 1869. He died Dec. 6, 1889.

DAVIS or DAVYS, JOHN (c. 1555-1605). English navigator. Born in Devon, he went in early life to sea under Adrian Gilbert. In 1585, convinced of the existence of a north-west passage, he set out to find it. He failed, but his name remains in those regions, where a number of lands were discovered and named by him. After this Davis served against the Spanish Armada and made various voyages to America, the discovery of the Falkland Islands in 1592 standing to his credit. His vessel was attacked by Japanese pirates and Davis was killed, Dec. 29 or 30, 1605. Davis invented a quadrant long used by mariners.

DAVIS CUP. Silver trophy for an international lawn tennis championship. It was presented by the American politician, Dwight Davis. Teams of men from the United States, Great Britain, France, Australia, Japan, and other countries compete for it. It was won from 1920 to 1926 inclusive by the U.S.A. and in 1927-28-29 by France.

DAVIS SEA. Part of the Antarctic Ocean touching Queen Mary Land and running N.E. past Shackleton Shelf. It is named after James Davis, a member of the Mawson Expedition, which explored it in 1914.

Davis Strait is the channel connecting Baffin Bay with the North Atlantic Ocean and separating Baffin Island from Greenland. It is nearly 200 m. wide at its narrowest part. It was named after John Davis, the navigator.

DAVISON, WILLIAM (d. 1608). English politician. Of Scottish family, he entered the service of Queen Elizabeth. From 1566-86 he was employed on various diplomatic missions, spending ten years in Scotland at the court of Mary. He was a member of the commission for the trial of Mary Queen of Scots, and delivered the death warrant, signed by Elizabeth, to the privy council. After Mary's execution, Elizabeth declared that he had exceeded his instructions. Davison was arrested, fined, and imprisoned in the Tower for two years. He died at Stepney, where he is buried, Dec. 21, 1608.

DAVITT, MICHAEL (1846-1906). Irish Nationalist. Born in co. Mayo, March 25, 1846, the son of a peasant, he was brought up in Lancashire. He joined the Fenians; and was one of the band that attacked the castle at Chester. In 1870 he was discovered transporting firearms into Ireland and sentenced to 15 years penal servitude, but he was released



Michael Davitt,
Irish nationalist
Elliott & Fry

in 1877. Elected M.P. for Meath, 1882, he was disqualified as a convict. In 1892 he was again elected and again unseated, but in 1895 he was returned unopposed for S. Mayo. He broke with Parnell on the land question in 1885, and assisted to start the United Irish League, 1898. He died in Dublin, May 31, 1906.



Davos, Switzerland. The beautiful Alpine valley in summer. Davos Platz is in the foreground

DAVOS. Alpine valley of Switzerland, in the canton of Grisons. It is 8 m. long by $\frac{1}{2}$ m. broad, and is a favourite winter resort for consumptives. There are two villages, with hotels and sanatoria, Davos Platz, 40 m. by rly. S.E. of Coire, and Davos Dorf.

The villages are the headquarters of skating, tobogganing, and skiing. The Queen Alexandra Sanatorium was opened in 1909.

DAVOUT, LOUIS NICOLAS (1770-1823). French soldier. Born at Annoux, Burgundy, May 10, 1770, he entered the army in 1788. Made a marshal in 1804, he took a conspicuous part in the victories of Austerlitz (1806), Auerstädt (1806), and Eckmühl (1809). He was created duke of Auerstädt by Napoleon, 1808, and prince of Eckmühl, 1811, and appointed governor of Warsaw. After Waterloo, Davout was the last to command the broken French army in Paris. He died in Paris, June 1, 1823.

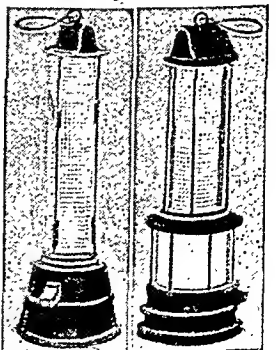


Sir Humphry Davy,
English chemist
After Sir T. Lawrence

DAVY, SIR HUMPHRY (1778-1829). English chemist. Born at Penzance, Dec. 17, 1778, he was apprenticed to a surgeon and early developed a taste for chemical experiments.

In 1798 he was appointed laboratory superintendent of the Pneumatic Institute at Clifton. Here he discovered nitrous oxide or laughing gas. In 1801 he was appointed director of the chemical laboratory at the Royal Institution, London, and in 1802 was made its first professor of chemistry. He remained connected with the institution until 1812, making many useful experiments and inventing the safety lamp. He was knighted in 1812, and in 1820 he was made a baronet. He died at Geneva, May 29, 1829.

The essential feature of the Davy lamp is a hollow cylinder of wire gauze—preferably



Davy Lamp. Left, old style; right, new style with glass around flame

of copper—which surrounds the naked flame from an oil burner or other source. The presence of explosive gas is indicated by the burning of the fire-damp in the interior of the gauze cylinder, the heat from which is conducted away with sufficient rapidity to prevent the flame inside the cylinder from spreading to the gas in the mine.

DAWES, CHARLES GATES (h. 1865). American statesman. Born at Marietta, Ohio, Aug. 27, 1865, son of Rufus Dawes, he practised at the bar in Lincoln, Nebraska, 1887-94. He then devoted himself largely to business, becoming president of the Central Trust Co. of Illinois, Chicago, in 1902. In Sept., 1917, he became chairman of the General Purchasing Board set up for the American Expeditionary Force.



Charles G. Dawes, American statesman

When an inquiry into German reparations was instituted in Dec., 1923, Dawes and Owen Young were chosen U.S.A. representatives, and their plan, familiar as the Dawes scheme, was adopted. In politics a republican, Dawes was elected vice-president of the United States at the presidential election of 1924. In 1929 he came to London as ambassador to Great Britain, and with other U.S.A. delegates, represented his country at the naval conference of 1930.

DAWKINS, SIR WILLIAM BOYD (1837-1929). British geologist. Born in Wales, Dec. 26, 1837, the son of a clergyman, he studied science, and was employed on the geological survey from 1861-70. In 1870 he went to Manchester as curator of the museum and lecturer at Owens College. In 1874 he was made professor of geology there, and he retained the post after the college became a university. He was knighted in 1919, and died Jan. 15, 1929. He wrote *Early Man in Britain*, 1880.



Sir W. B. Dawkins, British geologist

DAWLISH. Watering place and urban dist. of Devonshire. It stands on the S. coast between the mouths of the Exe and the Teign, 3 m. from Teignmouth by the G.W. Rly. and 12 m. from Exeter. Market day, Thurs. Pop. 4,672.

DAWSON, BERTRAND DAWSON, 1ST BARON. British physician. Educated at the London Hospital, he became physician there in 1906. In 1907 he was made physician to the king, and in 1911 he was knighted. After serving through the Great War he was made a peer as Lord Dawson of Penn in 1920, and was called in during King George's illness in 1928-29. A specialist on diabetes and diseases of the stomach, he has written much on these topics. In 1929 he was made a privy councillor.

DAWSON, GEORGE (1821-76). British divine. Born in London, Feb. 24, 1821, he became a Baptist minister at Rickmansworth in 1843. In 1844 he moved to Birmingham, but there his liberal opinions, which made him practically a unitarian, led him to leave the Baptist denomination in 1846, and for the rest of his career he was minister of the Church of the Saviour, which his followers built for him. Dawson died Nov. 30, 1876.

DAWSON CITY. River port of Canada, capital of the Yukon Territory. It stands on the right bank of the Yukon, 1,500 m. from its mouth, where the Klondike flows into it. It was founded in 1896 on the discovery of gold in the Klondike region. The population, at one time over 20,000, fell in 1911 to 3,013, and in 1921 to 975.

DAY, JOHN (1522-84). English printer. Born at Dunwich, Suffolk, he printed the first church music book in English, 1560; the first English edition of the Acts and Monuments, 1563, of Foxe, who seems to have worked in his office as an editor; and introduced Anglo-Saxon type in an edition of Aelfric's Paschal Homily, 1567. One of his devices depicted a sleeper being awakened, with the motto, *Arise, for it is Day*. He died July 23, 1584.



John Day, English printer
From an engraving

DAY, JOHN (c. 1574-1640). English dramatist. Born at Cawston, Norfolk, he collaborated with Chettle, Dekker, and others between 1598 and 1603 in 21 plays. His most famous work is a masque or dramatic allegory, *The Parliament of Bees*.

DAYBROOK. Village of Nottinghamshire. It is 3 m. from Nottingham, and has a station on the L.N.E. Rly. It has a beautiful modern church, built by Sir Charles Sedley, and a number of industries, including brewing and lace-making. Pop. 4,648.

DAYLIGHT SAVING. System of advancing the clock for a definite space of time (usually one hour) on a specified day in spring, and setting back the hands for an equal space of time on a specified day in autumn. The originator of this reform was William Willett, a London builder, who died before it was introduced. The first daylight saving bill was introduced in 1908, but it was some time before the law was changed. The Summer-time Act, as it is called, first came into operation at 2 a.m. on May 21, 1916, and was renewed in succeeding years. It was made permanent by an act of 1925, summer time starting on the third Saturday in April, and ending on the first Saturday in October.

DAYTON. City of Ohio, U.S.A. It stands at the junction of three rivers with the Great Miami, 59 m. N.N.E. of Cincinnati. It is an important rly. centre, served also by the Miami and Erie Canal, has several fine buildings, and is the site of the National Cash Register works. S. Mary's College became the University of Dayton in 1920. The Wilbur Wright Field is the seat of the engineering division of the U.S. air service. Pop. 178,642.

Daytona. Town of Florida, U.S.A. Here is the noted motor-racing beach. See Don, Kaye.

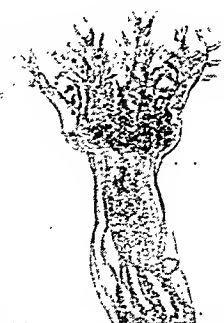
DEACON. Church official. In the Church of England a deacon is an ordained minister who is not yet a priest. He must be at least 23 years old, and is usually ordained priest a year later. He can perform most of the duties of a priest, the chief exceptions being the pronouncement of absolution and the consecration of the sacred elements. In the Roman Catholic Church deacons form the third order of the ministry.

Among Baptists and Congregationalists deacons are laymen elected to manage the affairs of the church.

Deaconesses, like deacons, existed in the early church. They were revived in the 19th century in the Church of England and certain of the free churches, chiefly for charitable work among the poor.

DEADLY NIGHTSHADE (*Atropa belladonna*). Plant, also known as the belladonna, indigenous, but not very common, in Britain. It grows in shady spots to a height of 2 ft. to 3 ft., and bears reddish-purple bell-shaped flowers. The fruit is a black berry resembling a small cherry. An alkaloid known as atropine or belladonna is prepared from its leaves and root. All parts of the plant are highly poisonous. See Belladonna.

DEAD MEN'S FINGERS. Popular name given to a genus (*Aleyonium*) of the Actinozoa, to which belong the sea anemones and some corals. It is common on the rocks around the British coasts, and consists of masses of light-coloured fleshy substance, studded with small tentacled polyps. The name is derived from the appearance when taken out of the water.



Dead Men's Fingers, a common British zoophyte

DEAD - NETTLE (*Lamium*). Genus of annual and perennial herbs of the order Labiatae. Natives of Europe, Asia, and N. Africa, they have square stems, opposite, heart-shaped hairy leaves, and two-lipped tubular flowers arranged in whorls around the stem and branches. Red dead-nettle (*L. purpureum*) is a common weed in all cultivated ground. White dead-nettle (*L. album*) grows more in hedge-rows and waste places.



Red Dead-nettle, *L. purpureum*

DEAD SEA, THE, OR SEA OF SODOM (anc. *Lacus Asphaltites*). Lake of Palestine, called by the Arabs Birkit-Lut, or the Lake of Lot. It is also termed the Salt Sea, the Sea of the Plain, and the East Sea in the Bible. It is 46 m. long, and lies 1,300 ft. below the level of the Mediterranean and 50 m. W. of it. Its N. end is about 25 m. E. of Jerusalem, and its greatest depth is 1,300 ft. Fish are unable to exist in it. The sea has an almost inexhaustible supply of potash, bromide and other salts, and in 1928 steps were taken to develop its resources.

DEAF AND DUMB. Term applied to people who, deprived of hearing from birth or infancy, do not hear, and never acquire normal speech. They become deaf mutes. Usually the defect is only that of hearing, the physical conditions of the organs of speech being normal; these, however, become atrophied from want of use. Owing to modern methods of training many children who would otherwise be dumb are now taught to speak.

The readiness with which the language of gesture or signs is developed has led to the belief that this was the right and only way to educate the deaf, and a certain amount of codification of these signs has been done. But it is now generally conceded that if a deaf child can be taught to speak, every effort should be made to accomplish this. In the ordinary oral method of instruction the child is taught the motions of the mouth, to articulate the phonetic sounds of the language, and to combine these sounds into words and sentences. At the same time the child learns to recognize what is said on the lips of the speaker.

By the Act of 1893 it is the duty of every school authority to provide education for the deaf children in its area, and if necessary to establish and maintain a school. After-care associations in connexion with most of the schools see to the placing of the pupils in employment, and other organizations, such as the Royal Association in Aid of the Deaf and Dumb, minister to the religious and social needs of this class. See illus. p. 492.

DEAFNESS. Any affection of the hearing apparatus from the pinna to the hearing centre in the brain is likely to produce deafness.

It is important to ascertain whether the deafness is due to faulty conduction of sound to the nerve endings, or whether the nerve is affected.

Deafness may result from wax, a foreign body, or from inflammation in the external auditory meatus; the deafness here coming on suddenly as a rule. Disease or injury of the drum of the ear, partly or completely destroying it, causes deafness. When not the result of injury it is due to suppurative disease of the middle ear. Otosclerosis, a distressing form of deafness, is markedly hereditary. It is due to the stirrup bone being fixed immovably in the oval window; the vibrations of sound are therefore unable to act upon the perilymph in the inner ear.

Nerve deafness and inner ear deafness may be slight, but if severe they cause more deafness than any of the above. They may be congenital.

Syphilis or meningitis of any kind occurring in infancy and affecting the nerve of hearing produce similar defects. Acquired syphilis may produce severe nerve deafness. Occupation deafness accounts for many cases of nerve deafness. Toxic deafness is caused by quinine, salicylates, and very occasionally tobacco and alcohol. See Ear.

DEAKIN, ALFRED (1856-1919). Australian statesman. Born at Melbourne, Aug. 3, 1856, he became a barrister. In 1880 he was elected to the legislature as a Liberal, and in 1901 became first attorney-general of the Commonwealth. In 1903 he succeeded Barton as prime minister, but he was defeated in April, 1904, and resigned. In 1905 he made an alliance with the Labour party, which helped to form a government, himself premier. This lasted until 1908, and in 1909 Deakin again became premier, but he resigned in Jan., 1910. Deakin died Oct. 6, 1919.

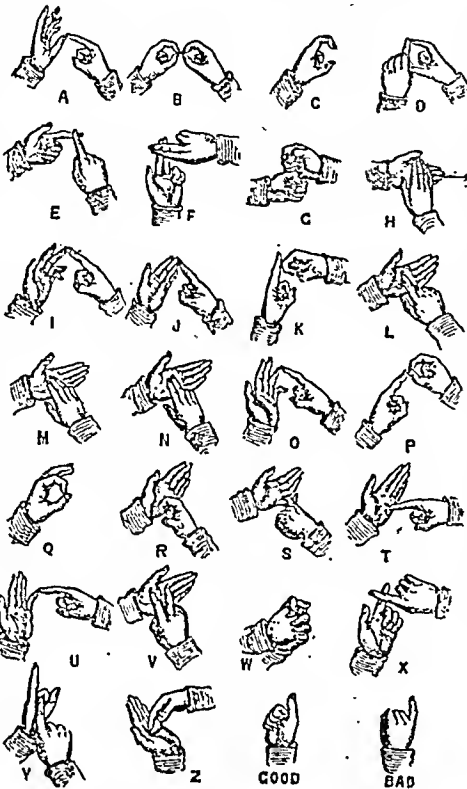


Alfred Deakin,
Australian statesman
Russell

DEAL (Dan. deel, plank). Trade name for boards made of pine or fir. The Scotch fir (*Pinus sylvestris*), a yellow wood, and *Abies excelsa*, a white fir, are imported from Russia, Norway, and Sweden. See Timber.

DEAL. Seaport, borough, and watering place of Kent. It is 7 m. N.N.E. of Dover, and is served by the Southern Rly. The town is divided into three parts, Old or Upper Deal, which is inland, being the oldest. Buildings are the castle, built in the time of Henry VIII, S. Leonard's Church, and a hospital. The sea is receding hereabouts, and at one time Old Deal was on the coast. Deal became an important port in the reign of Henry VIII,

when ships began to call here. It was at first an outpost of Sandwich, but in 1699 it was made a corporate town. Pop. 12,900.

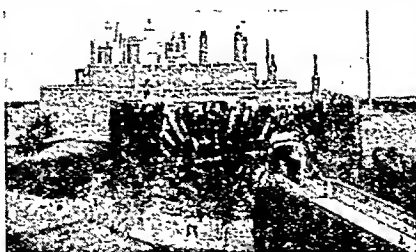


Deaf and Dumb. Manual alphabet employing both hands with which the speed of 130 words a minute can be attained. See art. p. 491

Wye, the former river separating it from the rest of Gloucestershire. It is about 20 m. from N. to S., and its extreme breadth is about 10 m. Much of it, about 25,000 acres, is crown property, and from the earliest times it has been a royal forest, timber being grown here in former days for the navy. The forest, which is looked after by gavellers and verderers, retains some of its old laws and customs. In the middle of the forest is the Speech House, where the verderers held their courts. There are now extensive mines, especially around Cinderford. Coleford and Cinderford are the chief centres.

DEATH. End of life in the physical sense. The causes of death may be classified as (1) natural; (2) violent, including accident and misadventure, suicide, and homicide.

Natural causes of death vary as regards their relative extent in different parts of the globe. In hot countries, and in countries where civilization is backward and sanitation primitive, high mortality may result from infectious diseases and diseases conveyed by



Deal Castle, Kent. It was built by Henry VIII in 1539, as part of a system of coast defence

parasites. On the other hand, civilization, and particularly the growth of large towns, brings in its train other diseases, the most

important of which is tuberculosis. Deaths from accident, suicide, and homicide are considered under their respective headings.

SIGNS OF DEATH. Cessation of respiration and circulation are signs of death if they can be established with certainty. Progressive cooling is a sure sign of death. Post-mortem hypostases are livid stains which make their appearance upon the dependent parts of the body, usually about five or six hours after death. Rigor mortis is a stiffening of the muscles, which begins in the face about five or six hours after death, and extends over the whole body in about eighteen hours. It is a sure sign of death.

CERTIFICATION AND REGISTRATION. Information of death is given to the doctor, who, if satisfied that the cause of death is natural, must give a certificate under his own hand and without charge. The certificate of death is sent to the local registrar of births, deaths, and marriages, who registers the death and issues a burial certificate. In a death upon which an inquest has been held, the burial certificate is issued by the coroner.

DEATH CUSTOMS. Usages and rites attending human dissolution. In primitive society death is deemed to be unnatural, and where animism prevails it is generally attributed to witchcraft. The human cause is sought out by means of ouens, as in Australia, or the poison ordeal in negro Africa, and then the death penalty is exacted.

DEATH RATE. Number of deaths per thousand of the estimated population, the population at the middle of the year usually being taken. Death rates are also calculated for a week and for a quarter of the year. The annual death rate so obtained is termed the crude death rate, and, in combination with the crude birth rate and the returns for emigration and immigration, helps to determine the increase or decrease of population. In Great Britain and Northern Ireland the death rate, 1922-29, was as follows:

1922	..	..	..	13.1
1923	..	..	..	11.8
1924	..	..	..	12.6
1925	..	..	..	12.4
1926	..	..	..	11.9
1927	..	..	..	12.5
1928	..	..	..	11.7
1929	..	..	..	13.4

DEATH DUTIES. Name given to all the duties payable on property left at death. In the United Kingdom these include the estate duty, introduced in 1894, and the legacy and succession duties. The estimated revenue for 1930-31 was £23,000,000. See Estate Duty.

DEATH'S HEAD. Badge representing a skull surmounted by two crossed bones. It was used during mediæval times as a sign by pirates. It was adopted, with the motto "or glory," as a regimental badge by the 17th (Duke of Cambridge's Own) Lancers.

DEATH'S HEAD MOTH (*Acherontia atropos*). Popular name for the largest British hawk moth. Its wings are from

4 ins. to 5 ins. in expanse, and are mottled with brown, yellow, and black. The thorax bears markings somewhat resembling a human skull.



Death's Head Moth, a large British hawk moth

This moth squeaks when caught, and the caterpillar makes a chirping sound when disturbed. The latter sometimes grows to a length of 5 ins., and is yellowish green with purplish lines. See Hawk Moth.

DEATH WATCH. Popular name for small beetles of the genus *Anobium*. About 1 in. long, they are found in old woodwork,

where they make a ticking sound by striking their head against the wood. The larvæ are very destructive, and are the cause of worm-eaten furniture. Formerly superstition associated the rapping sound with approaching death.



Death Watch, *Anobium tessellatum*

DEAUVILLE. Town and watering place of France, in the dept. of Calvados. It stands on the English Channel, 10 m. S. of Havre. The railway station is near the left bank of the river Touques, which is crossed by a bridge and a ferry. Deauville, a modern place entirely, is famous for its race meeting, held in August. Pop. 3,000.

DEBENTURE (Lat. *debere*, to owe). Form of mortgage by which joint stock companies raise money, the lenders of such money ranking as holders of the mortgage. In case the company is unable to meet its liabilities, the debenture holders have a prior claim for both principal and interest.

Debentures form a charge, usually the first, upon the property of the company, and it is usual for a trust deed to be drawn up vesting certain property in trustees, who hold it for the debenture holders. Debentures bear a fixed rate of interest and may be either redeemable in a fixed number of years or irredeemable. They may also be divided into mortgage or ordinary debentures, into debentures payable to bearer, and debentures payable to a registered holder, and into first and second debentures, the first being the better security. Debentures must be registered. See Company Law.

DEBORAH. Name of two women in the O.T. (1) The nurse of Rebekah (Gen. 24); (2) a prophetess who lived between Ramah and Bethel (Judges 5). The last named stirred up Barak to march against the forces of Sisera, and her song about Israel's victory is one of the oldest Hebrew compositions.

DEBRETT, JOHN (c. 1752-1822). London publisher. He succeeded in 1781 to the business in Piccadilly of John Almon, bookseller and journalist. Improving on Almon's New Peerage, 1754, he inaugurated the Peerage, 1802, and Baronetage, 1808, still called by his name. He died Nov. 15, 1822.

DEBT (Lat. *debitum*, something owed). In English law, a fixed, ascertained, or "liquidated" sum of money due under a contract to pay it. A sum payable under a judgement is called a judgement debt, and a sum payable under a covenant is called a specialty debt. A debt may be due to the crown by record, e.g. where a person has forfeited his bail. The Debtors Act of 1869 abolished imprisonment for debt except in cases of default by solicitors and trustees, and also in cases where the court, satisfied that the debtor has the means to pay, makes an order to this effect which is disregarded. See Bail; Bankruptcy.

DEBUSSY, CLAUDE ACHILLE (1862-1918). French composer. Born at St. Germain-en-Laye, Aug. 22, 1862, his compositions include a large amount of music of a modern type for orchestra and piano. His *Pelléas et Mélisande*, 1902, is one of the most important of modern French operas, and his *L'Après-Midi d'un Faune*, 1892, marked an era in French music. He died March 26, 1918.

DECALOGUE. Term derived from Greek meaning "ten words," and used of the Ten Commandments (lit. Words) of the Pentateuch (Exod. 20). God is said to have written the ten words on two stones on Mt. Sinai and to have given them to Moses (Exod. 24 12, 31 18, 32 15, 16; cf. Deut. 5 22, 9 10, 11).

When Moses broke them, he re-wrote them (Exod. 34 4, 28; Deut. 10 2, 4). The stones were then deposited in the ark (Deut. 10 1-5). There is another recension of the commandments in Deut. 5, both being probably based on an older form.

DECAMERON, THE (Gr. *deka*, ten; *hēmera*, day). Collection of stories by Boccaccio, probably written before 1353. The scheme of the work is a succession of stories told by ten persons on ten successive days at a place to which they had retired during the plague which ravaged Florence in 1348. Few of the stories are original. Some have provided subjects for later writers from Chaucer to Tennyson. See Boccaccio.

DECAPODA (Gr. ten-footed). Sub-order of the Crustacea (q.v.). It includes the larger forms such as crabs, lobsters, and prawns. These always have five pairs of limbs.

DECAPOLIS (Gr. *deka*, ten; *polis*, city). Federation of ten towns, constituted c. 63 B.C., of which Damascus was one of the chief, situated to the N. of Palestine and mainly E. of the Jordan, with a chiefly non-Jewish population. See Damascus.

DECCAN (Skt. southern). Region of S. India. The name is applied to the Indian peninsula S. of the Vindhya mountains. It includes part of Bombay and the Central Provinces, with Madras, Hyderabad, Mysore, and Travancore. It comprises one of the three great geographical divisions of India. Geologists believe that the Deccan is a relic of an ancient continent, Gondwanaland, of which S. Africa also formed a part. The opening of the Lloyd Dam in 1928, and of the Wilson Dam a little earlier, are parts of a great scheme for the irrigation of this district.

DECEASED WIFE'S SISTER. Term chiefly used in connexion with the marriage laws. Ecclesiastical law regards the marriage of a man with the sister of his dead wife as illegal, as such a union comes within the prohibited degrees. This was for long also the law in England and other countries.

In the 19th century Canada, Australia, and other parts of the Empire legalised these unions, and in 1850 a bill to make this change in England passed the House of Commons, but the House of Lords rejected it. After repeated efforts, the law was altered in 1907, and these marriages are now legal.

DECIMAL (Lat. *decimus*, tenth). Fractions with a denominator in some power of ten—that is, 10, 100, 1,000, etc. It is expressed in the Arabic notation by figures which are written to the right of units expressing the integral number after a point which is called a decimal point. Each unit to the right of this decimal point denotes respectively so many tenths, hundredths, thousandths, etc. Thus 0.123 indicates one-tenth, plus two hundredths, plus three thousandths, or 123 thousandths, and would be expressed in a vulgar fraction as $\frac{123}{1000}$.

A method of counting by tens is termed a decimal system. The place value of a figure indicates its relation on the scale of 10, e.g. the 4 in the quantities 487, 41 and 0.047 represents 4 hundreds, 4 tens and 4 hundredths respectively. The metric system of weights and measures is a decimal system.

DECLARATION. In English law, a statutory declaration in writing is solemnly made before a commissioner for oaths, justice of the peace, or other authorised person. In some cases it is a substitute for an oath.

In Scots law a declaration is a decision given by a court of law, the cases having been duly heard, confirming a certain fact. It is also used for the statement which a prisoner may make before a magistrate within 48 hours of his arrest. The term is also used for international agreements, e.g. the Declaration of London.

DECLINATOR. Instrument used for determining the declination or angle of the slope of planes. A declinometer is an instrument used for measuring the declination of the magnetic needle, which varies diurnally, seasonally, as well as locally. Similar astronomical instruments are used for measuring the declination of the heavenly bodies.

DECOMPOSITION. Process of breaking down and disintegration of animal tissues, effected mainly by the agency of bacteria. Signs of decomposition or putrefaction make their appearance from one to three days after death, the period varying with the temperature and other conditions of the environment. Chloride of lime placed round a body tends to preserve it, both by excluding the air and by destroying micro-organisms.

CHEMICAL DECOMPOSITION. This term denotes the breaking of a substance into two or more elements or simpler forms of matter than that from which they are formed. The laws governing chemical change and chemical decomposition are the same. Heat and electricity are the principal means by which chemical decomposition is brought about.

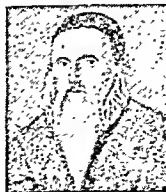
DECORATED PERIOD. Name given to the style of English Gothic architecture which prevailed for the first seven or eight decades of the 14th century. It followed the Early English style and preceded the Perpendicular. It is so named from the profusion of rich ornament that characterises Gothic buildings of this era. Ball-flower (see illus. p. 184) and other naturalistic ornamentation is applied freely to arcades, tombs, screens, etc.; windows, now much larger than heretofore, are decorated with intricate tracery: flying buttresses are of heavier construction, and piers are often an agglomeration of clustered shafts. See Architecture.

DECREE (Lat. *decretum*, decision). Legal term of Roman origin. It was used for a judgement of the Emperor, and was borrowed by the Church and used for the decisions of its councils. In England to-day it is used for the decisions of the divorce court.

DEE. River of England and Wales. It rises in Bala Lake and flowing mainly N. reaches Chester, near where its wide estuary begins. This, however, is not of much use commercially, as its course is blocked almost entirely by sand. The estuary, which is 13 m. long, is over 5 m. wide at the mouth.

DEE. River of Scotland, partly in Kincardineshire, but mainly in Aberdeenshire. Rising at a height of 4,060 ft. in the Cairngorm Mts., it pursues a N.E. course of 87 m. to the North Sea, which it enters at Aberdeen. Aberdeenshire is divided popularly into Deeside and Donside. The former is a noted tourist centre. Another Dee is a river 45 m. long, of Kirkcudbrightshire.

DEE, JOHN (1527-1608). English astrologer and mathematician. Born July 13, 1527, he became an educated and travelled man. He



John Dee, English astrologer
From an old engraving

experimented in spiritualism, crystal gazing, alchemy, and astrology, and was generally denounced for holding intercourse with the devil. Queen Elizabeth believed in him, and frequently consulted him. His best mathematical work was on the reform of the calendar, but he left many miscellaneous writings, including accounts of the transmutation of gold. Dee died in poverty at Mortlake in Dec., 1608.

DEED. In English law, a writing under seal. It is generally signed, but signature is not necessary. Before a deed can take effect it must be delivered, that is, put out of the

custody of the maker thereof. A deed made between two or more parties is called an indenture, because such deeds used to be drawn up on one skin of parchment, which was then cut across in an indented or wavy manner, so that one part had to fit into the other. A deed made by one party is called a deed poll, because such deeds used to be written on parchment with a polled or straight-cut edge. Deeds should be attested by at least one witness.

A deed of arrangement is the term given to a settlement by which an insolvent person discharges his liabilities without becoming a bankrupt. He does this by executing a deed by which all his property is conveyed to a trustee, who realizes it and divides the proceeds among the creditors in exact proportion to the amount of the debts. See Bankruptcy

DEEMSTER. Name of two judges in the Isle of Man, one for the northern and one for the southern division. The word means a person who pronounces doom or judgement.



Warwick Deeping,
British novelist
Russell

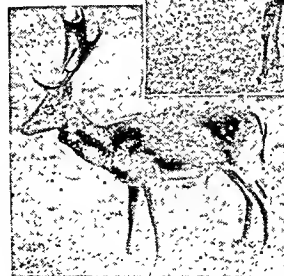
DEEPING, GEORGE WARWICK (b. 1877). British novelist. Born at Southend, Essex, he turned from medicine to devote himself to fiction, and produced in quick succession a series of romantic novels, including *Uther* and *Igraine*, 1903; *Bess of the Woods*, 1906; *Bertrand of Brittany*, 1908; *Joan of the Tower*, 1911; *Martin Valliant*, 1917; *Valour*, 1918; *Second Youth*, 1919; *The Prophetic Marriage*, 1920; *Sorrell and Son*, 1925; *Doomsday*, 1927; *Old Pybus*, 1928; *Roper's Row*, 1929; and *The Exiles*, 1930.

DEER. Name given to all the members of the family Cervidae of the even-toed hoofed mammals. They are distinguished by the possession, in nearly all the species, of solid antlers, shed and renewed annually, generally branched and with rugged surfaces. These are borne only by the male, except in the reindeer, both sexes of which have antlers. The completion of the growth of the new antlers marks the beginning of the pairing season. Deer are found in forest and grassy districts in most parts of the world. About



60 species are recognized.

Great Britain possesses three species of deer living in a wild state, the red deer, the fallow deer, and the roe deer. The



Deer. Stag of the fallow deer.
Above, stag of the red deer

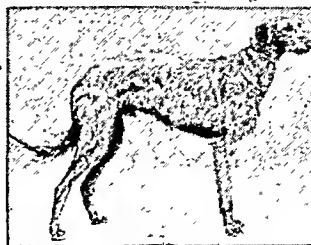
deer found in Scotland and the W. of England is the red deer. A full-grown Scotch stag stands 4 ft. high at the withers and weighs about 18 stone. All deer are game animals, their flesh being a valuable article of food, and the antlers are used in the manufacture of knife handles and other articles. See Antler; Axis Deer; etc.

DEER STALKING. This sport is confined in Great Britain to the Highlands of Scotland.

On discerning deer in the distance the stalker endeavours to approach within shooting range without alarming the quarry. Dogs may be used to bring a slightly wounded stag to bay. In 1928 it was stated that the area of deer forests in Scotland was 3,430,000 acres.

DEER. Name of two villages of Aberdeenshire, known as Old and New. Old Deer is about 11 m. W. of Peterhead. Here are the remains of S. Mary's Abbey, and other antiquities. Pop. Old Deer, 3,741; New Deer, 4,080.

DEERHOUND. Breed of hound of mixed origin, used in stag-hunting. It is supposed to be descended from either the Irish wolfhound or the Scottish greyhound, with perhaps an admixture of other strains. Resembling a large, rough, stoutly-built greyhound, it stands 29 ins. at the shoulder and has a very keen scent.



Deerhound. Champion dog of this breed

DEFENCE. British warship. The most famous Defence in the British navy was a 74-gun ship launched at Pembroke in 1763. She fought in the battle of the glorious First of June, and under Nelson at the Nile, Copenhagen, and Trafalgar, and was wrecked off the Danish coast in 1811. The eighth Defence, an armoured cruiser of the Minotaur class, was launched at Pembroke in 1907, and completed in 1909. In the battle of Jutland (q.v.) she was sunk with all hands by enemy gunfire.

DEFENCE OF THE REALM. During the Great War a considerable amount of legislation was urgently required to deal with the new conditions created by the war and for the general protection of the country. Accordingly, a series of temporary Acts called the Defence of the Realm Acts were passed authorising the ministers of the Crown and the various state departments to make regulations having the force of law. These regulations dealt with questions of importance to the community at that time, such as the control of food, restrictions on the sale of intoxicating liquor, the protection of munitions of war, the prevention of spying, and all matters necessary to the successful conduct of the war.

The Defence of the Realm Acts expired automatically on August 31, 1921, the legal termination of the war, but by an Act of 1920 the Crown was given powers very similar to those which it enjoyed under those Acts of making laws by means of regulations in time of national emergency.

This power of legislating by regulations proved of great value during the general strike of 1926. A royal proclamation was made on April 30, 1926, some days before the commencement of the general strike, declaring that a state of emergency existed. Under the Act, this proclamation expired one month after it was made, but fresh proclamations of emergency were made at monthly intervals until November 20, 1926, and the state of emergency which was declared on April 30, 1926, was continued until December 19, 1926.

DEFENDER OF THE FAITH (Lat. Fidei Defensor). Title conferred on the English King Henry VIII by Pope Leo X in 1521. It was a recognition of the king's reply to Luther, Henry having in a treatise defended the seven sacraments. In 1544 it was confirmed by Parliament, and is borne by all British sovereigns as part of their official designation.

DEFOE, DANIEL (c. 1659-1731). English author. He was born in Fore Street, London, the son of a butcher named James Foe. He adopted the name of Defoe or De Foe in 1702. Although educated for the Nonconformist ministry, he adopted a business life, but with

scant success. Defoe took part in the duke of Monmouth's rebellion, was a volunteer in the army of William III, and helped to promote the union with Scotland. He visited Spain and other parts of the Continent, travelled several times through Britain, was twice in Newgate and thrice in the pillory on account of his writings, championed the cause of Dissent, and turned all his varied experiences into copy for the printers. He died in London, April 26, 1731, and was buried in Bunhill Fields.

From 1697 he attracted notice by a number of vigorous pamphlets, and in 1719 achieved success with *Robinson Crusoe*, founded on the actual experiences of Alexander Selkirk (q.v.), told by himself to Defoe. His realistic romances, mainly of low life, include *Captain Singleton*, 1720; *Moll Flanders*, 1721; *Colonel*

Jacque, 1722, the best; and *Roxana*, 1724. Next to *Robinson Crusoe*, Defoe's most remarkable book was his *Journal of the Plague Year*, 1722, a work which research proves to be founded on ascertained fact and containing no statement for which the author had not authority. His *Tour Through Great Britain*, 1724-26, and *A New Voyage Round the World*, 1725, display his genuine zest for topography.



Daniel Defoe,
English author
After Tavernier

DEGAS, HILAIRE GERMAINE EDGAR (1834-1917). French painter. Born in Paris, July 19, 1834, Degas was a realist and one of the greatest draughtsmen of his time. He is most widely known as the painter of the Paris danseuse. One of his notable works is *Les Blanchisseuses*, while some—for instance, *L'Absinthe*—are repellent in their ugliness. Degas died in Paris, Sept. 27, 1917.

DEGENERATION. In biology, the theory that in certain circumstances of environment there is a tendency in plants and animals to deteriorate as a class to a lower type. In pathology, the term denotes a retrogressive change in the tissues, characterised by the direct transformation of the protoplasm of cells into some definite recognizable compound either useless or harmful to cell life.

DEGREE. Geometrical unit of measurement of angles or of circular arcs. A right angle contains 90 degrees, and is the angle subtended at the centre of a circle by a quarter of the circumference. Thus the circumference of a circle subtends four right angles, or 360 degrees at its centre. Degrees of latitude and longitude, measured by the meridians, on the assumption that the earth is a sphere, are used to indicate points on the earth's surface.

DEGREE. Mark of proficiency granted by universities and other bodies. There are a large number of degrees, from the older ones in arts, law, divinity, and medicine, to newer ones in engineering, commerce, literature, etc.

Ordinary degrees, of which B.A. is the most common, are given in the first instance after examination. In some universities the M.A. degree is also given after examination, but at Oxford and Cambridge it is given after the bachelor candidate has maintained his connexion with the university for a stated time and has paid certain fees. The Scottish universities do not give the B.A., but award the M.A. after examinations corresponding somewhat to those for the B.A. in England.

Another class of degree, the London D.Sc., for instance, is given for research work. Honorary degrees are given to distinguished persons.

DEISM (Lat. Deus, God). Name for a system of belief which recognizes the existence of a God, but denies that He has revealed Himself to the world. It is opposed to atheism, which declares God non-existent, and to theism, which recognizes a God who reveals Himself in active relation with His creatures.

Lord Herbert of Cherbury (1583-1648) is often called the Father of Deism. His five points were (1) a supreme Being exists; (2) He is the object of worship; (3) the chief elements of that worship are virtue and piety; (4) sin calls for repentance and amendment; and (5) a system of rewards and punishments exists both in this world and the next.

DEKKER, THOMAS (c. 1570-1641). English dramatist and poet. Of his plays, remarkable for their deft delineation of female character, the most notable are *The Shoemaker's Holiday*, 1600; *Satiromastix* (a reply to Jonson's *Poetaster*), 1602; *Patient Grissil* (with Houghton and Chettle), 1603; *The Virgin Martyr* (with Massinger), 1622; and *The Witch of Edmonton* (with Ford and Rowley), 1658. His prose works include *The Wonderful Year* (depicting London under the Plague), 1603; and *The Gull's Hornbook* (a satirical guide to the city gallant), 1609.

DELACROIX, FERDINAND VICTOR EUGÈNE (1798-1863). French painter. Born April 26, 1798, he became leader of the Romanticists in their revolt against the pseudo-classic school. The Massacre of the Bishop of Liège, 1831, is esteemed his finest work. He was elected to the Academy in 1857, and died in Paris, Aug. 13, 1863.

DELAGOA BAY. Inlet of the Indian Ocean in Portuguese East Africa, one of the finest natural harbours in the world. The outer bay is separated from the inner harbour by a bar about half a mile broad. Beyond this inner anchorage lies Lourenço Marques.

The position of Delagoa Bay is of strategic and commercial importance. It forms the natural outlet for a large portion of the Transvaal. It was awarded to Portugal in 1875. The first European settlement on the bay had been made by the Portuguese, but was abandoned early in the 18th century.

DELANE, JOHN THADEUS (1817-79). British journalist. Second son of William F. A. Delane, barrister, of Irish descent, he was born in London, Oct. 11, 1817.

He joined the staff of *The Times* in July, 1840, one of his duties being the summarising of speeches in Parliament. He was called to the bar in 1840, and on the death of Thomas Barnes in 1841 succeeded him in the editorship, which he held until Nov. 8, 1877. He died Nov. 22, 1879.

Under Delane *The Times* became easily the chief organ of the British press. Delane himself wrote little, but he inspired his staff in a remarkable manner. Consult *Life*, E. T. Cook, 1915.

DELAREY, JACOBUS HERKLAAS (1848-1915). Boer soldier. Descended from a Huguenot settler, as a young man he served against the Kaffirs. Under Cronje in the Boer War he had a large share in checking the British advance at Belmont, the Modder, and Magersfontein, and took part in the peace negotiations at Vereeniging. When the Trans-

vaal obtained a legislative assembly in 1907 Delarey was chosen a member, but he refused a post in the Government. When the S. African rebellion broke out in 1915 his name was associated with the rising, but he had taken no definite step when he was accidentally shot, Sept. 15, 1915.

DELAROCHE, HIPPOLYTE, called PAUL (1797-1856). French painter. Born in Paris, July 17, 1797, he developed historical painting in the classic-romantic style, becoming immensely popular. His biggest achievement is the "Hemicycle" decoration of the amphitheatre of the Ecole des Beaux Arts, 1841. Many of his numerous historical and anecdotal paintings are well known through engravings. He died in Paris, Nov. 4, 1856.

DELAWARE. State of the U.S.A., one of the thirteen original states. Its area is 2,370 sq. m. The surface is mainly flat, hills occurring only in the N.; along the bay coast the land is frequently marshy, and swamps are found in the S. The Delaware, entering the Atlantic through Delaware Bay, is the chief river. A canal connects Delaware and Chesapeake Bays. Dover is the capital. Dutch and Swedes first settled here in the first half of the 17th century. Pop. 244,000.

The Delaware Indians are a N. American Indian tribe related to the Algonquins. They are now mostly living in reservations in Oklahoma, and have largely lost their distinctive characteristics.

DE LA WARR OR DELAWARE. English barony. Roger de la Warr, a Sussex landholder, was summoned to Parliament as a baron in 1299. Thomas West, the 12th baron (1577-1618) was the first governor of Virginia and practically the founder of that colony. The state and river of Delaware are named after him. In 1761, John, the 16th baron (1693-1766) was made earl de la Warr, and the title is still held by his descendants. The 5th earl, having married the heiress of the 4th duke of Dorset, took the additional name of Sackville. In 1915 Herbrand Edward (b. 1900) became the 9th earl.



12th Baron Delaware
From an old print

DELCASSÉ, THÉOPHILE (1852-1923). French statesman. Born at Pamiers, Mar. 1, 1852, he was elected deputy for Foix in 1889. He became under-secretary for the colonies in 1893, and colonial minister 1894-95. In 1898 Delcassé was appointed foreign minister, a position which he held through many crises, including the Fashoda incident and the South African War, the controversy over the Dreyfus case, the campaign against Loubet, and the prolonged struggle of church and state. Transferred to the admiralty, he did much from 1905 to 1913 to make the French navy an efficient fighting force. He helped to bring about the Anglo-French entente, as well as the alliance with Russia, and was ambassador to St. Petersburg, 1913-14. On the outbreak of the Great War he returned to the foreign office, where he remained until Oct., 1915. He died Feb. 21, 1923.



Théophile Delcassé,
French statesman

DELESSITE. Dark green earthy mineral. A variety of the silicate of alumina called chlorite, with more iron, it lines cavities and seams in igneous rocks. The cavities are sometimes filled in with chalcedony; when delessite forms dendritic markings thereon, moss-agate results. See Chlorite.

DELFT. Town of Holland. It stands on the Schie, 5 m. from The Hague, in the prov. of S. Holland. The old church, dating, in its present form, from the 15th century, is famous for its monuments. The new church, a Gothic 15th century building dedicated to S. Ursula, was the burial place of the House of Orange, and has a magnificent monument to William the Silent. Modern buildings include a Roman

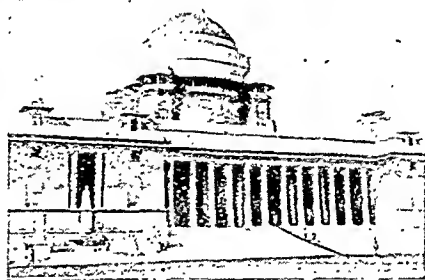
Catholic church, the polytechnic, and the hospital. The house in which William the Silent was murdered is now the William of Orange Museum. Steam tramways connect with The Hague, and steamers go to Rotterdam. Agneta Park, an attractive industrial quarter, is a notable feature of Delft. The town dates from the 12th century. Pop. 49,407.

DELFT WARE. This choice variety of faience was first made at Delft about 1600, in imitation of the Japanese china im-

ported by the Dutch merchants. Early Delft was decorated in blue, with scenery and crowded figure paintings set off by elaborate borders. Polychrome and gilding came later. Dinner services, large dishes, pots and plaques were among the articles made.

DELHI. Capital of India since 1911. It stands on the right bank of the Jumna, and is an important railway centre, 956 m. from Calcutta.

The main thoroughfare of the old city is the Chandni Chauk, or Silver Street, which runs



Delhi. Main entrance, surmounted by a copper dome, of the Viceroy's House in New Delhi, opened in 1929

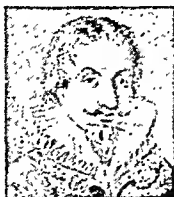
"The Times" copyright

E. and W. from the Fort and Palace to the Fatehpuri Mosque, near the Lahore Gate. The Mogul Palace, now known as the Fort, was built by Shah Jehan. The entrance to the Fort by the Lahore Gate is under a vaulted arcade, which has been described as "the noblest entrance known to belong to any palace." To the N.E. of the Fort lies the outwork of Salimgarh, built by Salim Shah in 1546. S.W. of the Fort is the Jama Mosque. Other notable buildings are the Kali Mosque, the Sunahri Mosque of Roshan-ud-Daulah, and the Jain Temple, N.W. of the Jama Mosque. Among modern buildings are the town hall, the former Residency, S. James's Church, and the Northbrook clock tower. The university was founded in 1922.

As an industrial centre Delhi is of considerable prominence. Its native craftsmen are famous for their jewelry, ivory carving, silver, brass and copper work, pottery, cotton spinning, and weaving and embroidery.



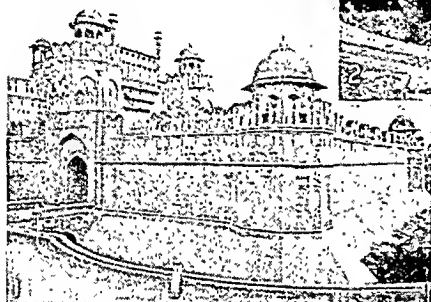
John T. Delane,
British journalist
London Stereoscopic



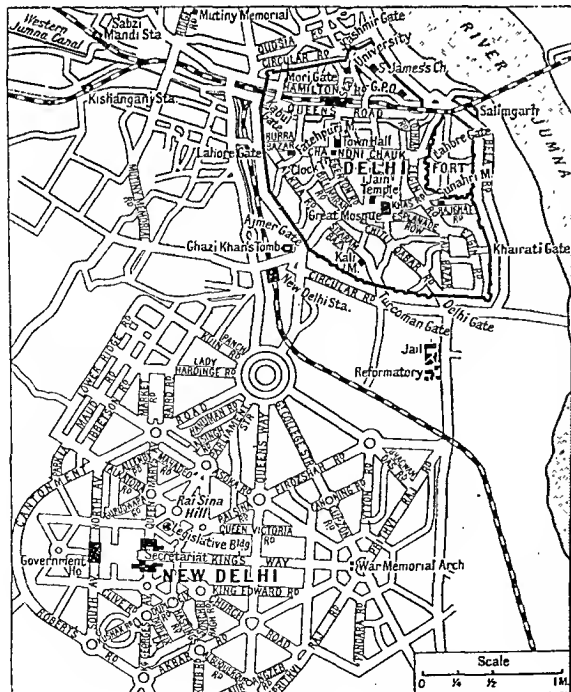
Thomas Dekker,
English dramatist

The city was built by Shah Jehan in the 17th century, on the site of older ones, and passed under British control in 1803. In 1877 Victoria was proclaimed empress of India at Delhi, and in 1903 Edward VII was likewise proclaimed. On Dec. 12, 1911, George V held a coronation durbar at Delhi, when the transfer of the capital of India from Calcutta was announced. Pop. 304,500.

THE NEW DELHI. New Delhi lies some 5 m. S.W. of the old city. Avenues bearing historic names converge on its focal point, on Raisina Hill. North and south of this point stand the massive twin blocks of the secretariats, enclosing Government Court. To the W. is a raised platform called Viceroy's Court, at the W. end of which is the Viceroy's House, with its copper dome rising 177 ft. above the main entrance. The Durbar Hall of the Viceroy's House consists of a circular marble court, 75 ft. in diameter, supported by clusters of amber



pillars. To the E. of the secretariats is the Great Place, and farther E. is a park known as the Central Vista. The Council of State, Chamber of Princes, and Legislative Assembly are housed in a huge circular building to the

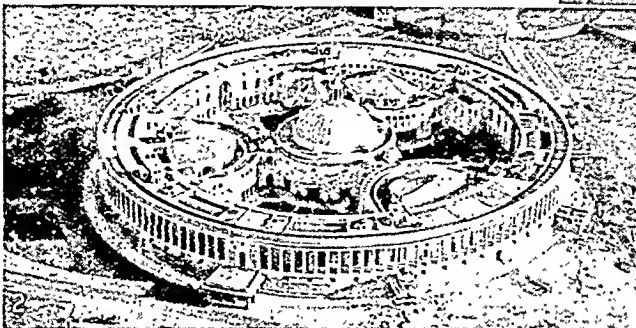


Delhi. Plan of the capital of India and its environs

N. of Kingsway, at the E. end of which is the Memorial Arch. The King Edward VII Memorial statue was unveiled in 1922. See India.

DELLAH. Woman bribed by the lords of the Philistines to entice from Samson the secret of his strength (Judges 16, Ant. of the Jews, Josephus, 5). Described as of the valley of Sorek, she is thought to have been a Philistine. See Samson.

DELIRIUM (Lat. *de*, from, off; *lim*, furrow, track). Condition of mental disorder usually accompanied by hallucinations and delusions. Low muttering delirium is often seen in states of exhaustion following high fever or acute illness. Active delirium may follow severe injuries, particularly when they have led to septic wounds. Acute noisy delirium may



Delhi. 1. Lahore Gate, entrance to the former Mogul Palace. 2. The Council House, New Delhi; the three chambers are connected by a central domed library. 3. Jama Masjid, or Great Mosque

be associated with other indications of insanity, or may be the result of poisoning. The most frequent form leads to delirium tremens. During an acute attack sedative drugs such as chloral and bromide of potassium may be given. Care must be taken to prevent the patient from injuring himself.

DELIUS, FREDERICK (b. 1862). British composer. Born in Bradford, Yorkshire, of German parentage, he studied music in Leipzig. His works include the operas *Koanga* and *A Village Romeo and Juliet*; a requiem and numerous other works for chorus and orchestra; concertos for piano, for violin and for 'cello, and a notable string quartet. In 1929 he was made a Companion of Honour and six Festival Concerts, at which his music was performed, were held in the Queen's Hall, London.

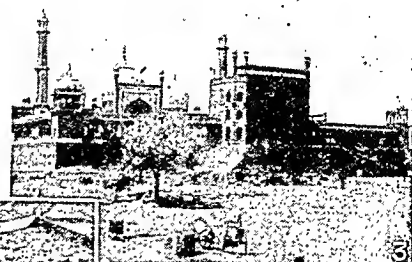
DELIVERY (*de*, from; *liber*, free). In law, a necessary part of a contract. The goods or property transferred must be delivered, and English law contains elaborate provisions as to what constitutes delivery. In early legal systems delivery was often effected by a symbol, and there are vestiges of this custom to-day. See Contract.

DELLA ROBBIA, LUCA (1399-1482). Florentine sculptor. He was born in Florence, and was probably a pupil of Lorenzo Ghiberti. His finest achievement was the marble reliefs of the Cantoria or Singing Gallery executed for the cathedral of Florence, 1431-40, part of which is still preserved in the Museo del Duomo, and he was associated with Donatello in other work for the cathedral. Sculpture in enamelled terra-

cotta was brought to a high state of perfection by him. Typical Della Robbia ware has a blue background; the designs are classic in

style, finely and boldly modelled. Luca died in Florence, Feb. 20, 1482.

His nephew, Andrea della Robbia (1435-



1523), executed some remarkable reliefs. (See illus. p. 187.) Andrea had seven sons, of whom five followed his calling.

DELORME, MARION (1613-50). French courtesan. She was born at Blois, Oct. 3, 1613, and at an early age went to Paris. There she became as famous for her beauty as notorious for the succession of celebrated men who were her lovers, including Richelieu and the duke of Buckingham. She took part in political intrigues, and died suddenly, July 2, 1650. Long afterwards it was said that she had escaped to England, married, and returned to Paris.



Frederick Delius, British composer Elliott & Fry

DELOS. Smallest of the Cyclades Islands (q.v.). According to legend it came into being from a blow of Poseidon's trident, whence the name Delos (visible). Originally a floating island, it was fastened by Zeus with chains to receive Leto (Latona), who there gave birth to Apollo and Artemis. It was the seat of a temple and oracle of Apollo, in whose honour the Delian games were held. After a long period of independence (322-161 B.C.), Delos was placed under the control of Athens.

DELPHI. Town of ancient Greece, on the S. slope of Mt. Parnassus, famous for its oracle of Apollo. The inhabitants were Dorians. The principal seat of the worship of Apollo, Delphi was also associated with that of Dionysus, and it was the scene of the Pythian games. The temple of Apollo was used as a safe deposit for their treasures by many Greek states. The oracular responses were given by a priestess, the Pythia, who sat on a tripod in the temple over a chasm, whence a vapour arose from the river Cassotis below. This vapour was supposed to give inspiration. The oracle was noted for ambiguity. Excavations have revealed the temple site.



Delphinium exaltatum, or giant larkspur

DELPHINIUM OR LARKSPUR. Genus of plants of the order Ranunculaceae, natives of Britain, N. America, and S.E. Europe.

Hardy annuals and perennials, from 1 ft. to 6 ft. in height, with blue, white, or pink flowers, they thrive in any ordinary garden soil. The common European species (*D. ajacis*), to which the name larkspur properly belongs, is an annual. The magnificent garden plants, six feet high, are mostly varieties or hybrids of *D. exaltatum*, a N. American perennial.

DELPHINUS. One of the Ptolemaic constellations. Its first star lies near Pegasus, and the constellation is easily picked out, for its leading four stars, alpha, beta, gamma, and delta, form a lozenge with stars of almost equal brilliance. See Constellation

DELTA. Physical formation occurring at the mouth of certain rivers. When a slow-moving stream, heavily loaded with silt, flows into comparatively still water, the load is deposited more or less evenly to form a flood plain of alluvium just below the level of the water, with a steep, abrupt slope at the seaward edge.

The term delta originates from the shape of the Nile formation like the Greek letter Δ , but it now includes any formation where the river branches into a number of distributaries. The Mississippi delta advances a mile in 15 years, and its area is 12,000 sq. m.

DELTA METAL. Important alloy of copper and zinc, chiefly with small proportions of iron and possibly other metals—phosphorus, manganese, silicon. Technically it is brass, though often described as a bronze. It is made in various qualities, and can be given great tensile strength with great elongation. As it may be made almost incorrodible, it is a valuable metal in engineering.

DELTOID MUSCLE (Gr. *deltoidēs*, delta -shaped). Triangular muscle which covers the point of the shoulder. It is attached above to the collar-bone and to the shoulder-blade, and below to the upper arm bone. Its chief action is to abduct the arm, i.e. raise it outwards from the body.

DELUGE (Lat. *diluvium*, washing away). The O.T. tells of a great flood which swept away all mankind with the exception of Noah and his family (Gen. 6). Noah was saved in an ark, which, on the waters subsiding, rested on the mountains of Ararat (Armenia). To ascertain whether the ground was dry, Noah sent out first a raven and then a dove. The raven did not come back, but the dove returned twice, bringing the second time the leaf of an olive tree.

A strikingly similar story is found in Babylonian literature in the Gilgamesh Epic (c. 3000 B.C.). Traditional tales of a primeval flood, local or general, more or less parallel with the Noah story, are found among peoples in every grade of culture. See Noah.

DELVILLE WOOD. Wood of France, in the dept. of Somme. It lies 10 m. E. by N. of Albert, and is some acres in extent. It was taken from the Germans by a S. African brigade, July 15, 1916, and remained in Allied occupation until its recapture in March, 1918. It was finally retaken by the British, Aug. 27, 1918. The Government of S. Africa purchased the wood from the French Government in July, 1920, for the erection there of a War Memorial. See Somme.

DEMENTIA (Lat. *demens*, out of one's mind). Condition of weak-mindedness or mental degeneration, which may develop from other forms of insanity, or may be the result of physiological decay of the mind in old age. Mania, melancholia, general paralysis, epilepsy, chronic alcoholism, and injury to the brain following fracture of the skull, or apoplexy, may all terminate in dementia. In acute cases, treatment is of little avail. See Insanity.

DEMERARA. River and settlement of British Guiana. The river enters the Atlantic at Georgetown; its length is about 200 m. The settlement lies mostly between the rivers Demerara and Berbice, and fronts the sea for some 65 m. It was originally a Dutch colony. The brown sugar known as demerara was first produced in this colony. Georgetown is sometimes called Demerara.

DEMETER. In Greek mythology, goddess of agriculture, whose Roman counterpart was Ceres. She was the daughter of Cronos and Rhea, and by Zeus became the mother of Persephone (Proserpine), who was carried off by Pluto, the god of the underworld. Demeter set out to look for her daughter, and refused to allow the earth to produce any of its fruits until her daughter was restored to her. Eventually Persephone was allowed to spend six

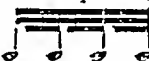


Demeter, goddess of agriculture
Vatican Museum, Rome

months of the year with her mother.

The story is an allegory of the process of agriculture, Persephone being the seed which remains buried for part of the year. When she returns she is the corn rising from the earth.

DEMISEMIQUAVER. In music, a small note, equal in time-value to half of half a quaver. Its form is that of a quaver with three black strokes on the stem, f . Like quavers, demisequavers may be grouped thus with continuous strokes:—



DEMOCRAT. One of the two fully organized political parties of the U.S.A. It was almost continuously in office from 1801, when Jefferson was elected president, until the Civil War, 1861, but has secured only four presidential terms of office since then—Cleveland 1884 and 1892, and Woodrow Wilson 1912 and 1916. Its candidates for the elections of 1920, 1924, and 1928 were defeated by unprecedented majorities.

DEMOCRITUS (c. 460-357 B.C.). Greek philosopher. Born at Abdera in Thrace, he expounded the atomic theory of the universe

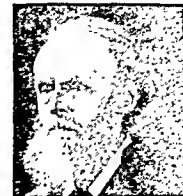


Democritus, Greek philosopher and physicist
Capitol Museum, Rome

revived by modern scientists. The atoms conceived by Democritus differed in size, weight, shape, position, and arrangement. Falling together by force of gravity, impinging one upon another, and flying off in various directions as a result of impact, these produced a rotatory movement. Gradually they found their proper combinations, and the universe was formed. Democritus was known as the laughing philosopher by reason of his optimistic outlook.

DEMONOLOGY (Gr. *daimon*, spirit; *logos*, science). Branch of the study of religion, concerned with supernatural beings, below

the rank of gods, which are regarded as capable of influencing human life. In some phases of primitive culture the physical universe was deemed to be pervaded by such beings. They included the spirits of wind, fire, and water, and legions of others. In process of time the friendly were held to be innately benignant, and the hostile innately malignant. The attribution of many mental and bodily ailments to the objective presence of intrusive demons is widespread in primitive thought.



William De Morgan,
British novelist
Russell

DE MORGAN, WILLIAM FRENCH (1839-1917). British novelist. Born in London, Nov. 16, 1839, he studied at the Royal Academy, afterwards devoting himself to working in pottery and glass. It was not until he reached his 66th year that his first novel, *Joseph Vane*, appeared. It achieved immediate success, and was followed by *Alice for Short*, 1907; *Somehow Good*, 1908; *It Never Can Happen Again*, 1909; *An Affair of Dishonour*, 1910; *A Likely Story*, 1911; *When Ghost Meets Ghost*, 1913; and the unfinished *The Old Madhouse*, published posthumously. William De Morgan died Jan. 13, 1917.

His father, Augustus De Morgan (1806-71), was first professor of mathematics at the newly founded University of London, 1828-66.

DEMOSTHENES (c. 383-322 B.C.). Athenian orator and statesman. Left an orphan at an early age, he studied law and, in spite of natural disabilities, devoted his energies to becoming a good public speaker. By 355 B.C. he had amassed a competence and was free to devote himself to politics. The great ideal of his life was the regeneration of Athens as leader of the Hellenic world, and from 351 onwards Demosthenes delivered a series of masterly speeches of which the most notable are the *Olynthics* and the *Philippics*, in which he vainly endeavoured to awaken his countrymen to the menace of Philip of Macedon. To late the Athenians listened to his pleadings, and the defeat of Athens

and Thes at Chaeronea in 338 was the death-blow of Greek independence. In 336 B.C. Ctesiphon proposed that a golden crown be given to Demosthenes for his public services, the ensuing litigation evoking his oratorical masterpiece. (See *Aeschines*.) Accused in 324 of taking a bribe, Demosthenes was condemned and imprisoned. Escaping, he lived abroad, until the death of Alexander in 323 emboldened the Greeks to make a bid for independence. Demosthenes headed the movement, but Greek hopes were finally shattered at the battle of Crannon in 322, and to avoid falling into the hands of the Macedonians, Demosthenes committed suicide. Another Demosthenes was an Athenian general in the Peloponnesian war.



Demosthenes, Greek orator and statesman
Statue in the Vatican, Rome

DEMOTIC (Gr. *helonging to the people*). Cursive script employed for general purposes in ancient Egypt. It was an abbreviated and

modified form of the hieratic or priestly script, usually written from right to left, mostly in black. Well established by 700 B.C., it finally disappeared soon after the 4th century A.D.

DEMPSEY, JACK (b. 1895). Irish-American boxer. Until 1919 almost unknown, he became the world's heavy-weight champion by beating Jess Willard at Toledo, July 4. He then challenged Georges Carpentier, and a fight between them took place on July 2, 1921, at Jersey City, when Dempsey retained the championship. He was defeated by Gene Tunney (q.v.) on Sept. 23, 1926.

DEMULCENT (Lat. *demulcere*, to soften). Drug used to protect and soothe parts of the body. The principal demulcents are gelatin, glycerine, gum, honey, starch, and white of egg.

DEMY. Size of paper or of bound books. A demy sheet of printing paper measures 22½ ins. by 17½ ins.; of writing or drawing paper, 20 ins. by 15½ ins. Books are sized approximately as follows: Demy folio, 17½ ins. by 11½ ins.; demy quarto or 4to, 11½ ins. by 8½ ins.; demy octavo or 8vo, 8½ ins. by 5½ ins.; demy 16mo, 5½ ins. by 4½ ins.

DENARIUS (Lat. *deni*, ten each). Chief silver coin of ancient Rome. It was equivalent to 10, afterwards to 16, copper asses. About the beginning of the Christian era it was worth about 8d. in English money. It is the "penny" of the New Testament (in the American R. V. "shilling")

DENBIGH. Borough and county and market town of Denbighshire. It is 29 m.W. of Chester on the L.M.S. Rly. On an eminence in the Vale of Clwyd, Denbigh is a centre for trade in timber, poultry, and dairy produce, and near are slate and lime quarries. Here are the N. Wales mental institution, grammar and Blue Coat schools, and the ruins of a Carmelite priory. In Denbigh Castle Charles I sought asylum in 1645. Market days, Wed. and Sat. Pop. 6,783.

EARL OF DENBIGH. This title has been held since 1622 by the family of Feilding. In 1694 it was inherited by the earl of Desmond, and

DENBIGHSHIRE. County of Wales. It has about 10 m. of coast on the Irish sea. Mountains occur in the S., the E. is hilly, and towards the N. the surface becomes flat. The valleys of the Clwyd, Conway, and Dee (Vale of Llangollen) are noted for their scenery. Oats, barley, wheat, and rye are cultivated, dairy farming and pony and sheep rearing are important industries, and coal, lead, zinc, and fireclay are among the mineral products. The G.W.R. and L.M.S. Rly. serve the county. Denbigh is the county town. Colwyn Bay is a holiday resort. Two members are returned to Parliament. Area 665 sq. m. Pop 154,847

The geological formations known as the Denbighshire Series consist of grits and flags in the middle division of the upper Silurian system. They extend from Conway through Pentre Voelas to a point midway between Rhayader and New Radnor. In the N.W. graptolites and other fossils abound.

DENDERA, DANDARA, TENTERIS or Tentyra. Village near the left bank of the Nile, between Kena (Qena) and Luxor. It is celebrated for its temple to the goddess Hathor, the Greek Aphrodite, begun by Ptolemy XIII, father of the great Cleopatra. It is composed of two rectangles, the first with a façade with six sculptured columns, the second containing the sanctuary. There are numerous passages and treasure-hiding places, and the walls bear inscriptions. A small building on the roof was used for the worship of Osiris. Close by is a small temple of Isis, built under the emperor Augustus, and in the neighbourhood is a cemetery, with tombs from the IVth to the XIIIth dynasties. Consult Denderah, Sir W. M. Flinders Petrie, 1900. See illus. p. 419.

DENDRITE or DENDRITIC MARKING (Gr. of or like a tree). Stone or mineral in or on which appear markings of an arborescent form. They occur in the joints or cleavage planes of close-grained rocks such as limestone, and are usually dark earthy oxides of manganese or iron. When they penetrate the matrix they give rise to mocha stone. When the green earth called delessite acts in this way, moss-agate results.

DENE. Name given to a deep, wooded dell or valley. It is common in English place-names, e.g. Tenterden, Marden, Rolvenden, and Biddenden, all in Kent.

Dene Hole (A.S. valley-hole) is the name given to certain ancient excavations, chiefly in Essex, Kent, and the Somme valley. There are 72 within four acres near Grays, Essex. A round shaft, 3 ft. across, was sunk through gravel, sometimes for 60 ft., until chalk was reached. A bell-shaped chamber, 16-22 ft. high, sometimes with trefoil branches, was then formed. The most reasonable theory is that they were chalk quarries, as mentioned by Pliny, or store chambers.

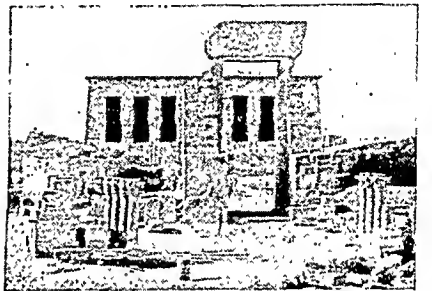
DENGUE, DANDY FEVER or BREAKBONE FEVER. Acute disease of tropical and sub-tropical countries. It appears to be conveyed by mosquitoes, and spreads very rapidly. The symptoms are those of high fever, with usually a rash on the skin, sore throat, headache, severe pain in the muscles, and pain and swelling of the joints. After three or four days the temperature falls and

the patient improves. After another interval the symptoms return and then gradually abate. Pron. Denggay.

DENIKIN, ANTON IVANOVICH (b. 1872). Russian soldier. Born Dec. 4, 1872, he served in the Russo-Japanese War. He came into prominence in Sept., 1917, when Kerensky made him commander of an army. After the changes of Nov., 1917, he withdrew to Rostov-on-the-Don and took part in the formation of a volunteer army, and in 1919, at the head of this, cooperated with Kolchak against the Bolsheviks. At first he had remarkable success, but early in 1920

his armies collapsed, and in April Denikin went to England.

DENIS, DENYS or DIONYSIUS (d. c. 275). Patron saint of France. He was born in Italy, became bishop of Paris, and built a church on an island in the Seine. He was beheaded with two companions by the Roman governor, about A.D. 275. Four hundred years later a church and an abbey were erected on the site of his martyrdom. His festival is kept on Oct. 9.



Dendera. Isolated pylon of the Temple of Hathor. Behind is the Great Vestibule of the building

DENMAN, THOMAS DENMAN, 1ST BARON (1779-1854). British judge. Born in London, Feb. 23, 1779, he became a barrister in 1806. With Brougham he defended Queen Caroline in 1820. He became lord chief justice in 1832, and was made a peer in 1834. He died Sept. 22, 1854. His great-grandson, the 3rd Lord Denman (b. 1874), was governor-general of Australia, 1911-14.

DENMARK. Country of N. Europe. It comprises the peninsula of Jutland (Danish Jylland), including N. Slesvig (S. Jutland Provinces); an archipelago of which the most important islands are Zealand (Sjælland), Fünen, Langeland, Laaland, Falster, Moen; and the outlying island of Bornholm in the Baltic. Copenhagen is the capital, other important towns including Aarhus, Odense, Aalborg, Horsens, and Randers. Its area is 16,568 sq. m. Pop. 3,434,555.



Denmark. Types of country dwellers in national holiday attire

of the country is peat bog, moorland and sandy waste. The W. coast of Jutland is low, unindented, and fringed with sand dunes.



Denbighshire. Map of this maritime county of North Wales

since then the two earldoms have been borne by the same person. The earl's eldest son is called Viscount Feilding.

The state is a limited monarchy, the king and his responsible ministers having the executive power. The Rigsdag or diet embraces two houses, the Folketing or lower house, and the Landsting or senate. The Stratsradet or Cabinet consists of eleven ministers individually and collectively responsible to the Folketing. Military service is compulsory for all males from the age of 20 until 36.

Agriculture is the principal activity. The crops include oats, barley, rye, a little wheat, potatoes, beet-roots, hay, pasture grass, and lucerne. Dairy farming and pig breeding are important occupations. The system of small holdings has done much to foster intensive agriculture. The only colonial possession of Denmark is Greenland. The Faroe islands (Faeroes) are governed as part of the home country, and Iceland is now virtually independent.

In the course of its history Denmark has at various times been intimately associated with Norway and Sweden. It was permanently separated from Sweden in 1523, but it was not deprived of Norway until 1815. Christian I of Oldenburg acquired the succession to Slesvig-Holstein, which remained with the Oldenburg dynasty until the death of Frederick VII in 1863, and the passing of the crown to Christian IX of Glücksburg. Austria and Prussia in 1864 enforced the separation of the duchies from the sovereignty of the new royal house of Denmark. Denmark remained neutral during the Great War, and North Slesvig was officially reunited to the country in July, 1920, as the result of a plebiscite of the inhabitants. Denmark is a member of the League of Nations.

Since the Great War, socialism has made great progress. In 1920 the king, Christian X, by dismissing the government, brought about a political crisis, which, however, was composed. In 1924, after an election, a socialist ministry came into power, and the socialists were still the strongest party in 1930.

DENMARK HILL. London suburb at the extreme W. of the borough of Camberwell. Ruskin and Sir Henry Bessemer, who lived in the mansion now known as Bessemer House, were born here. King's College Hospital was removed here in 1913 from Portugal Street, Lincoln's Inn Fields.

DENSITY (Lat. densus, thick). Amount of matter in a given volume of a substance. Absolute density is the amount of matter in unit volume of a substance; relative density or specific gravity (q.v.) is the ratio of the mass of a given volume of a substance to the mass of the same volume of another substance usually taken as a standard.

DENSTONE. Village of Staffordshire. Near the Uttoxeter Canal, 5½ m. N. of Uttoxeter, it is a station on the L.M.S. Rly. Denstone College was opened in 1873 and has accommodation for about 350 boys. Pop. 857.

DENTIST. Practitioner of the branch of surgery which deals with the conservation and extraction of teeth and the adaptation of artificial teeth. By the Dentists Act, 1878, the titles dentist or dental practitioner were reserved to persons whose names appear on the Dentists' Register, instituted by the Act. In 1921 an Act of Parliament made it necessary for dentists to pass through a course of training before they can be registered. This

training can be obtained at a university or college, or by apprenticeship to a registered dentist. Entrance to the profession is controlled by the General Medical Council, in

It is the centre for the distribution of livestock from the Rockies, and the headquarters for the gold, silver, and coal-mining districts of the state. Pop. 280,911.

DEODAR (*Cedrus deodara*). Evergreen tree of the order Coniferae, a native of the W. Himalayas. Similar in most points to the cedar of Lebanon, it differs in its more pyramidal outline, in its longer leaves, and the more pendulous habits of its leading shoots and branchlets. It attains a height of from 150 ft. to 200 ft. See illus. below.

DEPARTMENT. Word used in France for the areas in which the country has been divided since the Revolution. There are now 90. Three departments were created when Savoy and Nice were annexed in 1860. Most departments are named after their chief river or rivers, e.g. Seine, Loire, Eure et Loir, and a few after some other physical feature, e.g. Côtes du Nord. Each department is governed by a prefect, assisted by a council. See France.

DEPEW, CHAUNCEY MITCHELL (1834-1928). American lawyer and orator. Born at Peekskill, N.Y., April 23, 1834, he was called to the N.Y. bar, 1858. Member of state assembly, 1861-62, he was secretary of state of N.Y., 1863-65, and from 1866-98 attorney to numerous rlys. From 1898 he was chairman of the whole Vanderbilt system. From 1899-1911 he represented N.Y. in the Senate. He was the chosen orator on many national occasions. He died April 4, 1928.



Chauncey Depew, American lawyer
Elliott & Fry

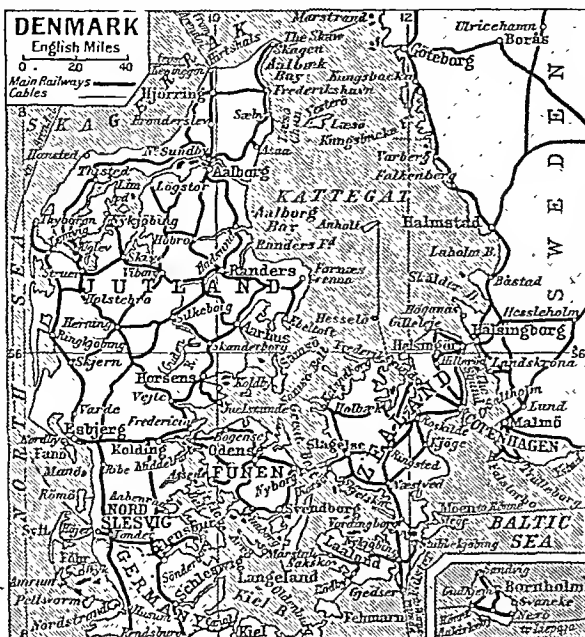
DEPILATORY (Lat. depilare, to pull out hair). Preparation for removing hair in abnormal situations. No drug will destroy hair alone without affecting the skin, and some of the more active preparations may do serious harm, and even result in a more vigorous growth of the hair. One method of destroying superfluous hair is by electric current.

DEPOLARISER. Material added to the solution in a voltaic cell to counteract the effect of polarisation, i.e. of counter-electromotive force due to the accumulation of hydrogen on the negative plates and to other causes. The material consists of an oxidising solution or a solid. Powdered manganese dioxide is used as a rulo for the Leclanché cell.

DEPORTATION (Lat. de, from; portare, to carry). Term meaning to remove anyone forcibly from a country, used mainly in connexion with aliens (q.v.). On the recommendation of a magistrat or judge an order for deportation is made by the Home Office.

DEPOSIT (Lat. depositum, something put down). In English law, one of the forms of bailment. It arises where goods are deposited with a bailee to be kept for the bailor without payment. Deposit is also used to mean a sum of money paid to a person as security that a contract shall be carried out.

DEPOT (Fr. dépôt). Building or site where the supplies of food, medical stores, ammunition, horses, or vehicles are stored for military purposes, e.g. Supply Depot, Ordnance Depot, Remount Depot. The term is also applied to the barracks where recruits receive their first



Denmark. Map of the kingdom as it was restored after the Great War

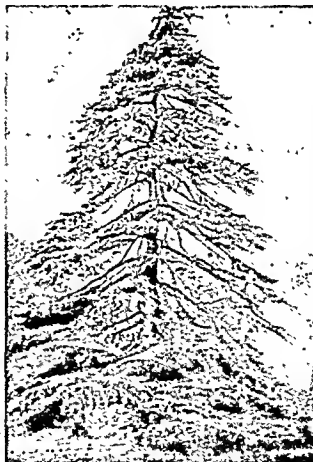
connexion with which is a Dental Board, 44, Hallam St., London, W.1.

The practice of dentistry is of extremely ancient origin, references to medical treatment of the teeth being found in Egyptian papyri of 4700-1000 B.C. Similar knowledge was possessed by the Greeks, and the Romans practised dentistry extensively. Modern scientific dentistry is based largely upon the work of John Hunter (1728-93).

DENTITION. Arrangement of the teeth in animals. Teeth are present in almost all the divisions of the vertebrates, from the fishes upwards, with the exception of the birds. The invertebrates have no true teeth, the notched jaw processes in some arthropods, which serve the purpose of dividing or grinding food, being structurally quite different. The total number of teeth possible in most mammals is 44, 11 on either side in each jaw, consisting of three incisors, one canine, four premolars, and three molars.

DENTON. Urban dist. and market town of Lancashire. It is 7½ m. S.E. of Manchester, on the L.M.S. Rly. Coal-mining and felt hat making are the chief industries. Two reservoirs form part of Manchester's water supply. Market day, Sat. Pop. 17,150.

DENVER. Capital of Colorado, U.S.A. It stands on the S. Platte river, 14 m. E. of the base of the Rocky Mts. An important rly. and industrial centre, the town is well laid out and contains many handsome buildings, including the Roman Catholic cathedral, the State Capitol, university with medical school, high school, post office, and public library. A chain of mt. parks covers over 10 sq. m. There are several sanatoria near, much frequented by those suffering from chest ailments.



Deodar. Example of *Cedrus deodara* of the Himalayas. See article above

training, where soldiers take their discharges, and where reservists join on mobilisation.

A depot ship is a vessel set apart to attend upon a destroyer flotilla or submarine flotilla; or a ship from which the crews of other vessels are drafted. Sometimes the depot ship is merely a floating barracks.

DEPRETIS, AGOSTINO (1813-87). Italian statesman. Born Jan. 31, 1813, as a young man he fell under the influence of Mazzini. He was sent by Cavour in 1860 to Sicily to counteract the extremist policy of Garibaldi, and entered the Government in 1862 as minister of public works. Leader of the Left in 1873, he became prime minister in 1876, and, with an interval of thirty months, directed the entire policy of Italy until his death, July 29, 1887.

DE PROFUNDIS (Lat. out of the depths) Opening words of Psalm 130. One of the 15 gradual psalms, or "songs of degrees," of the Jewish pilgrims to Jerusalem, it was from the earliest times a penitential psalm throughout the Christian Church.

DEPTFORD. One of the London metropolitan boroughs. It is on the W. side of Greenwich, with which it is closely associated, the older part of Deptford being in Greenwich. New Cross and part of Brockley are within the borough. Formerly it had a dockyard, where Raleigh docked his Golden Hind and Peter the Great studied navigation; and here was Sayes Court, for some time the home of Evelyn, the diarist. Among places of interest are the Royal Army Victualling Yard, the Goldsmiths' College, now part of the university of London, the Haberdashers' Girls' School, and St. Nicholas' Church, where Marlowe, the poet, was buried. There is also a handsome town hall. Pop. 115,700

DEPTH CHARGE. Weapon used in naval warfare for attacking submerged submarines, the principle being to detonate a large charge of explosive some distance below the surface in order to destroy or disable the enemy. As evolved by the British Admiralty, it consisted of a thin-walled cylindrical container, filled with explosive and provided with a central tube which contained the priming and the firing mechanism. The firing mechanism was actuated by the pressure of the water, a diaphragm giving way at a pre-determined depth and so releasing a spring, which drove a nail into the detonator.

DEPUTY (Lat. depute, to prune, late Lat. to select). Strictly speaking, an authorised agent. A general deputy is empowered to perform the whole of another's office; a special deputy, a particular part. In the United Kingdom recorders, county court judges, and registrars, returning officers, and some other public officials are allowed to appoint deputies. The word is also used of a member of a representative assembly, e.g. the French chamber of deputies. In the City of London each alderman has a deputy.



Thomas De Quincey.
British author

DE QUINCEY, THOMAS (1786-1859). British author. Born at Manchester, Aug. 15, 1785, in 1801 he ran away from home, eventually reaching London. Reconciled to his relatives in 1803, he spent four years at Oxford, but left the university without taking a degree. Profoundly influenced by Coleridge and Wordsworth, he became an intimate member of the Lake school. For nearly 20 years from 1809, when Wordsworth left it, he made Do. Cottage, Grasmere, his headquarters. In 1811 he married Margaret Simpson, daughter of a physician, by whom he had three daughters and four sons. He died in Edinburgh, Dec. 8, 1859.

The fame of De Quincey rests largely upon The Confessions of an English Opium-Eater, which first appeared in The London Magazine in 1821 and was reproduced in volume form, 1822, and almost re-written in 1858. To Blackwood's, Feb., 1827, he contributed the essay On Murder Considered as One of the Fine Arts, to which in 1854 was added a notable postscript. His critical faculty is displayed to advantage in the essay on The Knocking at the Door in Macbeth.

DERATING. Term used for the changes in local rating made by the Local Government Act of 1929. By it agricultural land was relieved entirely from rates from April 1, 1929, and industrial and transport premises of three-quarters of their rates from Oct. 1, 1929. The loss of revenue to the county borough and other councils is made good by Government grants.

DERBY. City and county town of Derbyshire. It stands on the W. side of the Derwent, 129 m. by rly. N.W. of London, and is served by the L.N.E., L.M.S. and G.W. Rlys.

The chief churches are the cathedral of All Saints, with a magnificent tower, S. Peter's, S. Alkmund's, S. Werburgh's, S. Andrew's (by Sir Gilbert Scott), and the Roman Catholic church of S. Mary Magdalene. The grammar school is one of the oldest in England. There are technical schools and a school of art. The art gallery has a fine collection of old Derby ware. The few old buildings include a 14th century chapel on St. Mary's Bridge. In the Arboretum grounds is the Headless Cross, a memorial of the plague of 1665.

Industries include the manufacture of silk, lace, net, and hosiery; also engineering works. In 1715 the first silk mill in England was opened here. In 1927 Derby was made the seat of a bishop, his diocese covering the county. Market day, Fri. Pop. 137,700.

DERBY CHINA. Glazed earthenware was originally made at Derby in 1750. This was improved upon by William Duesbury, who made Chelsea-Derby china in 1784. His china has a hard, fine, transparent body, is well designed and, and shows great variety. He also produced small enamelled and gilt figures, and others of a larger size in a beautiful soft paste, chalk white biscuit-ware. The works were closed down in 1849, but the tradition is carried on by the Royal Crown Derby Porcelain Co., founded in 1877. See Chinaware.

DERBY, THE. The principal horse race in the United Kingdom, or, in fact, in the world. The race, inaugurated in 1780 by the twelfth earl of Derby, is held annually at Epsom Summer meeting, on a course of 1½ m. The record time (2 min. 34½ sec.) is held by the 1920

winner, Spion Kop, the next being Lemberg's (2 min. 35½ sec.) in 1910. See table p. 591.

DERBY, EARL OF. English title borne since 1485 by the family of Stanley. Thomas, Lord Stanley, was made earl of Derby by Henry VII in 1485. As his second wife he married Margaret Beaufort, the king's mother. Ferdinando, 5th earl (d. 1594), was a poet and friend of Spenser. When James, the 10th earl, died in 1735, the direct line became extinct, and the title passed to Sir Edward Stanley, a descendant of the 1st earl. The earl's eldest son is known as Lord Stanley. The family seat is Knowsley, near Liverpool, which has a park of 2,500 acres.



14th Earl of Derby,
British statesman

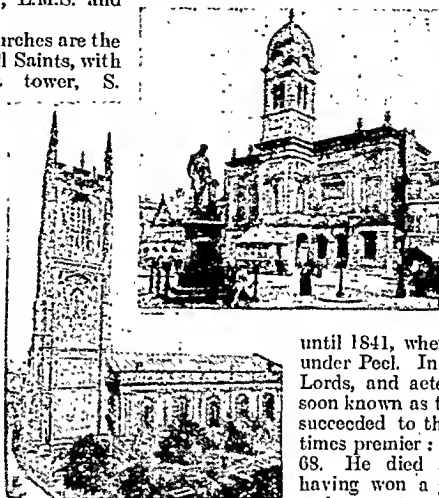
DERBY, EDWARD GEOFFREY STANLEY, 14TH EARL OF (1799-1869). British statesman. Born at Knowsley, March 29, 1799, he was the eldest son of the 13th earl, then Lord Stanley. He entered the House of Commons in 1820 as a Whig, and in 1827 was made under-secretary for the colonies and in 1830 chief secretary for Ireland. Derby supported the Reform Bill of 1832. In 1833 he became secretary for war and the colonies, when he carried the bill for freeing the slaves. In 1834, with others, he left the Whig government, but remained a private member until 1841, when he became colonial secretary under Peel. In 1844 he entered the House of Lords, and acted as the leader of the party soon known as the Conservative. In 1851 he succeeded to the earldom. Derby was three times premier: in 1852, in 1853 and in 1866-68. He died at Knowsley, Oct. 23, 1869, having won a great reputation as a scholar and an orator.

DERBY, EDWARD GEORGE VILLIERS STANLEY, 17TH EARL OF (b. 1865). British politician. Born April 4, 1865, he entered the House of Commons in 1892. In 1895, then Lord Stanley, he joined the Conservative government as a lord of the treasury and in 1900 became financial secretary to the War Office, being promoted postmaster-general in 1903. He succeeded to the earldom in 1908. In 1915, as director-general of recruiting, he originated the Derby scheme. In 1916 he became under-secretary for war, and soon after war secretary in succession to Mr. Lloyd George. He remained at the War Office till 1918, when he was appointed ambassador to Paris. From Oct., 1922, to Jan., 1924, he was again war secretary. In 1924 his horse Sansovino won the Derby.

DERBY SCHEME. Under this scheme all men between 18 and 41 were invited to enlist, and recruits were then ranged in 46 age groups, 23 of married and 23 of unmarried men. They were to be called to the colours in groups beginning with the younger men, the unmarried before the married. The number who had offered themselves between Oct. 23 and Dec. 15, 1915, was 2,829,263, of whom 1,679,263 were married. According to the National Register, 2,182,178 remained unattested, of whom 1,152,947 were unmarried. Compulsion was inevitable, and the necessary bill was introduced into Parliament on Jan. 5, 1916.



Edward, 17th Earl
of Derby
Russell



Derby. The cathedral of All Saints. Above, the Town Hall



Derby China. Vase with landscape view
Victoria & Albert Mus.

DERBY WINNERS AND OWNERS SINCE 1783. (See p. 500.)

1780, <i>Diomed</i> , Bunbury; 1781, <i>Y. Eclipse</i> , O'Kelly; 1782, <i>Assassin</i> , Ld. Egremont; 1783, <i>Saltram</i> , Parker; 1784, <i>Serjeant</i> , O'Kelly; 1785, <i>Aimwell</i> , Ld. Clermont; 1786, <i>Noble</i> , Pantan; 1787, <i>Sir Peter Teazle</i> , Ld. Derby; 1788, <i>Sir Thomas</i> , Prince of Wales; 1789, <i>Skyscraper</i> , D. of Bedford; 1790, <i>Rhadamanthus</i> , Ld. Grosvenor; 1791, <i>Eager</i> , D. of Bedford; 1792, <i>John Bull</i> , Ld. Grosvenor; 1793, <i>Waxy</i> , Poole; 1794, <i>Daedalus</i> , Ld. Grosvenor; 1795, <i>Spread Eagle</i> , Standish; 1796, <i>Didelot</i> , Standish; 1797, colt by <i>Fidget</i> , D. of Bedford; 1798, <i>Sir Harry</i> , Cookson; 1799, <i>Archduke</i> , Standish; 1800, <i>Champion</i> , Wilson; 1801, <i>Eleanor</i> , Bunbury; 1802, <i>Tyrant</i> , D. of Grafton; 1803, <i>Ditto</i> , Williamson; 1804, <i>Flaminal</i> , Ld. Egremont; 1805, <i>Cardinal Beaufort</i> , Ld. Egremont; 1806, <i>Paris</i> , Ld. Foley; 1807, <i>Illection</i> , Ld. Egremont; 1808, <i>Pan</i> , Williamson;	1809, <i>Pope</i> , D. of Grafton; 1810, <i>Whalebone</i> , D. of Grafton; 1811, <i>Phantom</i> , Shelly; 1812, <i>Oclarus</i> , Ladbrooke; 1813, <i>Smolensko</i> , Bunbury; 1814, <i>Blucher</i> , Ld. Stawell; 1815, <i>Whisker</i> , D. of Grafton; 1816, <i>Prince Leopold</i> , D. of York; 1817, <i>Azor</i> , Payne; 1818, <i>Sam</i> , Thornhill; 1819, <i>Tiresias</i> , D. of Portland; 1820, <i>Sailor</i> , Thornhill; 1821, <i>Gustavus</i> , Hunter; 1822, <i>Moses</i> , D. of York; 1823, <i>Emilius</i> , Udney; 1824, <i>Cedric</i> , Shelly; 1825, <i>Middleton</i> , Ld. Egremont; 1826, <i>Lapdog</i> , Ld. Egremont; 1827, <i>Mameluke</i> , Ld. Jersey; 1828, <i>Cadland</i> , D. of Rutland; 1829, <i>Frederick</i> , Gratwicke; 1830, <i>Priam</i> , Clifney; 1831, <i>Spaniel</i> , Ld. Lowther; 1832, <i>St. Giles</i> , Ridsdale; 1833, <i>Dangerous</i> , Sadler; 1834, <i>Plenipotentiary</i> , Batson; 1835, <i>Mundig</i> , Brown; 1836, <i>Bay Middleton</i> , Ld. Jersey; 1837, <i>Phosphorus</i> , Ld. Berner; 1838, <i>Amato</i> , Heathcote; 1839, <i>Blossbury</i> , Ridsdale;	1840, <i>Little Wonder</i> , Robertson; 1841, <i>Coronation</i> , Rawlinson; 1842, <i>Attila</i> , Anson; 1843, <i>Cotherstone</i> , Bowes; 1844, <i>Orlando</i> , Peel; 1845, <i>Merry Monarch</i> , Gratwicke; 1846, <i>Pyrhus the First</i> , Gully; 1847, <i>Cossack</i> , Pedley; 1848, <i>Surplice</i> , Ld. Clifden; 1849, <i>The Flying Dutchman</i> , Ld. Eglinton; 1850, <i>Voltigeur</i> , Ld. Zetland; 1851, <i>Teddington</i> , Hawley; 1852, <i>Daniel O'Rourke</i> , Bowes; 1853, <i>West Australia</i> , Bowes; 1854, <i>Andover</i> , Gully; 1855, <i>Wild Dayrell</i> , Popham; 1856, <i>Ellington</i> , Harcourt; 1857, <i>Blink Bonny</i> , P'Anson; 1858, <i>Beadsman</i> , Hawley; 1859, <i>Musjid</i> , Hawley; 1860, <i>Thormanby</i> , Merry; 1861, <i>Kettledrum</i> , Towneley; 1862, <i>Caractacus</i> , Snewing; 1863, <i>Macaroni</i> , Naylor; 1864, <i>Blair Athol</i> , P'Anson; 1865, <i>Gladiator</i> , Ct. de Lagrange; 1866, <i>Lord Lyon</i> , Sutton; 1867, <i>Hermil</i> , Chaplin; 1868, <i>Blue Gown</i> , Hawley; 1869, <i>Pretender</i> , Johnstone; 1870, <i>Kingcraft</i> , Ld. Falmouth; 1871, <i>Favonius</i> , Bn. Rothschild; 1872, <i>Cremorne</i> , Saville; 1873, <i>Concater</i> , Merry; 1874, <i>George Frederick</i> , Cartwright; 1875, <i>Galopin</i> , Prince Batthyany; 1876, <i>Kisber</i> , Baltazzi; 1877, <i>Silvio</i> , Ld. Falmouth; 1878, <i>Sefton</i> , Crawford; 1879, <i>Sir Berys</i> , Acton; 1880, <i>Benr Ord</i> , D. of Westminster; 1881, <i>Troquois</i> , Lorillard; 1882, <i>Shotover</i> , D. of Westminster; 1883, <i>St. Blaise</i> , Johnstone; 1884, <i>St. Gallien</i> , Hammond; 1885, <i>Harvester</i> , W. Loughby; 1886, <i>Mellon</i> , Ld. Hastings; 1887, <i>Ormonde</i> , D. of Westminster; 1888, <i>Merry Hampton</i> , Abington; 1889, <i>Ayrshire</i> , D. of Portland; 1890, <i>Donoran</i> , D. of Portland; 1891, <i>Common</i> , Johnstone; 1892, <i>Sir Hugo</i> , Ld. Bradford; 1893, <i>Isinglass</i> , McCalmont; 1894, <i>Ladas</i> , Ld. Rosebery; 1895, <i>Sir Visto</i> , Ld. Rosebery; 1896, <i>Persimmon</i> , Prince of Wales; 1897, <i>Galtee More</i> , Gbbbins;	1898, <i>Jeddah</i> , Larnach; 1899, <i>Flying Fox</i> , D. of Westminster; 1900, <i>Diamond Jubilee</i> , Prince of Wales; 1901, <i>Volodyorski</i> , Whitney; 1902, <i>Ard Patrick</i> , Gubbins; 1903, <i>Rock Sand</i> , Miller; 1904, <i>St. Amant</i> , Leopold de Rothschild; 1905, <i>Cicero</i> , Ld. Rosebery; 1906, <i>Spearmint</i> , Loder; 1907, <i>Orby</i> , Croker; 1908, <i>Signorinetta</i> , Ginstrelli; 1909, <i>Minori</i> , Edward VII; 1910, <i>Lemberg</i> , Fairie; 1911, <i>Sunstar</i> , J. B. Joel; 1912, <i>Tagalie</i> , Raphael; 1913, <i>Aloyeur</i> , Cunliffe; 1914, <i>Durbar II</i> , Duryea; 1919, <i>Grand Parade</i> , Lord Glanely; 1920, <i>Spion Kop</i> , Loder; 1921, <i>Humorist</i> , J. B. Joel; 1922, <i>Captain</i> , Cnille, Lord Woolavington; 1923, <i>Papyrus</i> , B. Irish; 1924, <i>Sansorio</i> , Lord Derby; 1925, <i>Manna</i> , H. E. Morris; 1926, <i>Coronach</i> , Lord Woolavington; 1927, <i>Call Boy</i> , F. Curzon; 1928, <i>Felstead</i> , Sir H. Cunliffe-Owen; 1929, <i>Trigo</i> , W. Barnett; 1930, <i>Blenheim</i> , H.H. Aga Khan.
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DERBYSHIRE. Midland county of England, bounded N. by Yorkshire. Its area is 1,016 sq. m. The surface is mainly flat in the S. and rugged towards the middle and E. In the N. the Pennine Chain terminates in the Peak district, the watershed between the rivers Mersey and Trent. The valley scenery of the Derwent and Dove is famous. Much of the county is on a coalfield; other mineral products include limestone, gypsum, ironstone, fireclay, lead and zinc. Permanent pasture



Derbyshire. Map of the midland county of England, famous for its industries and natrnal beauties

makes up four-fifths of the cultivated area. Textile manufactures comprise silks, cottons, worsted, and hosiery; malting and brewing and iron founding are considerable interests. The L.N.E. and L.M.S. Rlys. serve the county, as do the Trent and Mersey, Derby and other canals. Derby is the county town, and others of importance are Buxton, Chesterfield, Ilkeston, and Glossop. Chatsworth and Haddon Hall are in the county. Pop. 714,662.

Jane Austen writes of Chatsworth as Pemberley in *Pride and Prejudice*, while Sir Walter Scott centres his *Peveril of the Peak* in the Peak district. It is the Stonyshire of Adam Bede.

DEREHAM OR EAST DEREHAM. Market town and urb. dist. of Norfolk. It is on the L.N.E. Rly., 122 m. N.N.E. of London and 22 m. W.N.W. of Norwich, and is an agricultural centre, the industries including the manufacture of agricultural implements and malting. The church of S. Nicholas contains the tomb of William Cowper, whose residence here is commemorated by the Cowper Memorial Church of the Congregationalists. Borlrow was born at Dumping Green, 1½ m. away, and Dereham is the "pretty quiet D—" of Lavengro. Market day, Fri. Pop. 5,639.

DERG. Lough or lake of the Irish Free State, in the S. of co. Donegal. On one of its many islands—Station Island—is the cave of S. Patrick's Purgatory, formerly resorted to by pilgrims from Europe. The lake covers 25 sq. m. Another Lough Derg forms part of the boundaries of counties Tipperary, Clare, and Galway. It is 24 m. long, with a greatest depth of 120 ft.

DERMATITIS (Gr. derma, skin). Inflammation of the skin. The more important causes are certain diseases; application of irritant substances such as mustard or croton oil; trade processes, as among persons handling paraffin, tar, dyes, bichromate of potash, etc.; too long exposure to X-rays; irritation from parasites, as in scabies or itch; sunburn, and frost bite. See Skin

DE ROBECK, SIR JOHN MICHAEL (1862-1928). British sailor. The son of the 4th baron de Robeck of Naas, co. Kildare, he was born June 10, 1862. He entered the navy in 1875, and by 1911 was a rear-admiral. In March, 1915, he was appointed commander of the force sent to assist the landing in Gallipoli. In June, 1919, he was made commander-in-chief in the Mediterranean, and from 1922 to 1924 was in command of the Atlantic Fleet. Made a baronet in 1919, he died Jan. 21, 1928.

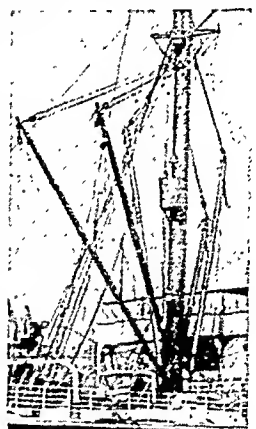


Sir John de Robeck, British sailor Russell

DE ROUGEMONT, Louis (1847-1921). Name of a Swiss whose real name was Henri Louis Grin. Born at Gressy, Nov. 9, 1847, in 1898 he caused a sensation in London by an account of his enforced exile of 28 years among the blacks of the Cambridge Gulf region. In 1898 before the British Association, at Bristol, he read two papers descriptive of his adventures, which were soon afterwards discredited. He died June 9, 1921.

DERRICK. Term applied to a kind of crane, and-also to the staging erected for oil-drilling. On board ship a derrick is a stout pole swung from a mast for lifting heavy weights. A derrick crane is a fixed crane, usually constructed of timber, consisting of a jib, vertical mast, and two raking timber backstays, weighted or made fast to prevent the crane from overturning. See Crane.

DERVISH (Pers. darwish, poor; Arab. faqir, fakir). Persian, Turkish, or Arab devotee. Some are strict Mahomedans; others combine nominal adherence to the Koran with Hindu mysticism and pantheism. Their devotional exercises include invocations, bodily torture, and a frenzied, whirling dance said to symbolise the eternal existence of the Deity. At the close of the dance they fall into a cataleptic trance.



Derrick. Main derricks on a large liner S. Cribb

DERWENT. River of Yorkshire. It rises on the moors of the E. Riding, and flows mainly S.W. Having passed through the Carrs and by Malton, it joins the Ouse at Barmby-on-the-Marsh, some miles from Selby. Its length is about 70 m., and it is navigable as far as Malton. A canal connects it with Pocklington. The Cumberland Derwent rises near Scafell and flows N. through Borrowdale to Derwentwater, N.W. to Bassenthwaite, thence W. to the Solway Firth at Workington. Its length is about 35 m. The Derbyshire Derwent rises in the High Peak and flows S. for about 60 m. past Matlock and Derby to the Trent. Another Derwent forms part of the boundary between Northumberland and Durham. It flows for 30 m. N.E. to the Tyne.

There is a Derwent River in Tasmania. It rises in Lake St. Clare and flows S. through a deep mt. valley to Hobart. Its length is 130 m.

DERWENTWATER. Lake of Cumberland, an expansion of the Derwent river. Its length is 3 m.; greatest breadth, 1½ m.; and extreme depth, 72 ft. Its wooded islets, the steep crags around its shores, combined with

the surrounding mts., produce a fine scenic effect. At the S. of the lake are the Falls of Lodore, near which occasionally rises to the surface the remarkable Floating Island.

DERWENTWATER, JAMES RADCLIFFE OR RADCLIFFE, 3rd EARL OF (1689-1716) Jacobite hero. Eldest son of the 2nd earl, he



James, 3rd Earl of Derwentwater
After Kneller

was born in London, June 28, 1689. A leader in the rebellion of 1715, he surrendered at Preston, was attainted, and was beheaded on Tower Hill, Feb. 24, 1716. He is a familiar figure in ballads and chap-books.

DESBOROUGH, WILLIAM HENRY GRENFELL, 1ST BARON (b. 1855). British politician and sportsman. Born Oct. 30, 1855, he became famous as an athlete. He ran for Oxford in the 3 miles, 1876, and rowed 1877-78 against Cambridge. He travelled, shooting and climbing in Asia and America; swam across Niagara, and stroked an oight across the Channel. He was Liberal M.P. for Salisbury, 1880-82 and represented Hereford as a Liberal Unionist 1892-3 and the Wycombe division of Buckinghamshire from 1900-5, when he was made Baron Desborough.

One of his sons was Julian Grenfell, the poet.

DESCARTES, RENÉ (1596-1650). French philosopher and mathematician. Born at La Haye in Touraine, March 31, 1596, he travelled extensively, and at the age of 33 withdrew to Holland, where his *Discours de la Méthode plus la dioptrique, les météores et la géométrie*, qui sont les essais de cette méthode (1637) and *Méditations de Priami Philosophia* (1641) were published. In 1649 he accepted an invitation to Stockholm from Queen Christina of Sweden, but died on the 11th of February, 1650.

Descartes stands at the head of the school of mathematicians which linked up the mathematics of the Renaissance with modern mathematical writings. The invention of analytical geometry dates from the publication of his *Géométrie*. The chief interest of his discourse on Optics (*La Dioptrique*) lies in its statement of the law of refraction.



René Descartes,
French philosopher
After Franz Hals

DESCHANEL, PAUL. EUGÈNE LOUIS (1856-1922). French statesman. Born at Haarheck, Brussels, Feb. 13, 1856, he was educated in Paris. Descanel's political apprenticeship began in 1876, when he became secretary to the minister of the interior. He was elected deputy in 1885. Elected a vice-president of the Chamber in 1896 and president 1898-9. He was re-elected president of the Chamber in 1901. His literary talent was recognized by election to the French Academy on Jan. 18, 1899. He was elected president of the republic on Jan. 17, 1920, resigning on account of illness, Sept. 16. He died April 28, 1920.



Paul Deschanel,
French statesman

DESERT. Region in which few forms of life can exist owing to exceptional drought or exceptional cold. Desert conditions obtain in most places where the mean annual rainfall is less than 10 ins. The great hot deserts (Sahara, Kalahari, Colorado, Atacama, West Australian) are on the W. of continents. Others are situated in the interior, e.g. the Gobi in Asia, or those that have been discovered in Arctic and Antarctic latitudes.

DESERTION (Lat. *deserere*, to abandon). Term meaning in general to go away secretly and without permission, to abandon someone who has a claim upon one. In a military sense the offence consists in being absent from a unit with the intention of either not returning or of escaping some important duty. Usually the penalty for desertion when on active service is death, but in 1930 a bill removing the death penalty passed the House of Commons.

Desertion of a wife is in English law a ground for judicial separation, and if accompanied by adultery, for a divorce. If a man leaves his wife or children chargeable to the parish, he is also guilty of an offence for which he may be fined or imprisoned.

DESMID (Gr. *desmos*, chain). Single-celled microscopic Alga of the family Desmidiaceae. Almost exclusively desmids inhabit fresh water (mostly stagnant), often forming a green scum on the surface. They have the power of independent motion. Some often combine to form thread-like colonies, but there is no real union of the plants. Multiplication takes place by an individual dividing into two plants. There is also a process of conjugation.

DESMOULINS, CAMILLE (1760-94). French Revolutionist. Born March 2, 1760, he became an advocate. On hearing of the dismissal of Necker, July 12, 1789, he harangued a Paris crowd with the exhortation, "To arms!" and his words marked the beginning of the Revolution. By a pamphlet, *La France libre*, and the issue of a weekly journal from Nov., 1789, to July, 1791, he stimulated the revolutionary movement. Later, with Danton, he tried to check its fury, but in vain, and he was guillotined April 5, 1794.

DESTROYER. Abbreviation for torpedo boat destroyer, a warship first designed for the purpose of countering torpedo boats. The first torpedo boat destroyer, the *Havock*, was launched for the British navy in 1893, and the type at once proved so successful that in a very short time the construction of torpedo boats was almost completely abandoned by every Power, their place being taken by destroyers. The original function of the destroyer thus passed away, but the development of the submarine has revived it.

In 1914 the latest British destroyers were 260 ft. long and displaced 965 tons. Their speed was 32 knots. In 1919 the largest were 300 ft. long, displacing 1,320 tons and steaming at 34 knots. In 1928-30 destroyers of the A class were built. The largest of these displaced 1,530 tons. They steamed at 37 knots and carried four 4.7 in. guns. Destroyers are

usually organized into flotillas of 20 boats under a captain or commodore. See Battleship.

DESTRUCTOR. Furnace specially designed for burning refuse, specifically city and house rubbish. The modern destructor has been made very efficient by the employment of forced draught and high temperatures. The combustible material, about 80 p.e. by weight, is easily consumed; while the incombustible constituents are reduced to a clinker which may be used for road-filling, etc.

DETAILLE, JEAN BAPTISTE EDOUARD (1848-1912). French artist. Born in Paris, Oct. 5, 1848, he studied under Meissonier, and took part in the war of 1870. This gave him his opportunity, and he became famous as a painter of military life. *Le Rêve* (The Dream), now in the Luxembourg, is one of his most popular works. He died Dec. 23, 1912.

DETECTIVE. A non-uniformed member of a police force. Plain-clothes detectives, as they are often called, are now an important branch of police organizations of most countries. Their duties are mainly to assist in the detection of the authors of crimes.

In the United Kingdom the organizations of the various detective forces are based very largely upon that of the Criminal Investigation Department, the C.I.D., of New Scotland Yard. The department was first established in 1842, and thoroughly reorganized in 1878 by Sir Howard Vincent. The C.I.D. is in charge of an assistant commissioner with headquarters at New Scotland Yard. In 1920 the organization was modified, four groups of divisions being formed, each under a detective superintendent.

DETECTOR. In wireless telegraphy and telephony, a device for rectifying the high-frequency oscillations received on the aerial, so that they are rendered perceptible in a telephone or like instrument. See Crystal Detector; Thermionic Valve; Wireless.

DETONATION. The explosion of a low explosive is merely accelerated combustion, each grain being consumed layer by layer at an extremely rapid rate, while detonation is a distinct phenomenon in which the chemical transformation is induced in every particle of the mass of the explosive at the same instant with consequent greater disruptive effect.

DETROIT. City of Michigan, U.S.A. It extends for many miles along the W. shore of the Detroit river, facing Windsor in Canada, and is 18 m. above Lake Erie, near the S.W. end of Lake St. Clair. The city is the terminus of several rly. lines. Among its buildings are the government offices, city hall, Michigan College of Medicine and Surgery, Detroit College, public library, R.C. cathedral, museum of art, and the Harper Hospital. There is no immense lake and river traffic, and the industries are numerous and various, of which the making of motor cars is the chief. The value of its output is only exceeded by that of three cities in the U.S.A. Owing partly to the increase in the automobile industry, the population of



Camille Desmoulins,
French Revolutionist



Detroit, Michigan. Skyscrapers of the city seen from the Canadian shore of the Detroit river

Detroit, where Henry Ford has his works, has grown enormously. In 1920 it was 993,000, and in 1928 it was estimated at 1,378,000.

DETTINGEN. Village of Bavaria. It stands on the Main, 10 m. N.W. of Aschaffenburg, and on the rly. to Frankfort-on-the-Main. Here on June 27, 1743, the British and Hanoverians under George II in person met the French. The result was a complete victory for the former, which was celebrated by a Te Deum composed by Handel.

DEUCALION. In Greek mythology, son of Prometheus and king of Phthia in Thessaly. When Zeus sent a flood which overwhelmed all living creatures, Deucalion and his wife Pyrrha escaped in a vessel which after nine days' tossing stopped on the top of Parnassus. Deucalion and his wife were bidden by an oracle to throw the bones of their mother over their shoulders. They thereupon threw stones behind them, which became men and women. See Deluge.

DEUTERONOMY. The fifth book of the Pentateuch, of rather Hexateuch. The title, taken from the Septuagint (Deut. 17, 18), means "second Law," and is due to a wrong rendering of Hebrew words which really mean "a copy of this law." The Hebrew title is "Words" or "These are the Words." Deuteronomy contains one of the three chief codes of Hebrew law (Deut. 12-26 in particular). This is preceded by a retrospective and hortatory address by Moses (Deut. 1-11), delivered in the land of Moab, and is followed by an account of the last days of Moses (Deut. 27-34).

DEUTSCHLAND. Name by which the Germans call their own country, as in the song Deutschland über Alles.

The Deutschland was a German submarine built for commercial purposes. Her gross tonnage was 791. In 1916 she made a voyage from Europe to the U.S.A. and back. In April, 1917, she was converted to war purposes. Surrendered to Great Britain after the Armistice, she arrived at the Temple Pier, London, on Oct. 7, 1919.

DE VALERA, EAMON (b. 1882). Irish republican. Born in New York, Oct. 14, 1882, his father was a Spaniard and his mother an Irishwoman. In 1917 he was made president of the Gaelic League, and was arrested for his revolutionary activities. While in prison he was returned to Parliament for E. Clare (1918), but he declined to take his seat, and in April he was chosen president of the Irish republic. Opposed to the treaty signed Dec. 6, 1921, he resigned in Jan., 1922, and headed the republican forces. He was imprisoned from Aug., 1923, to Aug., 1924. A little later he took his seat in Dail Eireann, and as the leader of the republicans, called Fianna Fail, put himself at the head of the opposition to the Government.



Eamon De Valera
Irish republican

DEVELOPER. Substance used in photography for rendering visible the invisible effect of the action of light on a sensitive plate or paper. Typical developers are pyrogallol acid and hydroquinone. Each is used in admixture with an alkali, and with other chemicals, e.g. potassium bromide, to restrain the activity of the developer, and soda sulphite to preserve the solution. See Photography.

DEVELOPMENT COMMISSION. Body of persons established in 1909 to promote the economic development of the United Kingdom. It consists of commissioners, two of whom are paid, who assist, by grants and loans, projects which make for the development of the country's resources but fail to attract private enterprise. Their funds are a sum of money voted by Parliament. The offices are at 6a, Dean's Yard, Westminster, S.W.

DEVENTER. Town of Holland, in the prov. of Overijssel. It stands at the junction of the Yssel and the Schipheek, 66 m. E.S.E. of Amsterdam. An old place, it has several interesting buildings, including the Gothic Groote Kerk, with its 11th century crypt, the Berg Kerk of the early 13th century, and the town hall. The weigh house is a 16th century edifice. Until 1876 Deventer had a famous school, its Athenacum. Pop. 34,056.

DEVI OR MAHADEVI. Hindu goddess, wife of Siva. She is sometimes represented as a beautiful woman riding on a tiger, sometimes as black-skinned, with a terrible and hideous countenance. Human sacrifices were offered and orgiastic rites performed in her honour.

DEVIL (Gr. diabolos, accuser, slanderer) Name given generally to evil spirits, but more particularly to Satan, the Hebraic prince or chief of the powers of darkness. Among the Jews, the idea of a personal enemy outside the human race appears to have arisen at a very early period. The story of the Creation in the opening chapters of Genesis is free from the traditions of a conflict between good and evil which are to be found in other early cosmogonies; but the idea appears in the story of the Garden of Eden.

The Roman Catholic Church gives the name of devil's advocate to the one appointed to bring forward objections against the character of the person it is proposed to canonise.

Devil's-Bit. Name given to a species of scabious. See Scabious.

DEVIL'S BRIDGE. Hamlet of Cardiganshire, Wales. It is 1½ m. S.E. of Aberystwith, on the Vale of Rheidol Rly. It derives its name from a double bridge spanning the Mynach; the lower bridge was erected by the monks of Strata Florida Abbey in the 11th century, the upper in 1753.

Another Devil's Bridge is in Switzerland. It spans the river Reuss near Andermatt.



Devil's Coach Horse, popular name for the cocktail beetle

DEVIL'S COACH HORSE (*Ocypus olens*). Popular name for the cocktail beetle, common in most parts of Great Britain. It is black, with very short wing-cases, and about 1 in. in length. It has a habit of raising its abdomen over its back in a threatening fashion when alarmed. See Beetle.

DEVIL'S DYKE. Name of several prehistoric entrenchments and natural formations in Great Britain. The best known, 5 m. from Brighton, Sussex, is an early British hill-fort whose name has been transferred to a naturalcombe close by. In 1928 it was bought by the town council of Brighton.

DEVIL'S PUNCHBOWL. Popular name of Higheomb Bottom, a wooded glen near Hindhead, Surrey. It is described in Baring-Gould's novel, *The Broom Squire*. The name is also given to a dark lough near the summit of Mangerton, co. Kerry, Ireland.

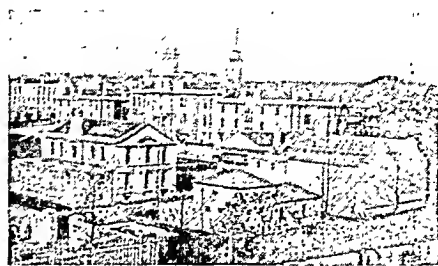
DEVIZES. Mun. bor. and market town of Wiltshire. It stands on the Kennet and Avon Canal, 86 m. W. of London by the G.W. Rly. It is a great agricultural centre. For four centuries before 1750 it was a centre of the cloth manufacture. The chief building is the church of S. John. There is a modern market cross, some old wooden houses, and a museum of antiquities. Devizes became a chartered town in the 12th century, and from 1295 to 1867 sent two members to Parliament. Market day, Thurs. Pop. 6,022.

DEVLIN, JOSEPH (b. 1872). Irish politician. A Belfast man by birth, he became a Nationalist M.P. in 1902 and remained one

until 1922, when the Irish parliaments were set up. Since 1921 he has been a member of the parliament of Northern Ireland, and in 1929 he returned to Westminster as M.P. for Fermanagh and Tyrone.

DEVON. River of Scotland. It rises in the Ochil Hills and traverses parts of four counties—Perth, Kinross, Clackmannan, and Stirling—before entering the Forth at Cambus.

DEVON, EARL OF. English title held intermittently from about 1300 by the old Devon family of Courtenay. The title fell into abeyance in 1556, but in 1831 the Courtenays were allowed to take the title. This earldom must be distinguished from that of Devon-



Devonport. Royal Naval Barracks, which accommodate over 2,000 officers and men. See below

Valentine

shire, held by the Cavendishes, although before the latter existed the Courtenays were called by both titles indifferently. The earl's chief seat is Powderham Castle, near Exeter.

DEVONIAN. System of rocks laid down between the Silurian and the Carboniferous periods. It embraces two types. The Devonian type, abundant in Cornwall and Devon, comprises marine grits, shales, and limestones. Its numerous remains of molluscs and corals give their decorative effect to the hardened limestones called Devonshire marble. The Old Red Sandstone type, well developed in Scotland, S.W. Ireland, and S. Wales, was deposited under fresh-water conditions. It contains fossil fish remains in large numbers, and it also yields for the first time substantial numbers of land plants. The formation extends across Europe and Asia. In N. America Devonian strata are sources of petroleum.

DEVONPORT. Formerly a borough of Devonshire, now part of Plymouth (q.v.). A seaport and naval station on the Tamar estuary, 224 m. S.W. of London, on the G.W. and Southern Rlys., it adjoined Plymouth and was called Plymouth Dock until 1824. It was one of the three towns (Stonchouse and Plymouth being the other two) which were amalgamated Nov. 9, 1914.

The town is one of England's chief naval ports, and its industries are closely associated with the navy. Along the Hamoaze, a fine natural harbour, are barracks, hospitals, and other accommodation for the fleet. At Keyham is the government dockyard, where the largest battleships can be built or repaired; also the R.N. Engineering College. Mount Wise is the residence of the admiral commanding the port. Devonport returned two members to Parliament from 1832 to 1918, and now forms a division of Plymouth, returning one member. See illus. above.

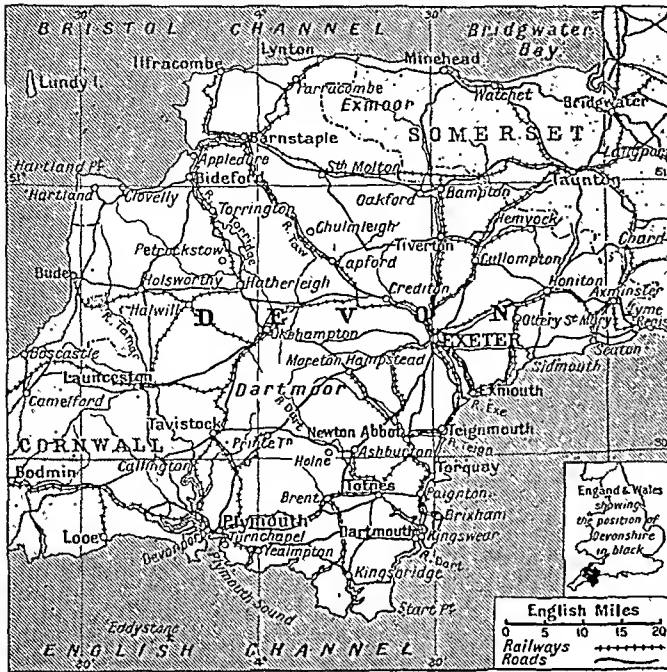
There is a town in Tasmania called East and West Devonport. It stands at the mouth of the Mersey river, 80 m. N.W. of Launceston, and was formerly known as Formby and Torquay.

DEVONPORT, HUDSON EWBANK KEARLEY, 1st Viscount (h. 1856). British politician. Born Sept. 1, 1856, he entered business and became the head of a firm of tea and provision merchants. Liberal M.P. for Devonport 1892-1910, he was made parliamentary

secretary to the Board of Trade in 1905, resigning in 1909 to become first chairman of the new Port of London Authority, from which post he retired in 1925. He was created a baronet 1908, baron 1910, and viscount 1917

class of six cruisers built 1903-05. These displaced 11,000 tons. One of them was the Hampshire. See Hampshire; London.

DEVONSHIRE, EARL AND DUKE OF. English titles borne by the family of Cavendish, the earldom since 1618



Devonshire Map of the west of England county, the cider, cream and cattle of which are known the world over

DEVONSHIRE OR DEVON. South-western co. of England. It lies between the Bristol and English Channels, its area being 2,610 sq. m. The county contains Dartmoor, and also regions where the climate is remarkably mild and the vegetation unusually rich. Most of the county is hilly and the coastline is irregular. It is dotted with health and pleasure resorts, such as Sidmouth and Teignmouth in the S., and Ilfracombe and Lynton in the N. It includes Lundy Island.

The chief rivers are the Tamar, on the Cornish boundary, the Exe, Teign, Dart, and Tavy, all flowing through lovely valleys, and the Taw and Torridge, falling into the Bristol Channel. The chief towns are Exeter, the capital; Plymouth, which now includes Devonport; Torquay, Barnstaple, Tiverton, and Bideford. The county is pastoral, but some minerals are found, including tin, copper, iron, granite, and china clay. Fishing is important, especially for pilchards, herrings, and mackerel. The county cider, cream, and cattle are celebrated. Devonshire is served by the G.W. and Southern Rlys. Pop. 709,614.

In colour deep red, sometimes flecked with white, the Devon brood of cattle, though not among the largest, is one of the most beautiful and economical breeds. Devon cattle are as profitable a beef-producing breed as any in England, and their milk produces the world-famous clotted cream.

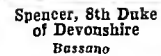
Charles Kingsley, born at Holne, set many scenes of *Westward Ho!* in and about Bideford, and Blackmore's Lorna Doone country passes into Devon at Tiverton. The Wessex of Thomas Hardy's novels extends from Dorset into Devon. S. Baring Gould has written about the county in many of his stories, and Eden Phillpotts has made Dartmoor the scene of a series of his novels.

DEVONSHIRE. British cruiser of the London class. Work was begun on her in 1926, and she was completed in 1929. She displaces 14,000 tons, and carries 8.8 in. guns. An earlier Devonshire was the name ship of a

1737-44. The 4th duke, William Cavendish (1720-64) was made prime minister in 1756-57. The 5th duke (1748-1811) married the beautiful Georgiana Spencer in 1774. Her portrait was painted by Gainsborough, Reynolds, and Angelica Kauffmann.

In 1858 the 6th duke died unmarried. He was succeeded by a cousin, William Cavendish, earl of Burlington, whose long life (1808-91) was largely devoted to furthering the application of science to industry. He was succeeded by his son, Spencer Compton Cavendish, who became 8th duke. Devonshire House, Piccadilly, the town residence of seven dukes of Devonshire, was sold in 1919. The site is covered with shops, offices, and blocks of flats.

DEVONSHIRE, SPENCER COMPTON CAVENDISH, 8TH DUKE OF (1833-1908). British statesman. Born July 23, 1833, the eldest son of the 7th duke, he was elected Liberal M.P. for N. Lancashire in 1857, and as marquis of Hartington sat there until 1891. From 1855 he represented the Rossendale division of Lancashire. A lord of the admiralty in 1863, he held in succession the posts of under-secretary for war, war secretary, postmaster-general, and secretary for Ireland. From 1875-80,



Spencer, 8th Duke of Devonshire
Bassano

during Gladstone's retirement, he was leader of the Liberals in the House. He then served under Gladstone as secretary for India and war secretary.

In 1886, when Gladstone turned to Home Rule, Hartington became a leader of the

Liberal Unionists. In 1895, having been duke of Devonshire since 1891, he became lord president of the council. In 1903 he resigned office, owing to his opposition to tariff reform. He died March 24, 1908, leaving no children.



Victor, 9th Duke of Devonshire

DEVONSHIRE REGIMENT. English regiment, formerly the 11th foot. It was raised in 1685. At the battle of Almanza (1707) it suffered severely, and it won distinction at Dettingen and Fontenoy. During the Peninsular War it came out of the engagement at Salamanca with only four officers and 67 men. The 1st battalion showed great gallantry during the Boer attack on Wagon Hill, Jan. 6, 1900. The 2nd battalion served under Buller at Colenso, Spion Kop, and Vaalkranz. In the Great War the Devons gained special distinction at Neuve Chapelle, Loos, and the Somme. The depot is at Exeter.



Devonshire Regiment badge

DEW. Condensation of atmospheric moisture on solid objects. On a still, clear night the temperature of the earth's surface is lowered by radiation. This causes a cooling of the air in contact with the earth, and if the temperature of the earth falls to, or below, the temperature at which the air is incapable of holding its water vapour without precipitation, i.e. the dew-point, some of the invisible water vapour is changed to liquid, drops of which form on cold, exposed surfaces, whether grass, stones, or the ground itself. The amount of dew deposited depends upon the amount of water vapour in the air.

DEW POND. This is the name applied to ponds, generally on chalk downs, which have no visible means of replenishment other than rain, and maintain their supply of water during hot weather, when ponds at lower levels have dried up. The conclusion has been that they have been fed by dew or mist.



Sir James Dewar,
British physicist
Lafayette

DEWAR, SIR JAMES (1842-1923) British physicist. Born at Kincardine-on-Forth, Sept. 20, 1842, he became Jacksonian professor of experimental philosophy at Cambridge in 1875, and Fullerton professor at the Royal Institution two years later. His brilliant investigations into the liquefaction of gases, dating from 1874, and the properties of matter at extremely low temperatures, have proved of the greatest importance. With Sir Frederick Abel, Dewar in 1889 discovered cordite. Knighted 1904, he died Mar. 27, 1923.

DEWAR, THOMAS ROBERT DEWAR, 1ST BARON (1864-1930). British merchant. Born Jan. 6, 1864, Dewar entered the family business of distillers, and in time became managing director of John Dewar & Sons. From 1900-06 he was a Conservative M.P. In 1917 he was made a baronet and in 1919 a peer. A noted patron of the turf and a witty speaker, he died April 11, 1930.

DEWBERRY. (*Rubus caesius*). Plant resembling the common bramble, but having glaucous stems of a more prostrate habit and larger fruit. See Bramble

DE WET, CHRISTIAN RUDOLF (1854-1922). Boer soldier. Born in the Orange Free State, Oct. 7, 1854, he became a farmer. Noticed for



Christian De Wet.
Boer soldier
Russell

his services in the war of 1880-81, he was from 1885 to 1897 a member of the Volksraad, O.F.S. During the S. African war he commanded the O.F.S. Army. His skill in guerrilla warfare made him the most formidable opponent of Britain in the field. After the peace of 1902, De Wet visited England, Europe and America. From 1907 to 1914 he was minister of agriculture, Orange Free State. In 1914 he joined the rebellion. He was captured, fined, and imprisoned for a year. He died Feb. 3, 1922

DEWEY, GEORGE (1837-1917). American sailor. Born at Montpelier, Vermont, Dec. 26, 1837, he graduated in the U.S. naval academy in 1858. In command of the Asiatic squadron in 1898, he defeated Montojo in Manila Bay on May 1, destroying or capturing the Spanish fleet and all land batteries, without losing a man. He was promoted rear-admiral and thanked by Congress. He died Jan. 16, 1917



George Dewey,
American sailor

DE WINT, PETER (1784-1849). British painter. Born of Dutch descent at Stone, Staffordshire, Jan. 21, 1784, he studied under John Raphael Smith, the engraver, and at the Academy schools. Confining himself mainly to water colour, he first exhibited at the Academy in 1807; and in 1812 became a member of the Water Colour Society. His vigorous and luminous landscapes are painted wholly in "wash". He died Jan. 30, 1849.

DEWSBURY. County borough of Yorkshire (W.R.). It stands on the river Calder, 132 m. from London and 8 m. S. of Leeds, and is served by the L.M.S. and L.N.E. Rlys. By the Aire and Calder navigation there is water communication with Hull. The chief church is All Saints', an Early English building restored and rebuilt in the 18th century and retaining some of its old glass. The chief industries are the making of blankets, shoddy, cloth, and carpets, while around are coal mines. Pop. 54,165

DEXTRIN. White or yellowish-white substance prepared from starch. It is soluble in water, and possesses adhesive properties similar to those of gum arabic. On account of its adhesive properties it is also known as British gum or starch gum. Dextrin is prepared by heating starch previously moistened with an acid, or by subjecting starch to the action of diastase. Dextrin is used in place of gum arabic in industrial processes, and as an adhesive for postage stamps and envelopes.

Dextrose. Name sometimes used as an alternative for glucose (q.v.).

Dhak (*Butea frondosa*). Indian tree of the order Leguminosae, which yields the gum known as butea kino. See Butea.

DHAMNOO (*Grewia elastica*). Tree of the order Tiliaceae. A native of the Himalaya, its strong and elastic wood is used by natives for making bows. It provides admirable shafts for horsed vehicles, and is much used where elasticity is required.

Dhow. Long, fast-sailing Arab vessel, once much used for gun-running and slaving. Dhows are most frequent in the Persian Gulf

DIABASE. Compact crystalline-granular rock. It is a basaltic greenstone, popularly known as whin, and is composed of plagioclase, augite, and other minerals, with or without quartz or olivine. Its dark green colour is due to the presence of a chlorite. Usually distinguished from dolerite by its greater age, it abounds in eruptive and intrusive lavas which are older than the tertiary era. See Basalt.

DIABETES. Disease marked by persistent excess in discharge of urine. It is of two kinds. Diabetes mellitus is characterised by the presence of grape sugar in the blood, from which it passes into the urine. The disease is more common after middle life, and more frequent in men than in women. The condition may be much improved and life prolonged for many years under treatment, which consists either in regulation of the diet so as to reduce to a minimum sugar and starchy foods, or the patient may be treated with an administration of insulin (q.v.).

Diabetes insipidus is a less serious affection characterised by the passage of large quantities of urine of low specific gravity, not containing sugar. It is most common in young persons.

DIABOLO. Game played with a double-coned top spun upon a string stretched between two sticks held one in each hand. The top is repeatedly thrown in the air and caught again on the string while spinning. Its ancestor was a species of top used by Peking and Canton tradesmen to attract customers. During 1906-7 the game of diabolo enjoyed great popularity in England.

DIAGNOSIS (Gr. dia, between; gnōnai, to know). Term in medicine for the act of finding out, by signs and symptoms, from what a patient is suffering. It is done in numerous ways, e.g. taking the temperature, while in more difficult cases a bacteriological examination is made. See Medicine.

DIALA. River and village of Iraq. The river joins the Tigris on its left bank, about 8 m. below Bagdad. It was prominent in the campaign for the conquest of Mesopotamia in the Great War.

DIALLAGA. Variety of the mineral augite. It is grass-green, brown, or grey in colour, with metallic lustre and foliated appearance. It is a characteristic mineral of the gabbro family of rocks, with optical properties like augite (q.v.). Pron. dia-lāje.

DIALYSIS (Gr. separating). In chemistry, the separation of crystalloids from colloids. The chemist Thomas Graham (1805-69) found that if a mixture of colloids and crystalloids, in solution, is placed on one side of a bladder or a piece of parchment paper, and pure water on the other side, virtually the crystalloids alone pass through the semi-permeable membrane into the water. A repetition of the process will completely separate the colloids and the crystalloids. See Osmosis.

DIAMOND. Precious stone, consisting of carbon, and the hardest substance known. Diamonds are almost always found as crystals, whether in the form of microscopic dust, or as giant pebbles such as the S. African Cullinan diamond. A perfect crystal is transparent and colourless: its lustre by reflected light is characterised by flashes of blue, gold, and red fire, the so-called "water." Most stones are tinged with grey, yellow or brown, and diamonds of a red, pink, blue, brown, or green hue are found. Up to 1729 diamonds came from the east, chiefly India. They are found in China, and in the Malay Archipelago. Fine but small stones come from Borneo, and those found in Australia are small and extremely hard. In 1729 the Brazilian mines were opened. Since 1870 S. Africa has provided an increasing proportion of the world's supply.



Dhow, Arabian gun-running vessel

The brilliant-cut diamond has the appearance of two truncated pyramids united at the girdle, the rose diamond has a flat base, the crown being cut into star-facets surrounded by cross-facets. Diamonds are used in the jewellery of chronometers and scientific instruments, and for glazier's tools. Brown diamonds and bort are used for the boring points of rock-drills. Carbonados are rough aggregates of minute crystals. Diamond dust is used for cutting and polishing gems. In 1927 the value of diamonds exported from S. Africa was £12,392,308. See Crown; Cullinan Diamond.

DIAMOND SCULLS. Race for amateur single scullers rowed annually at Henley Regatta. Instituted in 1844, its full title is the Diamond Challenge Sculls. It was won by L. F. H. Gunther in 1929.

Diana. In Roman mythology, an Italian deity identified with the Greek Artemis (q.v.).

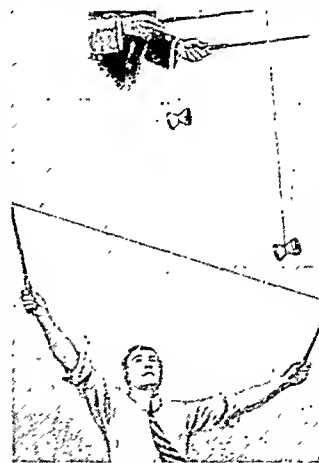
DIAPASON (Gr. diapason chordōn, through all chords). (1) Musical term used with reference to pitch. Diapason normal was the standard pitch adopted in France in 1859. It signifies that middle A has 435 vibrations per second. English pitch is slightly sharper, having 439 vibrations. The oboe always gives the A for orchestral tuning. (2) Diapason is also used for a series of organ foundation stops, 8 and 16 ft. See Organ.

DIAPER (late Gr. diaspros, quite white). Term used in architecture for a small, conventional pattern, geometrical or floral in design, employed in decorating plain stone surfaces. It attained its greatest variety and beauty in Mahomedan buildings. In textile fabrics the word is used for cotton or linen material woven with a geometrical design.

Heraldically, diapering is the decoration of a plain surface with a design which cannot be mistaken for a charge.

DIAPHORETIC (Gr. diaphorein, to carry through). Drug which increases perspiration. Diaphoretics are used mainly in the treatment of diseases of the kidney.

DIAPHRAGM. In anatomy, a large transverse, dome-shaped muscle which divides

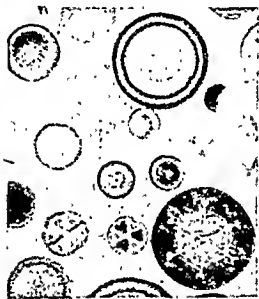


Diabolo. Tautening the cord to throw the top in the air. Above, spinning the top on the cord

the body into its two main cavities, the chest or thorax and the abdominal cavity. It is the principal muscle of respiration, its contraction and descent enlarging the vertical measurement of the chest, and thus assisting in the process of inspiration, while its fibres are relaxed during the movement of expiration.

DIARRHOEA (Gr. diarrhoia, flowing through). Passage of fluid or semifluid evacuations from the bowels. The pathological cause of diarrhoea is increased activity of the rhythmic movements of the intestine. This causes the fluid contents of the small intestine to pass rapidly through the system instead of leaving them in the large intestine long enough for the fluid to be absorbed. The commonest cause is eating indigestible or unsound food. Epidemic diarrhoea of infants is probably largely due to infected milk.

DIASTASE (Gr. diastasis, separation). Ferment contained in malt which has the property of converting starch into dextrin and sugar. It is contained in malt extract, and when this is added to starch paste a clear liquid results. A purer form is prepared by adding alcohol to a cold infusion of barley malt, the flocculent precipitate being separated and dried in a vacuum. The power of converting starch is destroyed entirely if diastase is heated to 75° C. for a short time.



Diatom. Highly magnified specimens of the unicellular algae
Photo. J. J. Ward, F.Z.S.

DIATOM (Diatomaceae). Group of microscopic single-celled plants, equally abundant in fresh and salt water. The cell wall contains much silica, and consists of two

transparent valves, each with a rim and one overlapping the other. Each diatom may be attached to another plant or some other body by a gelatinous stalk, or be unattached and free-swimming. As a rule, diatoms are propagated by division. Over 10,000 species are known.

DIATOMACEOUS EARTH or **DIATOMITE**. This is a siliceous deposit, composed chiefly of the frustules of diatoms, formerly called infusorial earth. Laid down in Tertiary lakes and shallow seas, it resembles the diatom ooze of present-day ocean depths. Near Hanover a deposit called kieselguhr is in demand for dynamite manufacture and as a filtering medium. Diatom earth is also employed for rotproof paints and boiler casings, and for polishing.

DIATONIC (Gr. through the tones). In music, the successive notes of any given scale, major or minor, no two notes of the same letter appearing, and the intervals between the various notes being always the same, whatever the keynote.

DIAZ, ARMANDO (1861-1928). Italian soldier. Born at Naples, Dec. 5, 1861, he commanded the 23rd Army Corps in the Carso battles in 1916. In Nov., 1917, following the battle of Caporetto (q.v.), he replaced General Cadorna (q.v.) as generalissimo and held up the Austro-Germans on the line of the Piave and in the mountains. In Oct.-Nov., 1918, he severely defeated the Austrians along their whole front. He was created a duke in 1921, and died Feb. 29, 1928.



Armando Diaz,
Italian soldier
Russell

DIAZ, PORFIRIO (1830-1915). President of Mexico, 1877-80, 1884-1911. Born at Oaxaca, Mexico, of Spanish parentage, Sept. 15, 1830, he had reached the rank of general by 1861. On Lerdo becoming president in 1872 Diaz led the opposition, and entered Mexico City in triumph, Nov., 1876, was made provisional president, and elected president for four years in May, 1877. In 1884 he was again elected president, and re-elected after each term up to 1910.



Porfirio Diaz,
Mexican president

The long rule of Diaz brought order to Mexico. The country became comparatively pacified, foreign capital was invested, education advanced, trade increased, and the resources of the state were considerably developed. Early in 1911 a revolution led by Francisco Madero drove him to resign, and he left Mexico. He died in Paris, July 2, 1915.

DIBDIN, CHARLES (1745-1814). British song writer and entertainer. Born at Southampton, March 4, 1745, his pastoral operetta, *The Shepherd's Artifice*, produced in 1764, was the first of a long series of musical entertainments written by himself, in which he acted. In 1789 he started his "table entertainments," or *The Oddities*, for which he wrote Tom Bowling and other popular sea songs. His total output amounted to more than 70 dramatic sketches and over 600 songs, in addition to other works. He died July 25, 1814.



Charles Dibdin
British song writer
After Drummond

DICE (plural of die). Small cubes made of ivory, bone, or hard wood, marked on each side with dots from one up to six, and so arranged that the one, or ace, is opposite the six, the deuce, or two, opposite the five, and the tray, or three, opposite the four. Dice are said to have been invented by Palamedes, son of Nauplius, king of Euboea, though Herodotus attributes them to the Lydians. One to five dice may be employed, but two are most usual. A favourite mode of dicing is the simple throw of one player against another.



Dice. Cubes used
in the game

DICKENS, CHARLES (1812-70). British novelist. Born at Landport, Portsea, Feb. 7, 1812, the son of a clerk in the Navy office, Dickens' early childhood was spent at Chatham. When he was eleven his parents moved to London, where his father was soon in such difficulties that he was lodged for debt in the Marshalsea prison, and the boy was put to work in a hacking factory. At twelve he was sent to school, from which he passed to a solicitor's office. This position he relinquished for journalism, becoming a parliamentary reporter and starting to write the sketches afterwards collected and issued in 1836 under the title of *Sketches by Boz*. He now abandoned reporting for literature.



Charles Dickens,
English novelist

The first monthly number of *Pickwick* appeared on March 31, 1836, and two days

later he married Catherine Hogarth, an unfortunate union which ended in a separation in 1855. *Pickwick* was an unparalleled success, and from 1836-39 Dickens was editor of *Bentley's Miscellany*, in which *Oliver Twist* ran serially. This was followed by *Nicholas Nickleby*, 1838, *The Old Curiosity Shop* and *Barnaby Rudge*, 1840, *Martin Chuzzlewit* and *A Christmas Carol*, 1843, *Dombey and Son*, 1846, *David Copperfield*, 1849, *Bleak House*, 1852, *Little Dorrit*, 1856, *A Tale of Two Cities*, 1859, *Great Expectations*, 1860, *Our Mutual Friend*, 1864, and the unfinished *Edwin Drood*, 1870.

In addition to novel writing, Dickens edited the magazines *Household Words* and *All the Year Round*, and gave public readings of his works both in the United Kingdom and in America. He was the first editor of *The Daily News*, a position which, however, he soon resigned. He died June 9, 1870.

The Dickens Fellowship was founded in 1902 to preserve the memory of the great novelist by encouraging the study of his works and promoting, in his spirit, mutual goodwill. Its headquarters are at 48, Doughty Street, London, W.C.1, where is also the Dickens Museum. Consult *Dickens: A Portrait* in Pencil, Ralph Straus, 1928; *This Side Idollatry*, C. E. Boehmhofer Roberts, 1928.

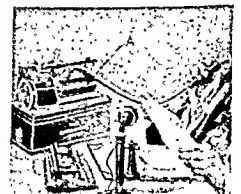
DICKSEE, SIR FRANCIS BERNARD (1853-1928). British painter. Born in London, Nov. 27, 1853, he first exhibited at the Academy in 1876, became A.R.A. in 1881 and R.A. in 1891. He was first employed in black and white illustrations for *The Graphic* and other papers, and in designing church windows. His *Harmony* and *Two Crowns* are in the Tate Gallery, London. He became president of the R.A., 1924, and was knighted in 1925. Dicksee



Sir Frank Dicksee,
British painter

died Oct. 17, 1928.

DICTAPHONE. Phonograph of the wax cylinder type, used in offices as a substitute for a stenographer. A stylus makes a record on the cylinder as the dictator speaks into the mouthpiece. The record is transferred to the transcribing machine used by the typist, who hears the dictated message in earphones. A cylinder can be shaved 130-150 times in a special machine before it becomes useless.



Dictaphone. Words spoken into the tube are recorded on the wax cylinder A. This is then transferred to the transcribing dictaphone, which repeats them
Courtesy of the
Dictaphone Co., Ltd.

DICTATOR. Magistrate in the Roman Republic, appointed in time of exceptional difficulty and danger. The senate determined whether the necessity for a dictator existed, the consul designated the person to be invested. In 44 Antony abolished the office.



Dickens' birthplace 387, Mile
End Terrace, Portsmouth

In modern times the word is loosely applied to any person invested with wide powers to achieve some specific purpose. Adventurers who obtained brief leases of power in S. American republics were called dictators.

DIDCOT. Village of Berkshire. It is 7 m. S. of Abingdon and is an important junction on the G.W.R. Here is a depot of the Royal Army Ordnance Corps. Pop. 2,164.

DIDEROT, DENIS (1713-84). French scholar. Born at Langres, in Champagne, Oct. 5, 1713, he worked for many years as a bookseller's hack. For more than 20 years he was mainly occupied, as joint editor with J. d'Alembert, with that immense undertaking, the *Encyclopédie*, published in 17 vols., 1751-65. Later he was befriended by Catherine II of Russia, whom he visited in 1773. After Voltaire and Rousseau, Diderot was the greatest intellectual force in the France of his age. His best known writings are *Le Paradoxe sur le Comédien*; his satire *Le Neveu de Rameau*; and two works of fiction, *La Religieuse* and *Jacques le Fataliste*. He died July 30, 1784. See Alembert, J. d'.

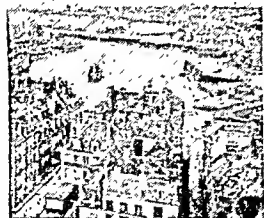


Denis Diderot,
French scholar
After Greuze

DIDO or ELISSA. Legendary founder of Carthage. She was the daughter of Utgo or Belus, king of Tyre, and the wife of Sichaeus. Sichaeus was murdered for his wealth by Pygmalion, successor of Belus, but Dido secured possession of her dead husband's treasures and set sail for Africa. There she purchased some land on which she built a citadel, the nucleus of the city of Carthage. According to Virgil, Dido fell in love with Aeneas (q.v.) when he landed in Africa, and committed suicide after he had deserted her.

DIDYMIUM. Name given to a substance first separated from the cerium group of metals by Mosander in 1841 and then thought to be an element. In 1855 Welshach was able to separate didymium into two elements, praseodymium and neodymium (q.v.).

DIEPPE. Town, sea port, and watering place of France. It stands where the Arques falls into the English Channel, by rly. 105 m. from Paris and 30 m. N. of Rouen. It has a good harbour, divided into an outer and an inner. From here a regular service is maintained with Newhaven. The chief buildings are the restored church of S. Jacques, the churches of Notre Dame de



Dieppe. The harbour, its entrance flanked by chalk cliffs

Bon Secours and S. Remy, and the castle. Other industries, in addition to the shipping, are the making of tobacco, cotton spinning, and shipbuilding. There is a large fish market. Dieppe was an important Allied base in the Great War. Pop. 24,402.

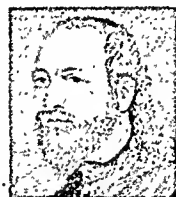
DIESEL ENGINE. Slow speed internal combustion engine in which heavy oil constitutes the fuel. Invented by Rudolf Diesel (1858-1913), it differs from other types in that no definite explosion takes place. The descending piston draws in air, the inlet valve closing at the end of the stroke. On the return stroke the air is compressed to about 500 lb. per sq. in., and its temperature rises to about 1,000° F., which is sufficient to vaporise and ignite a charge of petroleum sprayed into the

cylinder by an air pump at the top of the stroke. The expansion of the ignited charge impels the piston downwards again, an exhaust valve opens, and on its second return stroke the piston expels the products of combustion. This sequence of four movements is repeated as long as the engine is working.

DIET (Lat. dies, a day). In constitutional history, an assembly of those responsible for the government of a country. The word has come to be used for the assemblies known in Germany as Tag, Reichstag, Landtag, and others. The nearest English equivalent is parliament, although diet does not carry necessarily the idea of an elected assembly.

The chief diet was that of the Holy Roman Empire. Another was the Bundestag of the German Empire of 1870-1918. The North German Confederation of 1815-66 had its diet or Bundestag.

DIFFRACTION (Lat. dis, asunder; frangere, to break). Term used in physics. If a narrow slit is placed before a source of light and at some distance a sharp edge is set up, the edge being parallel to the slit, then on a screen placed a little way behind the edge the shadow is not quite sharp, but there are a number of alternate bright and dark bands outside the geometrical shadow, while the light shades off gradually within the geometrical shadow. These effects are said to be due to diffraction of light, and the light and dark bands are called diffraction hands. A diffraction grating consists of a number of equivalent parallel lines ruled on glass or on speculum metal. These fine lines, which are theoretically opaque, split up the light which falls on them and afford a means of measuring the wave length of light. See Light.



Sir Kenelm Digby,
author and diplomat
After Van Dyck

DIGBY, SIR KENELM (1603-65). English author, naval commander, and diplomat. Born July 11, 1603, the son of Sir Everard Digby, one of the conspirators executed for taking part in the Gunpowder Plot, he was knighted in 1623, and in 1625 he married the celebrated Venetia Stanley. As a Roman Catholic, he incurred the suspicion of the Long Parliament, was imprisoned and exiled to France, where he became chancellor to Henrietta Maria. He died June 11, 1665. Of his scientific and philosophic writings the best known are *Observations* (1643) on Sir Thomas Browne's *Religio Medici*, and *Two Treatises: Of Bodies, and Of Man's Soul*, 1644.

DIGESTION (Lat. digerere, to carry apart, divide). Process of assimilation of food in the stomach and intestines. It begins in the mouth. The saliva contains an active principle called ptyalin, which acts upon the starch, converting it into simpler bodies, dextrin and maltose, a form of sugar. Saliva also lubricates the food, which is then passed into the stomach.

In the stomach the food comes in contact with the gastric juice, which has an acid reaction owing to the presence of free hydrochloric acid. The gastric juice contains several active principles which promote digestion. The most important is an enzyme known as pepsin. From the stomach the partially digested mass is passed on into the intestine, where the food comes in contact with the juice secreted by the pancreas. Digestion in the intestine is partly effected by a secretion known as the succus entericus (intestinal juice), and by the bile, which assists the

pancreatic juice in the digestion of fat. The bacteria in the intestine play an important part in the digestive processes, some forming sugar from starch, others breaking up proteids into peptone, and others splitting up fats.

Broadly speaking, digestive proteins and carbohydrates are absorbed by the blood vessels, and fats by the lacteals, or small lymphatic vessels of the intestines. The food is conveyed by these channels to the tissues throughout the body, where it supplies energy or builds up new material to make good waste.

DIGITALIS (Lat. digitalis, of the finger). Genus of biennial and perennial herbs of the order Scrophulariaceae, of which the foxglove (*D. purpurea*) is a familiar example. Natives of Europe, N. Africa, and W. Asia, they have crowded leaves forming a rosette in their first year, but later develop a tall, flowering stem, with bell-shaped, tubular flowers adapted for fertilisation by bees. The leaves contain several powerful principles which render them highly valuable in certain serious forms of heart disease. See Foxglove.

DIJON. City of France. It is 210 m. by rly. S.E. of Paris and was once the capital of Burgundy. The cathedral of S. Bénigne, once an abbey church, dates from the 13th century. Notre Dame, with its wonderful W. front and an old clock, is noteworthy, as are the churches of S. Michel and S. Jean. The hôtel de ville houses a fine collection of paintings, etc. Other buildings are the palais de justice, and an exchange, once a church. There are remains of the Chartreuse, built by Philip the Bold for a mausoleum. Dijon has a university, a public library, colleges, and schools. It is an important rly. junction and is the centre of the Burgundy wine trade. Its mustard and liqueur are famous. On Mt. Afrique is an air lighthouse, one of a series to mark the air route from Paris to Algiers. Pop. 83,815.

DILAPIDATION (Lat. di, apart, lapis, a stone). Term used in general for the act of allowing a building to fall into decay or ruin. In ecclesiastical law its plural, dilapidations, has a special significance. A rector or other incumbent, being legally a tenant for life, is bound to maintain and keep in proper repair his official residence, all buildings belonging to the house, and also the chancel of the church. Surveys are made periodically, and the clergyman or his executor after his death must make good any dilapidations.

DILIGENCE. Stage coach once much used on the Continent and in America; also in England from the middle of the 18th century. The large diligence was drawn by from four to seven horses. It had three compartments, the coupé in front for three passengers, the middle coach for six, and the rotonde behind for another six. Behind the hench on which the conductor sat, itself behind the driver's seat, was a space for the luggage. The small diligence had two compartments, the coupé and the middle or intérieur. See Carriage; Coach.

DILKE, SIR CHARLES

WENTWORTH (1843-1911).

British politician. The son of Sir Charles Wentworth Dilke (1810-1869), he was born in London, Sept. 4, 1843. In 1869 he succeeded his father as 2nd baronet and chief proprietor of *The Athenaeum* and *Notes and Queries*. In 1868 he entered parliament as M.P. for Chelsea. Closely associated with Chamberlain, the two entered Gladstone's ministry, Dilke becoming under-secretary for foreign affairs in 1880. In 1882 he entered the Cabinet as president of the Local Government



Sir Charles and Lady Dilke
London Stereoscopic Co

Board. In 1885 Dilke's official career was ended by his appearance as co-respondent in a divorce case. He protested his innocence, in spite of the verdict, and in 1892 he secured election as M.P. for the Forest of Dean, a seat he retained until his death, Jan. 26, 1911.

In 1885 he married Emilia F. Strong, who was the widow of Mark Pattison. She was art critic to The Academy, and her portrait was drawn by George Eliot in her novel *Middlemarch*.

DILL (*Anethum graveolens*). Annual herb of the order Umbelliferae. It is a native of S. Europe and Asia, with leaves much divided into very slender lobes and minute yellow flowers in umbels. The small flattish fruits are the dill "seed" of commerce, used for distilling oil of dill and for making the carminative dill water.

DILLON, JOHN (1851-1927). Irish politician. A son of John Dillon, M.P., a leader of the Young Ireland party, he became a doctor of medicine. In 1880 he entered the House of Commons as M.P. for Tipperary, and was imprisoned as an ardent Nationalist. In 1885 he was returned for East Mayo, which he represented for over 30 years. In 1896 he was made the official leader of the small band of anti-Parnellites in Parliament. After 1900, when the two sections were united, he was less prominent. In March, 1918, on Redmond's death, he was chosen leader of the Nationalists, but the triumph of Sinn Féin left him almost without a following. He died Aug. 4, 1927.

Dillon's brother, Emil Joseph Dillon (h. 1854), made a reputation as a writer on foreign affairs, especially in *The Daily Telegraph* and *The Fortnightly Review*.

DIMORPHISM (Gr. di, double; morphē, form). Term applied to the phenomenon of a living organism which assumes two very different forms. In certain arthropods male and female are so different in form as to appear to belong to different genera (sexual dimorphism). Some butterflies differ in appearance at different seasons, and some of the individual hydroids in a zoological colony look like entirely different animals. See *Biology*.

DINAN. Town of Brittany, in the dept. of Côtes-du-Nord. It is 15 m. S. of St. Malo mainly on the left bank of the Rance; on the right is the suburb of Lanvallay. The river is navigable, and steamers go to and from St. Malo. Dinan has its town walls partly intact with three gateways; a castle now used as a prison; the cathedral of S. Sauveur, partly Gothic and partly Romanesque, and the church of S. Malo. It has a river harbour. The viaduct over the Rance is notable. The Tour de l'Horloge dates from the 15th century. In the Middle Ages it was a famous Breton stronghold. Pop. 10,161.

DINANT. Town of Belgium, in the prov. of Namur. It is on the right bank of the Meuse with the suburb of St. Medard on the left, 17 m. by rly. S. of Namur. The fine Gothic church of Notre Dame was badly damaged in the Great War. Formerly one of the largest towns in the Netherlands, it began to decay after the destruction of its walls and castle by Charles the Bold of Burgundy in 1466. It belonged then and afterwards to the bishopric of Liège and became Belgian on the foundation of that kingdom in 1830. The name is said to be a corruption of Diana. Pop. 5,907.

Dinant was the scene of fighting between the French and the Germans in Aug., 1914. Later German troops without any sort of investigation fell savagely on the town; they killed 606 civilians, and destroyed 1,263 houses out of a total of 1,375.

DINAR. Yugoslavian silver coin, value about 9½d. It is coined in pieces of 5 and 2 dinars, one, and half-dinar. It is divided into 100 paras.

DINARD. Town and watering place of Brittany. It stands on a headland at the mouth of the Rance, St. Malo being on the other side of the river. Near is the place of St. Enogat. Pop. 6,961.

DINDINGS. Strip of territory on the S.W. coast of the Malay Peninsula, forming part of the Straits Settlements. It is 22 m. long and is included in the Penang Residency. The island of Pangkor (Dinding) is part of it.



Dingey. Smallest ship's boat, used also for purposes of pleasure

These boats are carried mostly by yachts and small vessels, as they are handy and can be dropped or picked up with ease. See *Canoe*.

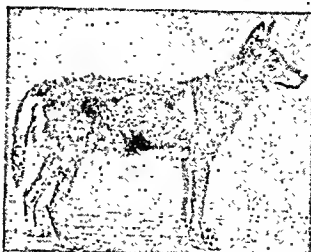
DINGLE. Seaport and market town of co. Kerry, Irish Free State. On Dingle Harbour, a N. arm of Dingle Bay, 30 m. by rly. S.W. of Tralee, it is a centre of the fisheries, engages in mackerel curing, and exports hutter. Market day, Saturday. Pop. 1,998.

DINGO (Canis dingo). Wild dog of Australia. It varies in colour from greyish red to black, and is a little smaller than the common wolf, the head being blunter and more dog-like. The tail is usually bushy, the limbs fairly long. It is common in the wooded districts of Australia, is nocturnal and shy, and is rarely found in packs. The dingo is a great pest to sheep and poultry. See *illus. above*.

DINGWALL. Burgh and co. town of Ross and Cromarty. It is at the head of Cromarty Firth, 18½ m. N.W. of Inverness by the L.M.S. Rly. There is a weekly corn market (Wed.). Pop. 2,323.

DINOSAUR. Order of extinct reptiles living in the Mesozoic era. of gigantic size with tiny brains, they

ated the world of their time by their bulk. Their skeletal remains are found in every continent, occasionally with impressions of the tuberculated skin, while in the Connecticut valley in N. America they have left a hundred varieties of their footprints. The dinosaurus form four sub-orders: 1 Beast-footed (e.g. megalosaurus); 2 Lizard-footed (atlantosaurus); 3 Armoured (stegosaurus); 4 Bird-footed (iguanodon). See *Brontosaurus*; *Diplodocus*, etc.



Dingo, wild dog of Australia. See below *Gambier Bolton, F.Z.S.*

DIOCESE (Gr. diolkēsis, administration). Eccles. area under a bishop's jurisdiction. The word derives from Roman times, when it was applied first to divisions of provinces, and then, under the empire, to a number of provinces, collectively known as a prefecture. The original partition of territories into areas over which the jurisdiction of a bishop extended conformed to the civil divisions of the Roman empire.

Since 1920 the following new dioceses have been created in England: Blackburn, Derby, Guildford, Leicester, and Portsmouth. In Wales the new ones are Swansea and Brecon and Monmouth. The Church of England has now 43 dioceses, 30 being in the province of Canterbury and 13 in the province of York. In Wales there are six. In England and Wales there are 4 Archbishopric and 14 Episcopal Roman Catholic sees; in Scotland 2 and 4 respectively; in Ireland 4 and 24.

The diocesan court is one of the spiritual courts of the Church of England. It is convened for the trial of ecclesiastical causes



Diocese. Map of the ecclesiastical divisions of England and Wales. The dioceses are divided between the provinces of Canterbury and York

land within a diocese, and presided over by the commissary chancellor of the bishop. See *Bishop*; *Church of England*.

DIOCLETIAN (A.D. 245-313). Roman emperor, 284-305. Born in Dioeclea in Dalmatia of humble parentage, he entered the



Diocletian, Roman emperor
Capitol Museum, Rome

army, where he had a distinguished career. On the death of Numerianus he was proclaimed emperor by his soldiers. Owing to the continued pressure of barbarians on the frontiers of the empire, Diocletian thought it wise to appoint Maximian as a colleague, assigning to him the IV. portion of the empire (286). This arrangement was followed by a further division in 292, when Constantius Chlorus and Galerius were appointed Caesars.

The period of his reign was marked by many successes. Britain was regained for the empire in 296, disturbances in Egypt were quelled with great severity, while the Persians and other barbarians were kept well outside its frontiers. The latter years of the reign of Diocletian were marked by a cruel persecution of the Christians. He abdicated on May 1, 305, and died in 313. Under Diocletian the empire became in form what virtually it had long been in fact—an absolute monarchy.

DIODENES, CALLED THE CYNIC (c. 412-323 B.C.). Born at Sinopë on the Euxine, he accompanied his father to Athens and became a pupil of Antisthenes (q.v.). He carried the teaching of his master to extremes, went about slovenly and untidy, and lived in a tub, or more probably a tiny mud hut jokingly called a tub by the Athenians. During a voyage to Aegina he was captured by pirates and taken to Crete, where he was bought as a slave by a rich Corinthian. The rest of his life was spent partly in Athens and partly in Corinth, where he died, 323 B.C.

There were two other philosophers of this name. One, a native of Crete, lived in the 5th century B.C., and taught that air was a living, creative, and thinking substance. The other, who lived in the 2nd century B.C., succeeded Zeno as head of the Stoics.

DIOMEDES OR **DIOMEDE**. In Greek mythology, king of Argos, one of the Greek heroes in the Trojan war. During the war he was under the special protection of Athena, with whose aid he inflicted wounds even on the deities Arès and Aphrodité. Along with Odysseus, Diomedes entered Troy in disguise, and carried off the city's sacred emblem. Diomedes is said to have died at Daunia in Apulia.

Another Diomedes, the reputed son of Arès, was king of the Bistones in Thrace, who possessed a herd of horses which fed on human flesh. He was killed by Hercules. Pron. Di-om-edeceez.

DIONYSIA. In ancient Greece, festivals in honour of Dionysus or Bacchus (q.v.). The chief were those held in Attica, the Greater Dionysia at the beginning of spring, the Lesser in December. The main feature of the former was a procession bearing the image of the god from Lenaëum to the Acropolis and back. The festival symbolised the reappearance or coming to life of nature in spring after its disappearance or death during winter. The dithyrambs sung originally had as their theme the adventures of Dionysus in his progress through the world, and were the germ of the drama. See Drama.

DIONYSIUS THE ELDER (430-367 B.C.). Tyrant of Syracuse. He so distinguished himself in the war against Carthage that in 405 he was made commander-in-chief of the Syracusan forces. He then made himself absolute ruler of Syracuse, and before long had extended his rule to other cities of Sicily. Having carried on a war with Carthage, he forced the Greek cities in Italy to acknowledge his authority. Though oppressive and cruel, Dionysius was a notable patron of art and literature and beautified Syracuse.

Dionysius was succeeded in 367 B.C. by his son, Dionysius the Younger, who was driven out by Timoleon in 343, and retired to Corinth.

DIONYSIUS THE AREOPAGITE. A convert of S. Paul when he preached at Athens (Acts 27, 34). He is said to have become the first bishop of Athens, and to have been martyred there under Diocletian.

Dionysus. In Greek mythology, alternative name for Bacehus (q.v.), the god of wine.

DIOPSIDE. Rock-forming mineral: a variety of augite without alumina, used as a gemstone. It forms translucent prismatic crystals varying from greenish-white through greyish-green to greenish-black. Diopside occurs in Italy, Scandinavia, the Urals, and N. America.

DIOPTASE. Emerald copper ore. Composed of a silicate of hydrogen and copper, and crystallising in six-sided prisms, it is sometimes used as a gemstone. It occurs in Siberia, Germany, Chile, and the French Congo region.

DIORITE. Family of crystalline-granular rocks of igneous origin. Composed of plagioclase and iron-magnesia minerals—usually hornblende, which causes their prevailing dark-green colour—they differ from granite in having no mica and little or no quartz. Diorite axes are found in the Swiss lake-dwellings and elsewhere in neolithic Europe. It was quarried in early Egypt for vases and statues, and was used in early Mesopotamia.

Dioscuri (Gr. Dios kouroi, sons of Zeus). In Greek mythology, name often given to the two heroes Castor and Pollux (q.v.).

DIPHThERIA (Gr. diphtera, leather). Acute infectious disease characterised by the formation of a fibrinous exudate or membrane, most often in the throat, larynx, or nose. It may occur in young infants, but is most frequent between the ages of 2 and 5 years; very few cases occur after adolescence. The disease is probably most often conveyed by infected milk and by contact with sick persons. It is also generally believed, although not conclusively proved, that a certain number of healthy persons who habitually harbour the germ—"carriers," as they are termed—may act as centres of infection.

Diphtheria was formerly a very fatal disease, but the mortality among those attacked has been much reduced since the introduction of anti-toxin treatment. All cases of diphtheria must be notified to the local Medical Officer of Health under the Infectious Diseases Act of 1889.

DIPLODOCUS. Genus of extinct gigantic N. American land reptiles. They were herbivorous, lizard-footed dinosaurs, living in Jurassic times. They were long-necked, long-tailed, and walked on all fours. Their small heads had the nostrils on the top.

DIPLOMA. Certificate or other mark of efficiency, akin to a degree. Diplomas are given by institutions not of university rank, and also by universities in subjects in which they are not entitled to give degrees.

The Diploma Gallery is the home of the examples of work which artists, on becoming R.A., are required to present to the Academy within six months of their election. The collection is at the Royal Academy, Burlington House, London.

DIPLOMACY. Art of conducting negotiations between states.

Generally speaking, the business of the diplomatist is not to settle questions of policy, but to negotiate on the lines of a policy which is communicated to him by his ministerial chief. Up to the middle of the 19th century it was often necessary to leave a large measure of discretion to an ambassador at a distant capital. The introduction of the telegraph has given all diplomatic envoys the opportunity of referring to headquarters for instructions even upon the most urgent questions, but in shaping the national policy a foreign minister will always be guided by the information and the suggestions received from diplomats.

Abuses of diplomatic privilege are not unknown even at the present day, but international lawyers are unanimous in holding that the person of a diplomatic envoy ought to be inviolable, however gross his misconduct. It may be permissible, if his conduct constitutes a public danger, to place him under arrest as a temporary measure of precaution. This course was adopted by the government of George I in the case of a Swedish minister in London who was found to be intriguing with the Jacobites in 1717; but as a rule it is considered sufficient to demand the recall of the offending envoy. In this way the U.S.A. took action in 1915 against Dr. Konstantin Dumba, the Austro-Hungarian ambassador, who was endeavouring to promote munition strikes. See Ambassador.

Diplomatic Service is the collective name for the officials authorised to represent their country politically at a foreign court. In Great Britain the service is controlled by the Foreign Office. Candidates must be well recommended to the foreign secretary, approved by a board of selection, and have then to pass a qualifying examination, chiefly in languages. See Civil Service.

DIPLOMATIC. Word used for the critical study of documents, especially historical. This study was first called diplomatic (res diplomatica) in France in the 17th century, doubtless because some of the documents were known as diplomas. Diplomatie is concerned solely with the genuineness or otherwise of the documents, and arose at a time when forgeries of ancient charters, etc., were plentiful and undetected. See Ambassador; Manuscripts; Palaeography.

Dipper. Name sometimes applied to the water ouzel (q.v.).

Dipsomania (Gr. dipsa, thirst; mania, madness). Name given to the uncontrollable desire for alcohol. See Alcoholism.

DIPTERA (Gr. two-winged). One of the orders into which insects are divided. Something like 40,000 species are known in this order, which includes the house fly, crane fly, and the gnats. Only the two fore wings are present, the hind ones being represented by halteres or balancers. The mouth parts are suctorial. The larvae are usually white maggots without legs or well-defined head.



Diplodocus. Prehistoric land reptile weighing about 20 tons

DIPTYCH (Gr. diptychos, folded in two). Hinged, two-leaved tablet of wood, metal, or ivory. Folded together like a book, with its



Diomedes, from a bust by Polycleitos
Louvre Museum

inner surfaces coated with wax, it was used by the Greeks and Romans for writing on with a stylus. Later, the diptych was adopted by artists, the tablets being replaced by panels on which were painted pictures, mostly of a religious character. See Triptych.

DIRCÉ (Gr. Dirke). In Greek mythology, wife of Lycus, king of Thebes. For her cruel persecution of Lycus's former wife, Antiope, the children of the latter, Amphion and Zethus, when they reached manhood, besieged Thebes, killed Lycus, and tied Dirce to a bull. Pron. Dir-see.

Directoire Style. Simplified form of decoration which preceded the empire style in France. It marked a reaction in taste from the 18th century modes. See Directory.

DIRECTOR (Lat. dirigere, to direct). One who holds a governing administrative position. The name is given to various officials in the War Office, e.g. the Director of Military Operations; to high officials in civil departments, e.g. the Director of Finance in the Ministry of Pensions; and also to some education secretaries.

In English company law a director is a person appointed under the articles of association to manage a company. The directors must act as a body, and the decision of the majority is final. They have power to bind a company in matters not outside its memorandum of association. Usually they must have a financial qualification, and are liable for gross negligence in the discharge of their duties and for breaches of trust. See Company Law.

DIRECTORY, THE (Fr. Le Directoire). Committee of five who governed France from 1795 to 1799. They were chosen by the council of ancients, the upper house of the assembly, from 50 persons elected by the 500 members of the lower house. The directors were Rewbell, Barras, La Révellière-Lépeaux, Carnot, and Letourneur. They divided the various departments between them, their headquarters being in the Luxembourg. Differences soon appeared, and in 1797 Sieyès, now one of the five, was planning to overthrow the constitution of 1795, when Bonaparte arrived in France, and by the coup d'état of 18 Brumaire (Nov. 9, 1799) put an end to the Directory. See French Revolution.

DIRIGIBLE. Term applied to any aerial vessel capable of being steered. It was originally employed to distinguish from the ordinary balloon the lighter-than-air vessel which on being fitted with motive power of its own acquired dirigibility. See Aeronautics; Airship; Balloon.

DIRK (Gael. duire). Dagger or poniard worn by Highlanders. Its triangular blade is pointed, and its length varies from 12 ins. to 20 ins.

It is also the side-arm of a midshipman in the British navy. See Dagger.

DIRT TRACK RACING. Form of motor cycle racing on a dirt or cinder track. Features of the sport are the shortness of the laps, these averaging about 440 yds., and the sharpness of the turns. It was introduced into England in 1928 from Australia and soon became popular. Meetings are held at Lea Bridge,

Stamford Bridge, Crystal Palace, White City, Harringay, and Wembleton in the London area, and at Birmingham, Manchester, Liverpool, Leicester, Bolton, Blackpool, and other cities.

Leagues have been formed, each computing team consisting of six riders. Each team competes with every other twice in the season, on the principle of the Football League, the team with the highest points becoming champion.

Dis. In Greek mythology, alternative name for Hades or Pluto (q.v.).

DISCIPLE (Lat. discere, to learn). One who professes to be learning or to have learned something from another and maintains what he has learned. The word is applied to the immediate followers of Jesus Christ. After the Ascension it was used of all who professed teaching. The word occurs once in the O.T. (Isaiah 8), and in the N.T. is applied to Moses (John 9); followers of John the Baptist (Matt. 9); and followers of the Pharisees (Matt. 22). See Apostle.

The religious body known as Disciples of Christ or Churches of Christ arose simultaneously in America and in Britain about 1800, their object being to procure Christian unity by a restoration of New Testament Christianity. Alexander Campbell (q.v.) was the chief leader. The body is orthodox, eschews party names, and practises baptism (immersion) of believers, for remission of sins.

DISCLAIMER. In English law, a renunciation or denial. A person nominated in a will as executor may disclaim before probate. A trustee in bankruptcy may disclaim an onerous property—e.g. a lease—on paying compensation. A tenant of land disclaims his landlord's title if he denies his obligation to payment, or sets up a title to the land in himself, denying his landlord's title.

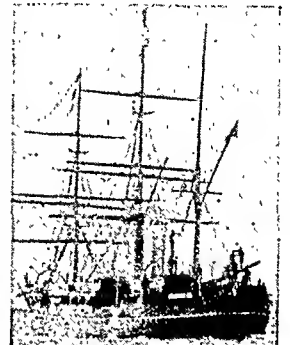
DISCO OR **DISKO.** Island off the W. coast of Greenland, N. of Davis Strait and separated from the mainland by Waigat Strait. It has stone quarries, lignite coal mines and valuable fisheries. The harbour and town of Godhavn lies on the S. coast. Its area is 3,005 sq. m.

DISCOBOLUS. Name of the bronze statue by Myron (q.v.) representing an athlete "throwing a discus." The British Museum (Townley Marbles) has a copy, and there is another in the Vatican.

DISCOUNT (Lat. dis, off, away; Fr. compter, to count). Financial term for an allowance made when a bill or debt is paid before it is due. It is chiefly used in connexion with bills of exchange. In a looser

sense it means the amount allowed off the prices that buyers pay for goods. The word is also used for the amount by which any investment or security is less than its face value. In this sense discount is the opposite to premium. See Bill of Exchange.

DISCOVERY. British ship. Of the several Discoveries, all used in Polar exploration, the first, commanded by William Baffin, made six voyages to Arctic regions between 1602-16. The second voyaged to Hudson's Bay in 1719. The third took part in Capt. Cook's third voyage; in the fourth Vancouver found the land named after him. The fifth was commanded by Capt. H. F. Stephenson during the Franklin Relief Expedition of 1875. The sixth carried Capt. R. F. Scott's expedition to the Antarctic, in 1901-4. She was 172 ft. long, with a tonnage of 475-485. A later Discovery was the vessel in which Sir D. Mawson went to the Antarctic in 1929.



Discovery. Captain Scott's vessel sailing for the Antarctic in 1901
Eastwood

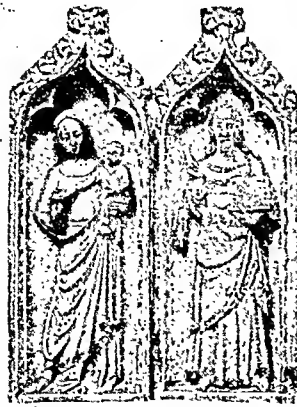
DISCUS (Gr. diskos). Round or oval piece of stone or metal. Throwing the discus was one of the contests of the Greek Pentathlon (q.v.) and is still a favourite pastime in Greece. The sport was revived at the Olympic Games in 1896. The regulation modern discus consists of a circular piece of wood of about 8½ ins. in diameter surrounded by a rim of iron, a piece of lead being inserted in the centre to bring the weight up to 4½ lb. The world's record was made by C. Hauser, in the U.S.A., 1926, his throw being 103 ft. 6½ ins.

DISEASE. Ill-health due to a recognizable cause. A localised disease is one limited to a definite part of the body, for example, lupus. A constitutional disease is one which affects the whole body, such as scarlet fever. An infectious disease is one due to the action of a micro-organism in the body, or part of the body. An epidemic disease is one which attacks a large number of persons more or less simultaneously. An endemic disease is one which tends to occur in a particular locality. A congenital disease is one present at birth. A tendency to develop a disease may be inherited. Thus the offspring of tuberculous parents are more likely to develop tuberculosis than those from healthier stock.

Certain infectious diseases must be notified to the medical officer of health, who can order infected rooms to be re-papered or drains relaid; and certain forms of poisoning occurring in factories and workshops must be notified at once to the Home Office. See Notification.

The Diseases of Animals Act, 1894, imposes upon anyone who owns or has charge of animals suffering from disease the duty of segregating them from sound animals. This and other Acts also deal with disinfection, importation of animals, declaration of infected places, and slaughter of diseased or suspected animals. See Cattle; Dog; Horse.

DISESTABLISHMENT. Term used for the separation of church and state. It is usually associated with disendowment, but it is possible to disestablish a church and leave it in possession of its property. Church and state were separated in France, Dec. 11, 1906.



Diptych in ivory, showing The Virgin and Child and Christ blessing. Early 14th century; 81 inches high
Victoria & Albert Museum



Discobolus. Vatican copy of the bronze statue by Myron



Dirk. Highlander's dirk and sheath

The Irish Church was disestablished and disendowed from Jan. 1, 1871. After several attempts to disendow and disestablish the English Church in Wales, a bill was passed in 1914 and came into effect in 1920.

The movement for the disestablishment of the English Church started about 1831. The Society for the Liberation of Religion from State Patronage and Control, known as the Liberation Society, was founded in 1844, and the Church Defence Institution in 1860. Some members of the English Church have expressed themselves willing to agree to disestablishment. See Church of England.

DISFRANCHISEMENT. Depriving persons of the franchise or right to vote, and also of the right to be separately represented. A parliamentary constituency is disfranchised when it loses the right to send separately a member or members to the House of Commons. Under the Reform Act of 1832 no fewer than 56 boroughs were wholly disfranchised, others suffered the same fate under the Acts of 1867, 1884, and 1918. The individual voters are not disfranchised; they become voters in the constituency in which the borough is merged.

The second kind of disfranchisement is taking away the right to vote from individuals. Thus in 1782 the vote was taken away from those employed in the excise, customs, and post office, and was not restored until 1867. In 1918 conscientious objectors were disfranchised for a limited period. See Franchise; Vote.

DISINFECTION. Process of destroying disease organisms given off (a) by sufferers from an infectious or communicable disease, and (b) by non-sufferers who are "carriers" of disease organisms; also the destruction of such parasites as fleas, bugs, and lice.

No agent can be regarded as a disinfectant unless it is capable of completely destroying the organisms against which it is employed. Agents which merely check bacterial growth and prevent decomposition are known as antiseptics, while others which oxidise, absorb, or mask odours are termed deodorants. Liquid or gaseous disinfectant agents are preferable to solids, for the former, being in solution, can be much better distributed.

There are various methods of disinfection: (1) By burning or exposure to high temperatures, boiling water, hot air, and steam; (2) by the action of oxidising agents, such as atmospheric air, chlorine, various fluids, etc.; (3) by the action of reducing agents, sulphurous acid, etc.; (4) by agents which enter into combination with albumen, such as perchloride of mercury, sulphate of copper; (5) by agents which exercise a directly poisonous effect on micro-organisms—perchloride of mercury, iodine of mercury, and phenols. See Public Health; Sanitation.

DISLOCATION (late Lat. *dislocare*, to put out of place). Displacement of the head of a bone from its socket in a joint. This is sometimes congenital, when the condition is due to some fault in development. The hip is the joint most frequently affected. More often dislocation is due to violence, such as a fall, particularly if a strong muscular effort is made at the moment of injury. When the skin is broken and communication is made with the external air, the condition is spoken of as compound dislocation, and when associated with fracture



Dislocation of the shoulder, the head of the humerus being forced downwards

of a bone the term fracture-dislocation is employed. See Massage; Surgery.

DISPENSATION (Lat. *dispensare*, to weigh out, distribute). Term denoting (1) a general scheme under which certain laws and regulations are appointed to men, as the Jewish dispensation, the Christian dispensation; (2) a relaxation or suspension of a law granted in a particular case, while the law remains binding on the community.

In the Roman Catholic Church the pope claims as vicar of Christ to grant dispensations from certain impediments in matrimonial cases, from vows and from orders. By delegation the power of dispensation is vested in certain tribunals and congregations, and delegation is further exercised by bishops, vicars-general, and parish priests.

DISPENSER. Person qualified under the Pharmacy Acts to carry on the business of a chemist and druggist, which includes the dispensing of physicians' prescriptions. In Great Britain pharmacists have no monopoly except in so far as the dispensing involves the sale of scheduled poisons. As most prescriptions contain a small amount of poison, dispensing is virtually a monopoly of registered chemists. Dispensers in the army are known as compounders. To become a dispenser it is necessary to dispense for six months before entering for the assistants' examination. Candidates must be 19 years of age before they can enter for the examination. Of recent years a number of women have entered the dispensing profession. See Chemist.

DISPERSION. Name given to a phenomenon in optics. If a narrow pencil of rays of white light, such as sunlight, is allowed to pass obliquely from one medium into another, as from air into water, glass, or crystal, it is found that in the second medium the light is split up into light of several colours. This is the phenomenon referred to as dispersion. See Diffraction; Light; Optics.



Isaac D'Israeli, British author

May 11, 1766, and is famous as the compiler of four entertaining literary miscellanies, *Curiosities of Literature*, 6 vols., 1791–1834; *Calamities of Authors*, 1812–13; *Quarrels of Authors*, 3 vols., 1814; and *Amenities of Literature*, 3 vols., 1841. He died at Bradenham House, Bucks, Jan. 18, 1848.

DISRUPTION. Name given to the secession, on May 18, 1843, of 420 ministers of the Church of Scotland on the question of the patronage of livings. The seceding ministers, who numbered nearly half the church ministers, were followed by their congregations. Under the leadership of Dr. Thomas Chalmers (q.v.), they formed the Free Church of Scotland (q.v.).

DISS. Urban dist. and market town of Norfolk. It is on the river Waveney, 19 m. S.W. of Norwich, on the L.N.E.R. Formerly noted for "Suffolk hempen cloth," it now manufactures brushes and mats. Here are a notably fine church and the picturesque Diss Mere. Market day, Friday. Pop. 3,513.

DISSENTER (Lat. *dissēntire*, to disagree). One who dissents from the doctrine or discipline of the established Church of England.

The term came into use soon after 1688.

Dissenting Deputies is the name given to an association of laymen, representing the Presbyterian, Congregationalist, and Baptist denominations. It was formed in 1732, and has the privilege of approaching the sovereign and offering an address. See Non-conformity.

DISTAFF (A.S. *distæf* = disc, bunch of flax; staff). Short cleft stick on which was wound wool, carded cotton, or flax to be spun. It was held under the left arm, and the threads drawn from it were twisted by the forefinger and thumb of the right hand. The spun thread was wound on a bobbin suspended from the thread and rotated so as to prevent the spun thread from untwisting.



Distaff. Peasant girl of Normandy with spinning wheel and distaff

The term is also used for the staff or rock of a hand-spinning wheel, upon which flax is suspended.

DISTEMPER. Species of painting in which the colours are mixed with a glutinous binding vehicle soluble in water. It is executed on wood or canvas, the surface of which has been coated with chalk or plaster mixed with gum. It is sometimes known as *tempera*. The word is also used for a kind of paint put on the walls of a house as a substitute for paper.

DISTEMPER. Disease of dogs. It is due to a specific microbe, and is highly infectious. Puppies, from three to nine months old, are more liable to it than older animals. The first symptoms resemble those of cold, with a discharge from the nostrils. Loss of appetite follows, and unless care be taken the after results may be dysentery, gastroenteritis, or pneumonia. The patient should be kept warm, light and digestible food given, and, if necessary, an aperient, such as castor oil mixed with syrup of buckthorn.

DISTHENE. Crystalline mineral composed of silicate of alumina. Differing from andalusite in forming triclinic crystals, its name was given by French mineralogists because it cannot be scratched with a knife except along the large prism face.

DISTILLATION (Lat. *destillare*, to drop down). Physical process by which a substance or constituent of a substance is converted into vapour and then condensed to a liquid state. The condensing apparatus consists in its simplest form of a vessel known as the still, in which the substance is heated; a condenser or vessel for cooling the vapour; and a receiver in which the liquefied vapour is collected. Distillation is employed in the manufacture of alcohol and strong spirits, and in many industrial processes. Potable, i.e. drinkable, spirits are distilled from wine, cider, barley, rye, corn, potatoes, rice, etc., and industrial alcohol is made from sugar-beet, molasses, and sawdust. The latter kinds can be used for potable purposes when rectified (see Alcohol; Still). Where in one operation it is desired to rate two or more volatile liquids having different boiling points, fractional distillation, an arrangement for collecting the distillates according to their volatility, is resorted to.

Destructive or dry distillation is the name given to the process when the substance being distilled is decomposed by the heat employed, e.g. in the manufacture of coal gas. In metallurgy, distillation is a method of extracting metals from ores by heating and subsequent cooling. See Brandy.

The Distillers' Company is one of the London city livery companies. The offices are at the Guildhall, London, E.C.

DISTINGUISHED CONDUCT MEDAL.

British military decoration. It is conferred upon warrant officers, non-commissioned officers and men for "individual acts of distinguished conduct in the field." The obverse of the medal bears the effigy of the reigning king; reverse, inscription, "For Distinguished Conduct in the Field." The ribbon is three stripes equal width, outside red, centre blue.



Distinguished Conduct Medal

DISTINGUISHED FLYING CROSS.

British decoration awarded for gallantry on active service to officers and warrant officers of the Royal Air Force. It was instituted in 1918, and the ribbon is purple and white, striped horizontally.

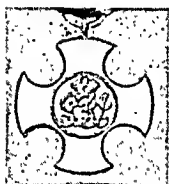
The Distinguished Flying Medal is awarded to non-commissioned officers and men of the Air Force. Instituted in 1918, it is given only for acts of gallantry when flying against the enemy. The ribbon of this decoration is purple and white, striped horizontally.



Distinguished Flying Cross

DISTINGUISHED SERVICE CROSS.

Silver cross established in Britain in 1901 as the Conspicuous Service Cross, its present title being substituted in Oct., 1914. It is awarded to all naval officers below the rank of lieutenant-commander, and to warrant officers whose services have been noted by special mention in dispatches. The ribbon is three stripes equal width, outside blue, centre white.



Distinguished Service Cross

DISTINGUISHED SERVICE MEDAL.

British medal instituted in Oct., 1914. Its award is confined to chief petty officers and lower ratings in the navy, and to non-commissioned officers and men in the Marines, and it is granted to those "who set an example of bravery and resource under fire, but without performing acts of such pre-eminent bravery as would render them eligible for the Conspicuous Gallantry Medal" (q.v.). The ribbon is three stripes equal width, outside blue, centre white with a thin blue stripe.

Another Distinguished Service Medal is open to the rank and file of the Indian army. The medal bears the sovereign's profile, the reverse having a laurel wreath inscribed "For Distinguished Service." The ribbon is deep violet with borders of blue. This decoration was founded June 25, 1907.



Distinguished Service Medal

DISTINGUISHED SERVICE ORDER.

British naval, military, and R.A.F. order given to officers. It was instituted by Queen Victoria on Nov. 9, 1886, the 50th year of her reign. Recipients are called companions, the reigning monarch being the sovereign of the order.



Distinguished Service Order badge

British officers only are eligible for the companionship. Officers can be nominated only after their names have appeared in dispatches for "meritorious or distinguished service in the field or before the enemy."

The badge of the order is a gold Maltese cross, enamelled white, edged gold, having on one side the imperial crown in gold and on the reverse the imperial and royal cipher; it is suspended from the left breast by a red ribbon, edged blue.

DISTRAINT or **Distress** (Lat. *distragere*, to pull asunder). In English law, the right to seize goods, without process of law, as security for a debt. The most usual case is that of a landlord seizing a tenant's goods for rent. Distress must now be levied by the landlord himself or a bailiff certified by the local county court, and can only be levied between sunrise and sunset. No forcible entry can be made. Under an ancient statute a landlord whose tenant has fraudulently removed his goods to evade distress may follow and distrain upon them within 30 days.

DISTRIBUTION, THREE-WIRE. Method of electrical power transmission devised by Dr. John Hopkinson. The current from two dynamos coupled in series goes to two mains, A and B, which constitute a primary circuit. A third wire, C, receives current from one dynamo only. Thus the potential difference between the third wire, C, and either of the two primary mains is only half the total voltage. Therefore any lamps connected between A and C or A and B will receive only half the voltage in the primary circuit.

DISTRICT COUNCIL. In the United Kingdom, a body elected for local government purposes. There are two types of district council, the urban and the rural, both established in England and Wales by the Local Government Act of 1894. Every urban district has a council. Its members are chosen by the ratepayers in April, and serve for three years. Their duties are to safeguard the public health by looking after the drainage, the water supply, infectious diseases, etc.

Every rural district, which may be either a single parish or a group of parishes, has a council. The number of members is fixed by the county council.

DITCHLING BEACON. Hill of Sussex, one of the highest points of the South Downs. Rising near Hassocks, about 7 m. from Brighton, it is 513 ft. high, and on its summit are remains of a British camp. In 1928 the beacon was bought by Brighton.

DIURETICS (dia, through; ouron, urine). Drugs employed to increase the quantity of urine. They are used to dilute the urine when it tends to precipitate solid matter, in certain forms of Bright's disease, heart disease, and diseases of the lungs; and in dropsical conditions to diminish the amount of fluid in the body. The more important diuretics are digitalis, caffeine, scoparia, buchu, juniper, pituitary extract, potassium acetate, and potassium nitrate.

DIVER (*Colymbus*). Family of birds with three British species. They have their feet set very far back, which gives them an upright

attitude when standing and an awkward gait when walking. They feed on fish, and spend the winter at sea, visiting inland waters in the nesting season. They can remain under water for more than five minutes. The Great Northern diver (*Colymbus glaucialis*) is found in Western Europe, Ireland, and Canada. It is over 30 ins. long, and has black plumage thickly spotted with white on the upper parts, with white below. The Black-throated diver (*C. arcticus*), found in the Hebrides, Scandinavia, Northern Asia, and America, is somewhat smaller.

DIVES (Lat. *rich*). The rich man in Jesus's parable of the Rich Man and Lazarus (Luke 16, 19-31) is often designated by the Latin equivalent *Dives*. His lot in this world and the next is contrasted with that of Lazarus, a beggar; whereas Lazarus is comforted, *Dives* suffers anguish.

DIVIDE. Word used in America and Australia for a mountain range dividing two valleys, as the Great Divide in Wyoming and the Great Dividing Range in Australia.

DIVIDEND (Lat. *dividendum*, something to be divided). Usually the money distributed from profits to the shareholders in joint stock companies. Dividends are usually of two kinds, those on preference or preferred shares, which are at a fixed rate, and those on the ordinary shares, which vary with the profits. Many companies pay two dividends a year: one an interim dividend and the other a final one, paid after the year's accounts are made up. The Companies Act of 1862 laid down that no dividend must be paid except out of profits. Some few dividends are paid free of income tax, but from the majority the tax is deducted. They are sent by means of dividend warrants, which are stamped to serve as cheques. See Company Law.

DIVI-DIVI (*Caesalpinia coriaria*). Small tree of the order Leguminosae, a native of S. America. The leaves are divided into leaflets, the latter again into slender segments. The white flowers are in branched sprays, and are succeeded by S-shaped flattened pods which are exported for the tannin they contain.

DIVINATION (Lat. *divinare*, to see like a god). Quest or discovery of the unknown by non-rational processes. In the stricter sense divination is subjective or intuitive. It makes use of (1) dreams; (2) autohypnotism; (3) subconscious impression; (4) necromancy. Its highest manifestation is the oracle. Dreams are either involuntary or purposely sought by crystal-gazing and the like.

The objective processes include the observation of (1) living things, as in augury and palmistry; (2) dead things, as in the inspection of entrails and shoulder-blades; (3) physical objects, as in astrology, geomancy, and the behaviour of sand, fire, or water; (4) magical mechanisms, as suspended rings, keys, or sieves; (5) the consultation of hooks at random—Virgil, the Bible; (6) the casting of lots. See Augur.

DIVINE RIGHT. Political theory that all authority has a divine sanction, and that the sovereign power does not exist merely by the will of the people or the consent of the government. This doctrine was most in evidence during the reigns of James I and Charles I, and the clash between it and the ideas held by the parliamentarians was the fundamental cause of the Civil War.

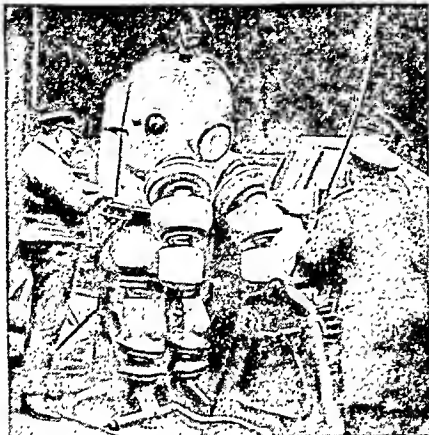
DIVING. Act of plunging into the water. One of the most useful methods, especially for racing purposes, and for diving into shallow water, is the straightforward plunge, in which the body is hurled head foremost from a position almost level with the water, at a very little depth beneath the surface for a distance of some 30 ft. The swallow dive, a jump from a height of 40 ft. to 50 ft., with the



Diver. Great Northern Diver. Largest of the group

arms outstretched at right angles to the body, is a graceful variety. See Swimming.

Another form of diving is for the recovery of sunken treasure from the sea and like purposes. The diving dress generally used is made of indiarubber, interposed between layers of twill. The only openings are at the wrists, compressed by elastic cuffs, and at the



Diving. Neufeldt and Kuhuke's snit, a rigid case made of an aluminium alloy with jointed limbs

top. The neck of the dress is clipped by bolts and nuts to a copper corselet, on to which the copper helmet screws. The helmet is provided with a removable window in front, a fixed window in each side, a non-return air inlet valve, and an air-escape valve. A telephone may also be fitted. On each side of the helmet is a hook to carry the leaden breast and back weights. A pair of stout boots, weighted with metal, completes the dress. A lifeline is used for raising and lowering the diver, and for signalling. A length of flexible wire-lined rubber tubing connects his helmet with an air-pump.

The air within the dress must be kept at a pressure corresponding to that of the water. Under high pressure a diver's blood vessels and tissues absorb excess nitrogen from the air, and when he ascends he must do so by stages, resting a period at each stage, so that the nitrogen may disperse. The greater the depth the shorter is the period the diver can safely remain, and the longer must be the time taken in his ascent.

For deep-sea diving a type of dress has been devised in which the diver is entirely enclosed in a rigid shell of aluminium or steel, with jointed arms and legs. Oxygen and air are provided, and carbonic acid given off in breathing is absorbed by a mask. By means of pine-needle-like implements operated from within the shell the diver may use a variety of tools. The air in the dress is at normal pressure, and the diver can remain below for long periods even at extreme depths.

The diving bell is a strong rectangular, open-bottomed steel chamber. Its weight is sufficient to allow it to sink when blown empty by air forced in through a valve at the top. It is lowered by a crane mounted on a stage pier or barge. The top has windows of thick glass in it, and the interior is furnished with seats, electric lamps, telephones, and tackle to which heavy objects can be attached. See Caisson; also illus. p. 338.

DIVING ROD. Twig used in "dowsing" or searching for subterranean springs of water or veins of ore. The dowser holds a forked twig in his hands, which on approaching the hidden water or metal twists and sometimes breaks. This practice has been in use from very early times. In the majority of cases which have been tested the results have proved entirely negative.

DIVISION. Word used in several senses. In a political sense it is used in the United Kingdom and other parts of the British empire for an electoral area that sends a member to the House of Commons. In both houses of parliament the act of voting, by passing into the lobbies, is known as a division.

In the military sense a division is a unit, the one between an army corps and a brigade. It consists of from 12,000 to 16,000 men. During the Great War the division was perhaps the most important of all the units, and it became usual to reckon the strengths of the various combatants in divisions.

DIVORCE (Lat. *divertere*, *divortere*, to separate). Formal ending of the legal tie between husband and wife. The present law of divorce in England and Wales was created substantially by the Matrimonial Causes Act, 1857, which first set up the divorce court.

By the Matrimonial Causes Act of July, 1923, a man and woman are placed on equal footing. Under this important enactment a divorce can be obtained for (1) adultery, or (2) desertion for three years and upwards, or (3) cruelty, or (4) incurable insanity of the other spouse if continuously certified as a lunatic for a period of at least five years immediately preceding the petition, or for (5) incurable habitual drunkenness, and where for a period of at least three years the parties have been separated by reason of a temporary separation order made under this proposed bill on the ground of habitual drunkenness. The divorce court can grant four kinds of relief, namely: (1) dissolution of marriage, (2) judicial separation, (3) nullity of marriage, (4) restitution of conjugal rights.

In the Divorce Court the question of the payment of costs is entirely in the discretion of the judge. A wife who has no separate estate, whether petitioner or respondent, can apply to the court to order her husband to give her security for costs. A wife can also petition for alimony (q.v.) pending a decree. After a decree the court has power to make orders of maintenance in favour of a petitioning wife and the children of the marriage. A husband petitioner may claim compensatory damages from a co-respondent.

There are special arrangements by which poor persons can institute proceedings for divorce. The opinion of a barrister that there is reasonable ground for taking action, together with an affidavit stating that the facts are true, must be delivered to the registrar of the Divorce Division of the High Court. With these must be another affidavit; if the husband is applying he must state therein that he is not worth £25 beyond wearing apparel after payment of his debts; if the wife is applying she must state that she has no separate estate worth £25. The court may then order that the expenses shall be paid from public funds.

DIXMUDE. Town of Belgium, in the prov. of W. Flanders. It is on the river Yser, 12 m. N. of Ypres, 42 m. from Ghent. The chief buildings are the church of S. Nicholas, with some valuable works of art, and the town hall.

During the earlier part of the Great War there was much fighting around Dixmude, which was taken and retaken by French and Germans in the autumn of 1914, the latter finally entering it on Nov. 10. The town was recaptured by the Belgians, Sept. 29, 1918. In Jan., 1920, President Poincaré bestowed on it the Croix de Guerre. Pop. 1,113. See Ypres; Yser.

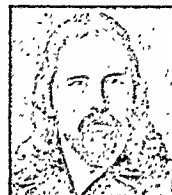
DNIEPER. River of White Russia and Ukraine. It rises in the Valdai plateau, near the source of the Volga, and is navigable almost from its source. It falls into the Black Sea by a large estuary. Its chief tributaries are the Berezhina, Pripiet, and Desna. The Dnieper is of great importance

for the conveyance of corn to Odessa. Its length is 1,340 m.

DNIESTER. River of Poland, Ukraine, and Rumania. Rising in the Carpathians, it falls into the Black Sea, after a course of 750 m., midway between the mouths of the Danube and Dnieper. Like the Dnieper, it is an important waterway for the conveyance of grain and other goods.

DOBELL, SIR CHARLES MACPHERSON (b. 1869). British soldier. Born in Quebec, June 22, 1869, he served in the South African War. In 1913 he became inspector-general of the West African Frontier Force. On the outbreak of the Great War in 1914, Dobell commanded the Allied force which reduced the Cameroons, Sept., 1914. In Sept., 1916, he took command of the force which cleared the Sinai peninsula of the Turks. He was in command of a Division in India, 1917-19, and during the third Afghan War, 1919. In 1916 he was knighted.

DOBELL, SYDNEY THOMPSON (1824-74). British poet. Born at Cranbrook, Kent, April 5, 1824, the son of a wine merchant, he began to write verses when very young. His life, spent mainly in Cheltenham, as a wine merchant, was varied by numerous visits to the Continent in search of health. His chief works are *The Roman*, 1850; *Balder*, 1854; and *England in Time of War*, 1856, which enjoyed remarkable popularity. He died Aug. 22, 1874.



Sydney Dobell, British poet

DÖBERITZ. German prisoner of war camp, near Potsdam. It was established in 1914, on a flat, sandy plain, previously used as a parade ground for the Prussian Guard. It had a reputation for severe treatment.

DOBRUJA, DOBRUDJA OR DOBRUSCHA. District of the Balkans, now part of Rumania. Almost quadrangular, it covers 8,969 sq. m. It is bounded W. and N. by the Danube, E. by the Black Sea, and S. by Bulgaria. It is a great wheat-growing region. The most important town is Constanta, the principal port of export of Rumania. In 1878 most of the Dobruja was ceded to Rumania, and the rest was handed to her by Bulgaria after the second Balkan war in 1913. During the Great War it was conquered by the Germans in 1916. It was given to Bulgaria by the treaty of Bukarest, 1918, but at the final peace treaty restored to Rumania. See Rumania.

DOBSON, HENRY AUSTIN (1840-1921). British poet and essayist. He was born at Plymouth, Jan. 18, 1840. From 1856-1901, when he retired, he served on the Board of Trade, becoming a principal clerk in 1884.

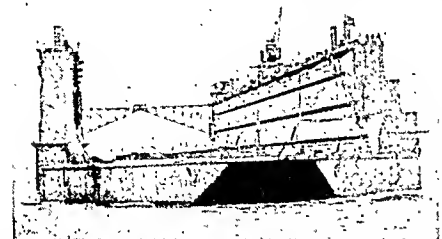
In 1873 Dobson published his first book of verse, *Vignettes in Rhyme*, followed by *Proverbs in Porcelain*, 1877; *Old World Idylls*, 1883; and *At the Sign of the Lyre*, 1885. In prose he wrote *Eighteenth Century Vignettes*, 1892-96; *Sidewalk Studies*, 1902; *A Bookman's Budget*, 1917; and *Lives of Fielding and other 18th century writers*. He also edited the *Diaries of Madame D'Arhlay and Evelyn* and in his own verse echoed every quaint form to be found in the old poets. He died Sept. 2, 1921.

DOCK. Artificial repository for shipping. The purpose is to provide temporary accommodation for vessels when loading and discharging



Austin Dobson, British writer Russell

cargoes or embarking and landing passengers. Docks may be divided into two classes: wet docks and dry docks. Wet docks are water areas enclosed or nearly enclosed by masonry walls or by other artificial means. They may be subdivided into (1) tidal basins, used where the rise and fall of the tide is negligible, and (2) basins provided with watertight entrance gates, by which water may be maintained at a desired level within the dock, independently of tidal variations. By providing entrance gates water is maintained at high-tide level.



Dock. Floating dock, 150 ft. wide at the entrance, built by Cammell Laird & Co., of Birkenhead. It has a lifting capacity of 40,000 tons

Cribb, Southsea

Dry docks are those from which water can be temporarily excluded for the purpose of effecting repairs to the hulls and keels of vessels. They are divisible into graving docks, slip docks, and floating docks. A graving dock consists of a basin with a watertight gate or pair of gates. The vessel is floated into the dock, the gates are closed, and the water removed. The vessel settles down upon keel and bilge blocks, and when the dock is clear of water every portion of the hull and keel is available for examination, and repairs or painting. A slip dock is similar in construction to a graving dock, except that the floor slopes downwards and is continued beyond the entrance gates. Wheeled cradles running on rails are run out under a vessel, which is then drawn up the incline into the dock, where the falling tide leaves her high and dry.

A floating dock serves the same purpose as a graving dock. It consists of a pontoon base or platform with high sides and open ends. Modern floating docks are almost invariably constructed of steel with large water ballast tanks and powerful pumps. Water is admitted to the ballast tanks, causing the structure to submerge sufficiently for a vessel to be floated in between its walls. Water is then pumped out of the ballast tanks, air takes its place, and the dock gradually rises until the vessel is lifted clear of the water, being supported by the pontoon floor of the dock.

DOCKYARD. Government naval establishment containing engineering works, slipways, stores, etc., where ships of war are constructed or repaired, supplied with matériel and personnel, and made ready for sea. The chief dockyards of the British Empire are at Chatham, Devonport, Harwich, Invergordon, Portsmouth, Rosyth, Sheerness, Portland, Gibraltar, Malta, Bermuda, Simonstown, Singapore, Sydney, and Hong-Kong.

DOCK (*Rumex*). Genus of biennial and perennial herbs of the order Polygonaceae. Natives of all temperate countries, they have tapering rootstocks, alternate leaves, and greenish flowers without petals arranged in whorled clusters.



Dock. Leaves and flowers of great water dock

The leathery red or brown fruits are three-sided. Some species are notorious pests of agriculture; others, owing to their acidity, are esteemed as salads and potherbs, especially the sorrels.

DOCTOR'S COMMONS. Society or College of English lawyers of considerable antiquity. It obtained a charter in 1768 and had its headquarters near St. Paul's Cathedral, London. Its members, who were called fellows, had the sole right of appearing in ecclesiastical (including divorce), probate, and admiralty courts, while proctors, who did the work of solicitors, were attached to it. In 1857 this college was dissolved. The name is now used for the place where the headquarters were situated.

DODD, FRANCIS (b. 1874). British artist. Born at Holyhead, Nov. 29, 1874, he was one of the official war artists during the Great War, and executed a valuable series of portraits of British admirals and generals on active service, published in 1917, as well as other works. In Feb., 1919, he was elected president of the Manchester Academy of Fine Art, and was made a trustee of the National Gallery in 1929. In 1927 he was made A.R.A.

DODDER. Genus of annual, herbaceous, leafless parasites of the natural order Convolvulaceae. The seeds germinate in the ground but the seedlings attach themselves by suckers to young plants such as clover, vetch, thyme.

DODECANESE (mod. Gr. dodeca, twelve; nesia, islands). Name given to twelve islands of the Aegean: Nisyros, Kos (Cos), Kasos, Patmos, Chalki, Leros, Tilos, Symi, Astropalia, Lipso, Karpathos (Scarpanto), and Kalimno. Sometimes Rhodes is included in the term. They lie S. of the islands of Nikaria and Samos, and N. of the E. end of Crete, off the S.W. coast of Asia Minor. The islands were occupied by Italy in 1912, in her war with Turkey over Tripoli, and retained by her in spite of the protests of the inhabitants. In 1920 Italy transferred the islands to Greece, but in 1922 repudiated the cession. They are now under Italian rule. Pop. about 80,000; mostly Greeks.

Dodgson, CHARLES LUTWIDGE. English writer and mathematician, better known as Lewis Carroll (q.v.).

DODMAN, THE. Headland in Cornwall. On the S. coast, at the E. end of Verran Bay, 8 m. S. of St. Austell, it stands 373 ft. high and affords magnificent views. In 1918 it passed to the National Trust. It is the Dead Man's Rock of Quiller-Couch's novel.

DODO (Port. doudo, stupid). Large bird (*Didus ineptus*) formerly inhabiting Mauritius. It was related to the pigeons, and was rather larger than a swan. The plumage was grey, the tail feathers short and curly. The head bore a massive beak, the legs were exceptionally stout, and the wings rudimentary. It became extinct towards 1700.

DODONA. Oracle of Zeus near Mt. Tomoros or Tmaros in Epirus, ancient Greece. The responses of the god were supposed to be declared by the rustling of the wind in the oak or heech trees. The responses were originally interpreted by priests called Selli, afterwards by old women called Peleades (pigeons). The oracle rivalled that at Delphi (q.v.).

DODS, MARCUS (1843-1909). British theologian. The son of a Presbyterian minister, he was born at Belford, Northumberland.

Educated at Edinburgh academy and university, from 1864 to 1889 he was minister of Renfield Free Church, Glasgow. In 1878 he was charged with holding unorthodox views, and the matter came before the General Assembly. In 1889 Dodds was made professor at New College, Edinburgh, and in 1907 he was chosen principal of the college. He died April 26, 1909.



Marcus Dodds, British theologian Elliott & Fry

DOE, JOHN, AND ROE, RICHARD. Imaginary names used in English legal procedure for purpose of convenience. This

legal fiction was abolished by law in 1852.

DOG. Name applied to a family (Canidae) of flesh-eating mammals, placed between cats and hyaenas on the one hand, and weasels and bears on the other. This family includes all wild and domesticated dogs, as well as the wolf, fox, and jackal. Dogs are digitigrade, i.e. they walk on their toes, and have blunt, non-retractile claws. They have four toes on the hind feet, and, except the Cape hunting dog, five on the fore feet. All have long muzzles and a large number of teeth, usually forty-two. Almost all dogs in the wild state are of dull and inconspicuous coloration.

There is little doubt that the domestic dog has descended from the wolf, with a possible admixture of the jackal. The less specialised breeds closely resemble the wolves of their native lands. Dogs are usually classified as hounds, sheep dogs, terriers, spaniels, mastiffs, and lap dogs. Specific breeds are dealt with under their names, e.g. Airedale; Cairn; Collie, etc. See also illus. page 293.

The owner of a savage dog is liable in damages if it bites anyone, and a dangerous dog may be destroyed on a magistrate's order. By an act passed in 1928 the owners of dogs are liable for damage done by them to poultry. The finder of a stray dog must restore it to its owner or take it to a police station. Setting traps for dogs, injuring, killing, or stealing them are criminal offences.

Dog breeding is now an important industry. The Kennel Club, founded in 1873, virtually controls the dog fancy of the world. All the recognized shows are held under its rules.

DOG LICENCE. Tax of 7s. 6d. per dog, imposed on all dog owners, with few exceptions, such as farmers, shepherds, and blind persons. The number of dogs licensed in Great Britain in 1927-28 was 2,972,434. Puppies under six months old are exempt from the tax.

Dogs' HOME. Establishment where stray dogs are housed for a limited time. In London the "Dogs' temporary home," opened in Hollingsworth Street, N., in 1861, was removed to Battersea in 1871, and is known as the Home for Lost Dogs. There is also a country home at Hackbridge, Surrey. The best of the unclaimed dogs are sold.

DOG. Name given in mechanics to a catch of various kinds. A dog-shore is a prop of timber used to support a vessel until the moment of launching, which is accomplished by knocking the dog-shores away. A timber-dog is a bar of metal with ends turned at right angles to the middle part and sharpened, used to hold large balks together. A dog-clutch is a sliding clutch with jaws which interlock when one part is moved sideways.

DOGCART. High two-wheeled, open, one-horsed vehicle with two transverse seats placed back-to-back, for four passengers. The rear seat folds up, and the back footboard can be fixed up to enclose the body of the cart. See illus. p. 515.

DOG COCKLE. Popular name of a hivalve found round the British coast. It is the *Pectunculus glycymeris* of the family Arcadæ,



Dodo. Reconstruction of the extinct *Didus ineptus*

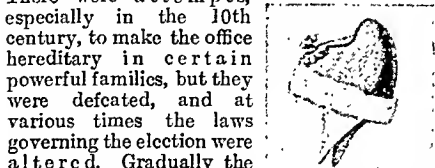
and has almost circular shells, yellowish-white in colour with irregular dark red markings. Large specimens measure as much as 2½ ins. across. The dog cockle is sometimes known as the combsell.

DOG DAYS. Period about the time of the rising of the Dog Star. The ancients attributed the heat and unhealthiness of the season and the highest rising of the Nile in Egypt to the influence of the Dog Star, and the dog days have long been popularly regarded as a period when dogs may go mad. The date of the first dog day ranges from July 3 to Aug. 15, and the duration of the period from 30 to 54 days.



Dogcart. Single-horse dogcart with rubber-tired wheels. See art. p. 514 W. A. Rensch

DOGE (Lat. dux, a leader). Title of the heads of the republics of Venice and Genoa. The office was created in Venice about 700. There were attempts, especially in the 10th century, to make the office hereditary in certain powerful families, but they were defeated, and at various times the laws governing the election were altered. Gradually the powers of the doge were definitely limited, but he remained a splendid figure ceremonially, having in Europe the rank of a sovereign prince, and sailing on Ascension Day in great state to celebrate the union of Venice and the sea. The last doge was Lodovico Manin, who abdicated in 1797. In Genoa the president was a doge from 1339 until the French conquest in the time of Napoleon.



Doge. Cap of Doge of Venice, c. 1300

DOG FISH. Group of fishes belonging to the shark family, but generally smaller in size. They have a cartilaginous skeleton, no spines on the dorsal fin, and most of them have spotted skins. The mouth is on the underside of the head, and is provided with several rows of teeth. Distributed over the tropic and temperate seas, they feed on crustaceans and molluscs. The flesh appears in the market under the name of rock salmon; the dried skin is known as shagreen.



Dog Fish, *Mustelus canis*, an inhabitant of the North Atlantic

DOGGER BANK. Extensive sandbank in the North Sea, almost equidistant from England and Denmark, with a mean depth of from 60 ft. to 120 ft., a length of 150 m., and a breadth of 70 m. It is a noted fishing ground, especially for cod. The term dogger, applied to a Dutch deep-sea fishing boat, denotes a large two-masted, broad, ketch-like smack, with a fish well in the middle, used in the North Sea, particularly on the Dogger Bank.

A battle between the English and Dutch took place here in 1781. On Oct. 21, 1904, during the Russo-Japanese War, a Russian Baltic fleet fired on some British fishing trawlers on the Dogger Bank. The incident was inquired into by an international commission, and compensation was made by the Russian government.

The Dogger Bank gives its name to a naval engagement fought between the British battle-cruiser force under Admiral Beatty and a

German force under Admiral Hipper, Jan. 25, 1915. The enemy left German waters to attack the British coast, and their presence was signalled to Beatty, who at once gave the chase. His flagship *Lion* engaged the German armoured cruiser *Blücher*, which was badly damaged and later torpedoed and sunk by the light cruiser *Aurora*. Of her crew of 885, only 123 were rescued. The British losses were slight, though the *Lion* was hit and compelled to leave the line, and the *Tiger* was damaged. Two of the German ships, *Seydlitz* and *Derfflinger*, suffered severe damage, with a loss of some hundreds of their crew.



Doggett's Coat and Badge, rowing prize

DOGGETT, THOMAS (d. 1721). Irish actor. Born in Castle Street, Dublin, he first appeared in London at Bartholomew Fair. In 1691 he played at Drury Lane, and, with Cibber, Wilks, and Swiney, managed The Haymarket from 1709-14, when, owing to a disagreement, Doggett separated from his partners, and acted intermittently at Drury Lane until his death. In Aug., 1715, he founded the race for the Doggett's Coat and Badge, competed for annually by Thames watermen. The course is from London Bridge to Chelsea, and the money bequeathed by Doggett is now controlled by the Fishmongers' Company.

Dogra. People of Rajput stock in Kashmir, Jammu, and the adjacent valleys. They make excellent soldiers.

DOG ROSE (*Rosa canina*). Shrub of the order Rosaceae. A native of Europe, Siberia, and N. Africa, it is common in hedgerows and thickets. The leaves are broken up into oval leaflets with toothed edges; and the delicately scented pink or white flowers are about two inches across, appearing in June. The fruit is a crimson hip, of which a conserve is made.

DOGS, ISLE OF. District of London, on the Thames, opposite Greenwich. It was originally a peninsula, its insular character being due to the formation of the West India, East India, and Millwall docks, and the Limehouse and Blackwall basins. It constitutes a large portion of the borough of Poplar. The footway tunnel to Greenwich, opened in 1895, starts from the Island Gardens. The name is said to be due to the fact that the kennels connected with the palace at Greenwich were here.

DOG'S BANE (*Apocynum androsaemifolium*). Perennial herb of the order Apocynaceae, native of North America. It has opposite, oval leaves and fragrant, nodding, bell-shaped flowers. These flowers, which are coloured pink, have five sensitive scales, which bend together when touched by a visiting insect and detain it. The plant is acrid and poisonous.

DOG'S MERCURY OR *HERB MERCURY* (*Mercurialis perennis*). Perennial herb of the order Euphorbiaceae. A native of Europe, N. Asia, and N. Africa, it has a creeping root-stock and dark green oval leaves. The flowers are small, green, and inconspicuous, the males on separate plants from the females.

Dog Star OR *SIRIUS*. *Sirius* in *Canis Major* and *Procyon* in *Canis Minor* were formerly called the dogs of Orion. See Constellation.



Dog's Mercury. Leaves and fruits

DOG TOOTH. The name given to a small blunt-pointed ornament used in hollow mouldings. Early English architecture provides many examples of this form of decoration. Some believe that it was brought from the East by the Crusaders, and it was very popular in 13th century buildings. See Moulding.



Dog Tooth ornament, an architectural decoration

DOG WATCH. Two-hour watches on board ship. The one from 4 to 6 p.m. is called the first dog, and the one from 6 to 8 p.m. the second dog. The rest are four-hour watches.



Dogwood leaves and berries

DOGWOOD (*Cornus sanguinea*). Shrub of the order Cornaceae. A native of Europe and N.W. Asia, it has oval leaves and clusters of small cream-white flowers, succeeded by black berries. The latter yield an oil which has been used for lamps and soap-making. The wood is hard and tough, and the tonic and astringent bark provides a substitute for cinchona.

DOHERTY, CHARLES JOSEPH (b. 1855). Canadian politician. Born at Montreal, May 11, 1855, in 1891 he was made a judge. He was on the bench of the Superior Court until 1906, and in 1908 entered the Dominion House of Commons as a Conservative. In 1911 Borden chose him as minister of justice, and he retained his post until 1921. In 1919 Doherty was one of Canada's representatives at the Peace Conference in Paris (1919).



Charles J. Doherty, Canadian politician

DOIRAN. Town and lake of Macedonia, Greece. The former is situated on the S.W. of the lake, close to the S.W. frontier of Bulgaria, about 40 m. N.N.E. of Salonica. Pop. normally about 4,000. Lake Doiran is about 10 m. E. of the Vardar river. It has an area of 15 sq. m. and is 500 ft. above sea level.

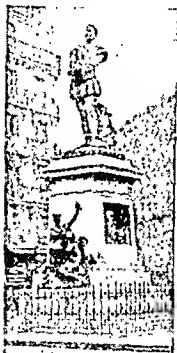
Along with the river Struma, Doiran lake was prominent in the Great War. As part of the campaign against Bulgaria a British force held the line Doiran-Struma from 1916-18, in order to cover Salonica. In Sept., 1916, the British crossed the Struma, and after further advances a defensive line was taken up for the winter. Apart from an unsuccessful Bulgarian attack in May, 1917, nothing of importance took place until Sept., 1918, when the Allies launched their final offensive. Doiran was captured on Sept. 18, and on Sept. 30 the Bulgarians surrendered. See Salonica.

DOLCOATH. Copper mine at Camborne, Cornwall. It has been worked since about 1800, and has produced over £6,000,000 of ore. Its workings are 3,000 ft. deep.

DOLDRUMS. Name given to the low-pressure belt of equatorial calms where the N.E. and S.E. trade winds meet. Very heavy rainfall and thunderstorms are often experienced. Owing to the apparent migration of the sun, the position of the Doldrums changes, being farthest N. in the northern summer and farthest S. in the southern summer, although even then it does not completely cross the equator. Its mean position is N. of the equator.

DOLET, ÉTIENNE (1809-46). French scholar-printer. Born at Orleans, he studied in Italy, and became proof reader for a Lyons printer.

In 1538 he opened a press of his own at Lyons, but his views provoked ecclesiastical persecution and his business success commercial rivalry. He was burnt as a heretic in Paris, Aug. 3, 1546. A bronze statue to his memory was erected in Paris in 1889. Pron. Do-lay.



Etienne Dolet. Guilbert's statue of the French printer-martyr, in the Place Maubert, Paris

DOLGELLEY. Market town, county town, and urban district of Merionethshire. It stands under Cader Idris, and is served by the G.W. Rly., being 230 m. from London and 9 from Barmouth. It is visited by tourists for its scenery. There are a grammar school, market hall, and assize hall. Market days, Tues. and Sat. Pop. 2,014.

DOLICHOCEPHALIC.

Term usually denoting human heads and skulls whose breadth is less than three-fourths of their length. The long, narrow-headed form is found among the Nordic and Mediterranean types of the Caucasian race as well as Hamites and Semites. With these the narrowness pertains to the frontal region. It is occipital in most others, including Dravidians, Papuans, Polynesians, Australian aborigines, Eskimos, and a primitive South American type. It prevails also in Negro, Bantu, and Bushman, Africa.

DOLL. Toy representing a human figure. As a plaything the doll is of remote antiquity and universal distribution, though apparently less general in Asia than in the other great continents. Dolls were common in Asia Minor, among the Arabs and in Egypt, where they are known to have been in use in the 18th-17th century B.C., and in Greece and in Rome, where specimens have been found in the catacombs. They are common among all African tribes, among the Australian aborigines, the Red Indians, and, in addition, the Eskimo.



Doll. Ancient Greek doll with castanets
British Museum

several S. American states, where it is now represented by the peso with a value of 4s. 2d. It descends from the Thaler, a standard coin in the 16th century. To-day the standard dollar is the American coin adopted by the U.S.A. in 1792. The currency of Canada and Newfoundland is based on the U.S.A. dollar and similarly divided into 100 cents.

DOLLAR. Burgh of Clackmannanshire. At the base of the Ochil Hills, 6½ m. N.E. of Alloa, on the L.N.E. Rly., it has the Dollar Institution, one of the great schools of Scotland, erected in 1819 and founded by John M'Nabb, and conspicuous above the burgh are the ruins of Castle Campbell, partially destroyed by Montrose in 1645. Coal and sandstone abound. Pop. 1,584.

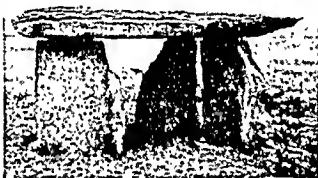
DOLLING, ROBERT WILLIAM RADCLIFFE (1851-1902). Anglican clergyman and social worker. Born Feb. 10, 1851, at Kilrea, Ballymena, he came into prominence as a social worker in Dublin. Then, as lay assistant in the work of S. Alban's, Holborn, London, he was warden of the S. Martin's League of postmen, 1879-82. After taking orders his chief work was carried out as vicar of S. Agatha's, Landport, 1885-96, in connexion with the Winchester College Mission. From 1898-1901 he was vicar of S. Saviour's, Poplar. He died May 15, 1902. A Dolling Memorial Home for working girls of Landport and Poplar was opened at Worthing in 1903.



R. W. R. Dolling, Anglican clergyman
Elliott & Fry

DOLLIS HILL. Residential suburb of London, between Hendon and Kingsbury-Neasden. Dollis Hill House, owned by the earl of Aberdeen, was constantly visited by Gladstone. Gladstone Park lies to the south.

DOLMEN. Megalithic chamber comprising an uneven capstone upon two or more uprights. In Britain it is frequently called a cromlech, and incorrectly a Druid altar. While in most regions originally covered with earth or stone, many became exposed in early recorded times. Infrequent in England, they are commoner in Wales and rare in Scotland. In Ireland more than 800 dolmens are enumerated.



Dolmen. Sandstone dolmen, centre of the former Ring of Stennes, Orkney
Thos. Kent, Kirkwall

which there are examples in Kit's Coty House, Kent; Wayland Smith's cave, Berks; and King Orry's grave, Isle of Man. There are still 4,458 dolmenic tombs in France; many in Holland, Scandinavia, Portugal, Spain, and the whole Mediterranean basin. Many thousands remain in N. Africa, and eastward they extend over Ammon and Moab to India, the Malay Archipelago, Korea, and Japan.

DOLomite. Crystalline mineral composed of carbonate of lime, 54.4 p.c., and carbonate of magnesia, 45.6 p.c. It is brittle, lustrous, white, or tinted, forming rhombohedral crystals, and differs from calcite in being harder and in effervescing feebly in cold acid. When iron is present dolomite constitutes some forms of pearl-spar, bitter-spar, and brown-spar. Dolomite has both chemical and architectural uses, and is of importance as the raw material for the manufacture of the refractory linings for the Bessemer converters.

A division of the Alps is called the Dolomites. They extend N.E. from Trent and contain some magnificent scenery.

DOLPHIN (Gr. *delpheis*; Lat. *delphinus*). Name applied generally to a group of the smaller cetaceans, including the porpoise, narwhal, white whale, and the killer; but instance, more properly to the genus *Delphinus*. This genus includes those species which have distinctly developed beaks, armed with some 40

to 60 teeth. The head has a bulbous appearance. The skin is black on the back, striped with greyish yellow on the flanks, and white beneath. In length the dolphin varies from 8 ft. to 10 ft. The common dolphin (*Delphinus delphis*) abounds in the English Channel, and does considerable damage to the herring and mackerel fisheries.

DOMe (Lat. *domus*, a house, cf. Ger. *Dom*, and Ital. *duomo*, a cathedral church). Name given to a spherical roof over a circular or polygonal building. The sphere, like that of the cupola, may be one of several varieties, but semicircular, semi-elliptical, and bell-shaped domes are the most common. The dome was a development of the arch principle of construction, and as such was largely employed by the Romans, who applied it exclusively to circular buildings.

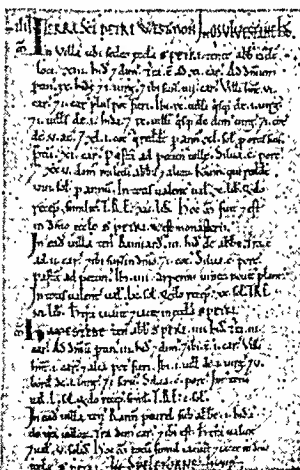
It remained for the Byzantine builders to place a circular dome upon a square or rectangular structure. Most of the domed Christian churches of the Middle Ages are constructed on the Byzantine plan, with the great central dome crowning the middle portion of a Greek or Latin cross. See *Architecture*; *Cathedral*; *Cupola*; also *illus.* p. 192.

DOMENICHINO (1581-1641). Italian painter, whose real name was Domenico Zampieri. He was born at Bologna on Oct. 21, 1581, and studied with Calvaert and the Carracci. Removing to Rome, he assisted Annibale Carracci in the decoration of the Farnese palace, and later painted the Martyrdom of S. Sebastian for S. Peter's. In 1630 he settled in Naples, where he executed the decoration with frescoes of the Capella del Tesoro. Domenichino's reputation rests chiefly on his frescoes.

DOMESDAY BOOK. Survey of the land of England, drawn up in 1086 by order of William the Conqueror. The information was obtained by sending officials into each county. From each village or manor came the priest and four villagers, and after interrogating them the officials noted down the facts. These were entered on rolls, and from these the book itself is compiled. From this important record the four northern counties are excluded, as are London, Winchester, and other towns, but for a different reason.

The book was intended by William to be a record of his rights, i.e. of the income to which he was entitled, and the information collected was all directed to this end. It is of supreme value for the economic conditions and social history of the time. The original book is in the Public Record Office, London. See *Feudalism*; *Manor*.

DOMICILE (Lat. *domus*, a house). Question of private international law. A man's first domicile is that of his origin, which depends on his father. When he attains majority he can make a domicile of choice, and is held to be domiciled where he resides, if he intends to remain there, making it his house. On giving up a domicile of choice a man reverts to his domicile of origin until he has acquired another domicile of choice. A married woman's domicile is that of her husband. Domicile is independent of nationality. Many legal questions, for the right to divorce, turn on the domicile. No court can grant a divorce except that of the husband's domicile. See *Naturalisation*.



Domesday Book. Facsimile of entry relating to Westminster
From the original in the Public Record Office

DOMINIC, SAINT (1170-1221). Founder of the Dominican Order of Friar Preachers. His name was Dominic de Guzman, and he came of an old Castilian family, being born in 1170 at Calahorra, Spain. He was ordained about 1195, and became an Augustinian canon at Osmá in Castile. He was charged by Pope Innocent III with a mission to the Albigenses in the S. of France in order to bring them back to Catholicism. In order to continue this work he founded an order of preaching friars, generally known as Dominicans (q.v.). Later S. Dominic was appointed Master of the Sacred Palace at Rome. He died Aug. 6, 1221, and was canonised in 1234.



S. Dominic as portrayed by Fra Angelico in his picture of the Crucifixion in S. Mark's Church, Florence

of preaching friars, generally known as Dominicans (q.v.). Later S. Dominic was appointed Master of the Sacred Palace at Rome. He died Aug. 6, 1221, and was canonised in 1234.

DOMINICA. British West Indian island and presidency, between Guadeloupe and Martinique, the largest of the Leeward Islands. Covering 305 sq. m., the island, of volcanic origin, is very mountainous. There are thermal springs, a boiling lake, and sulphur deposits. The staple industry is the growing of limes, Dominica being the largest producer of lime products in the world. There is a wireless station. The capital is Roseau. The name commemorates its discovery by Columbus on Sunday (Lat. dies Dominica), Nov. 31, 1493. Pop. 41,051.

DOMINICAL LETTER. Called more commonly Sunday Letter, and employed in the construction of the calendar. It must be one of the first seven letters of the alphabet. Beginning with A for Jan. 1, the first 7 days of the year each receives the letter that follows in order. If, therefore, Jan. 1 falls on a Saturday, the Sunday or dominical letter for the year will be B. If Jan. 1 is a Monday, the Sunday letter will be G. See Calendar.

Dominican Republic. Variant name for the republic of Santo Domingo (q.v.) on the island of Haiti, W. Indies.

DOMINICANS. Common name for the religious order of friar preachers instituted at Toulouse in 1215 by S. Dominic. The founder adopted the existing rule of S. Augustine and thus obtained the formal sanction of Pope Honorius III and a bull confirming the foundation of the new order, Dec. 22, 1216.

The name of Black Friars (q.v.) was given to the Dominicans on account of the black cloak which they wear over a white tunic. The aim of the order was to teach truth, and veritas (truth) is its motto. The Dominican family is divided into three branches. The first is composed of men preachers. The second consists of enclosed nuns, consecrated to a life of prayer and contemplation. The third branch—commonly called tertiary—was divided again into (1) those living in community, and (2) men and women living in the world who desire to adopt a rule of life and to share in the work of the order. S. Catherine of Siena (q.v.) is the most famous of the tertiaries.

DOMINION (Lat. dominus, a lord). Word meaning lordship or authority. It was the name given to the federation of the Canadian provinces carried out in 1867. Celebration of the foundation is held annually on July 1, termed Dominion Day. The term is also applied generally to other self-governing possessions of the British crown.

Dominion Affairs is the name of a secretariat of state, created in 1925. The new department is vested in the same person as the Colonial Secretaryship. See Colonial Office.

DOMINO. Mask, half-mask, or a cloak, worn by masqueraders as a disguise. The term is applied also to the wearer of the garment. A domino was also an ecclesiastical hooded cloak, black on one side, whence the name of the game of dominoes is supposed to have been derived.

DOMINOES. Game invented in Italy in the 18th century. It is played with 28 ohlong pieces, termed cards or stones, marked with indented black spots, on an ivory face divided into two compartments, and having black backs generally made from ebony. The pieces are numbered 6-6 (double-six), 6-5, 6-4, down to 6-0; the same with the 5, 4, 3, 2, and 1 respectively; and 0-0 (double-blank).

In the French or draw game the dominoes are shuffled and each player takes seven, the rest forming the stock which remain on the table unfaced. The leader plays a domino (it is invariably best to lead the highest), and the other follows by matching the number at one end of the card played, from his own hand or by drawing from the stock. This continues until the dominoes, both in hand and in the stock, are exhausted; the one who is first out winning the game by the number of pips contained on the pieces (or cards) still in possession of his adversary. The one left with the smaller number of pips wins.

DOMITIAN. Roman emperor 81-96 A.D. His full name was Titus Flavius Domitianus Augustus. He was the younger son of Vespasian, and succeeded his brother Titus. He took a genuine interest in provincial government, and misrule in the provinces was practically unknown in his reign. Among those who were persecuted by him were the Christians. An expedition against the Chatti, a series of campaigns in Britain under Agricola, and a war with the Dacians, which ended in a humiliating peace, were the military features of his reign. He met his death at the hands of a freedman named Stephanus, instigated by his own wife Domitia.

DON (Lat. dominus, lord). Title prefixed to the Christian name in Spain, formerly confined to men of rank, but now used like "Mr." The feminine is donna. In the United Kingdom fellows or tutors of a college in a university are called dons.

DON. River of Yorkshire (W.R.). It rises in the Pennines near the Cheshire border and flows S.E. through Sheffield, thence N.E. past Rotherham and Doncaster to the Ouse, which it enters at Goole. It is linked by canals with the Trent and the Calder. Its total length is 70 m.

The Don of Aberdeenshire rises near the Banffshire boundary and flows for 78 m. in an E. direction to the North Sea, which it enters a little N. of Old Aberdeen.

DON. River in S. Russia. Rising from Lake Ivan, in the prov. of Tula, it flows through the provs. of Ryazan, Tambov, Voronezh, and the old Don Cossack territory into the sea of Azov. It is navigable, except in the winter,

for half of its 1,160 m., and is one of the chief waterways for cattle and grain from the interior. Its chief tributary is the Donetz.

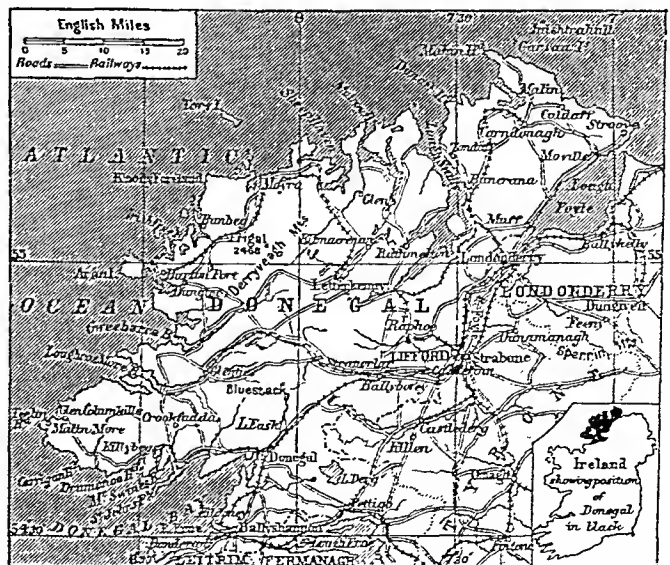
DON, KAYE (h. 1894). British motorist. After serving in the R.A.F. he took up motorcycle racing, and later came into prominence as a racing motorist. He was most successful at Brooklands in 1929, where he established the lap record for the course in his Sunbeam Tiger, though this was broken on April 21, 1930, by Captain H. R. S. Birkin. In 1930 he took his motor car Silver Bullet to Daytona, Florida, and unsuccessfully attempted to break the record of 231 m. an hour set up by Sir Hy. Segrave in 1929.

DONAGHADEE. Watering-place and market town of co. Down, Northern Ireland. It stands on the North Channel, 22½ m. E. of Belfast on the Belfast and County Down Rly. Market day, Wed. Pop. 2,220.

DONATELLO, in full Donato di Niccolò di Betto Bardi (1386-1466). Italian sculptor. Born at Florence, in 1408 he received the commission for the famous statue of St. George in Or S. Michele, Florence, completed in 1415. He went to Padua in 1444, and there produced the noted equestrian statue of Gattamelata—the first horse to be cast in bronze. Other important works were wrought at Ferrara, Venice, and Modena. He died Dec. 13, 1466. Consult Lives, H. Rea, 1900; 10th earl of Crawford, 1903.

DONCASTER. County borough and market town of Yorkshire (W.R.). It stands on the Don, 156 m. by rly. N. of London, and is served by the L.M.S. and L.N.E. Rlys. The chief church is St. George's, rebuilt in the 19th century. There are an old grammar school, a town hall, and a corn exchange.

Doncaster is an important rly. centre. Here are large shops of the L.N.E. Rly. There are manufactures of iron and steel goods, machinery, and artificial silk, and a trade in grain. It is also the centre of a coal-mining area, developed during the 20th century. There is water communication with Goole and Hull. Doncaster is famous for its race meetings, including the St. Leger, run every Sept. on Town Moor, the Doncaster Cup, etc. Market days, Tues. and Sat. Pop. 58,230.



Donegal. Map of the extreme north-western county of Ireland. Its mountains and bays provide some of the most picturesque scenery in Ulster

DONEGAL. Maritime county of the Irish Free State, in the prov. of Ulster. It has about 165 m. of rugged and deeply indented coastline

on the Atlantic ocean. Donegal Bay, in the S., and Lough Swilly and Foyle in the N., are the largest inlets, and the Foyle is the longest stream; Lough Derg is the only lake of any size. Aran, Tory, and smaller islands lie around the coast. The surface is mountainous and frequently boggy. Lifford, the county town, Letterkenny, Ballyshannon, Donegal, and Bundoran are the chief towns. The area is 1,860 sq. m. Pop. 152,508.

The county gives name to the title of Marquess borne by the family of Chichester since 1791. The family seat is Castle Chichester, Co. Antrim.

DONEGAL. Market town of co. Donegal, Irish Free State. It is on Donegal Bay, 46 m. S.W. of Londonderry on the Donegal Rly. The Annals of the Four Masters (1636) were compiled in its Franciscan monastery, remains of which and of a castle of the O'Donnells still exist. Market day, Sat. Pop. 1,272.

DONGOLA. Name of two towns on the Nile in the Anglo-Egyptian Sudan. New Dongola is on the left bank, above the third Cataract, 750 m. S. of Cairo. During the operations against the Mahdi in 1884-85 it formed the British base, but afterwards fell into the hands of the Mahdi. It is now a flourishing town. Pop. 20,000.

Old Dongola, on the right bank of the Nile, 75 m. S.S.E. of New Dongola, was the capital of the kingdom of Dongola, but was destroyed by the Mamluks in 1820.

DONINGTON HALL. County mansion in Leicestershire. Near the town of Castle Donington, on the Trent, 9 m. from Ashby-de-la-Zouch, it was rebuilt in 1795, and was long the property of the earls of Huntingdon. When the 10th earl died in 1789 the estate passed to his sister Elizabeth, mother of the first marquess of Hastings. When Henry, the 4th marquess, died in 1868, it passed to his sister, the countess of Loudoun, and then to her son, the earl. During the Great War, having been untenanted for some years, the hall was used as a place of internment for German officers.

DONIZETTI, GAETANO (1797-1848). Italian composer. Born at Bergamo, Nov. 29, 1797, he was for a time a teacher in Naples, lived after 1837 in Paris, and for a few years was master of the imperial chapel at Vienna. He composed over sixty operas, the most popular being *Lucioia Borgia* (1833), *Lucia di Lammermoor* (1835), *La Fille du Régiment* (1840), and *Linda di Chamounix* (1842). Donizetti also wrote masses and other music for religious purposes, some string quartets, and some songs. He died April 8, 1848.



Gaetano Donizetti, Italian composer

DONNE, JOHN (1573-1631). English poet, courtier and divine. Born in London, of Roman Catholic parentage, he joined the Anglican communion, accompanied Essex to Cadiz in 1596, and to the Azores in 1597. He travelled in Europe, and became private secretary to lord keeper Egerton, whose niece he married clandestinely in 1601. In 1615 Donne was ordained and became in succession curate at Paddington, royal chaplain, vicar of Keyston, Hunts, rector of Sevenoaks, reader in divinity at Lincoln's Inn, dean of S. Paul's, 1621, and vicar of S. Dunstan's in the West. He died March 31, 1631, and was buried in S. Paul's Cathedral.



John Donne, English poet
Contemporary portrait

His verse is deliberately rugged in form, sombre and even gruesome in imagery, but threaded with glowing lines and original thought. The last of the great Elizabethan preachers, Donne's theology was liberal and reasoned. Pron. Dun.

DONNYBROOK. Suburb of Dublin, Irish Free State; formerly a country village. In 1204 King John granted a licence for an annual fair to be held here, and this became, especially in the 18th and 19th centuries, the most disorderly of all the Irish fairs. It was abolished in 1855.

DONOGHUE, STEPHEN (b. 1884). British jockey. Popularly known as Steve Donoghue, his first big success was the winning of the Cambridge-shire Stakes in 1910. From 1911 onward Donoghue was the most popular British jockey, carrying off many famous races. In 1920 he rode 143 winners, and for years in succession he headed the list of successful jockeys. His chief title to fame was the large number of Derby winners ridden by him, in 1915, 1917, 1921-23, and 1925.



Steve Donoghue, British jockey
Bassano

DOOM PALM or **DOUM PALM** (*Hypbaena thebaica*). Tree of the order Palmaceae. A native of Egypt and Nubia, the fan-shaped leaves are produced in clusters, and from the centre of these arise the spikes of flowers, all males on one tree, and all females on another. The fruits, like large quinces, are in clusters of 100 to 200. Beneath a smooth, polished skin there is a thick layer of fibrous material surrounding the large solitary seed, and this substance, which tastes much like gingerbread, is eaten by the natives. The hard wood is made into various domestic utensils.



Doom Palm. Tree found in the oases of Egypt and Nubia

DOON. River and loch of Ayrshire. The river issues from the loch into Glen Ness, and flows N.W. for 36 m. through picturesque country, to the Firth of Clyde below Ayr. It is mentioned in Burns's famous ballad, *Ye Banks and Braes*. The loch (5½ m. long) contains five small islands, on one of which (Castle Island) is a tower ruin, called Balliol's Castle. In 1929 it was proposed to make use of the loch waters for generating electric power.

DOONES, THE. Outlaws who, in the 17th century, inhabited the Badgworthy Valley, Exmoor, England. An outrage at Exford, in which a child was killed and its mother carried off, led to the extermination of the band by moormen and troops. The Doones and the legends surrounding their name provided material for Blackmore's *Lorna Doone*.

Dora. Name given popularly to the Defence of the Realm Act (q.v.), passed at the outbreak of the Great War.

DORCAS SOCIETY. Name formerly much in vogue for societies of ladies who made garments for the poor. The charitable woman at Joppa referred to in Acts 9, 36-42, was so called, hence the use of the word.

DORCHESTER. Borough, county, and market town of Dorset. It is on the Frome, 135 m. from London, on the Southern and G.W. Rlys. The boulevards occupying the line of the old Roman wall are an attractive feature. Notable buildings are the town hall and market house, county gaol, county hospital, grammar school, and museum. There is a statue to William Barnes, the Dorsetshire poet, and the place has associations with Thomas Hardy. Dorchester is noted for its ale. Market days, Wed. and Sat. Pop. 9,554.

The *Durnovaria* of the Romans, Dorchester has many indications of early occupation, among which are remains of an amphitheatre at Maunbury Rings, and Maiden Castle, a British earthwork, the most perfect examples of their kind in England, as well as a beautiful Roman pavement.

DORCHESTER. Village of Oxfordshire. On the Thame, near its confluence with the Thames, 9 m. S.E. of Oxford, it dates from Roman times, and was the see of a bishop from 886 down to its translation to Lincoln in 1050. It has a fine old abbey church with a famous Jesse window. Pop. 804.

DORCHESTER HOUSE. Former mansion in Park Lane, London. Occupying the site of an earlier house belonging to the earls of Dorchester, this magnificent mansion in the Italian Renaissance style was built by Villamuri, 1851-53. It was the property of Lt.-Col. Sir George Holford and contained a superb collection of pictures. It was rented by Whitelaw Reid while American ambassador (1905-13), and during the Great War was used as a hospital. In 1928 the earl of Morley, who inherited the property from Sir G. L. Holford (q.v.), sold it to a syndicate, and in 1929 it was sold and, in 1930 an hotel was built on the site. See illus. below.

DORDRECHT or **DORT.** Town of the Netherlands, in the prov. of S. Holland. It is on an island in the Meuse, 12 m. S.E. of Rotterdam, and is cut by the Merwede and other streams and canals. The chief building is the Great Church, a Gothic 14th century structure, with a lofty tower and fine carved choir stalls. There is an old town hall, restored in the 19th century, and the town has several museums, including one of antiquities, housed in one of the gates of the city. Dordrecht is a river port and rly. junction. The river and canals afford communication with the sea and with other Dutch ports. A steam ferry connects with places on the other side of the Merwede. The industries include engineering, saw-milling, shipbuilding and sugar refining.



Dorchester House. Former London mansion in Italian Renaissance style

Dordrecht came into existence about 1000, and its history is linked with that of the rise of the Dutch Republic. In the Middle Ages it was one of the wealthiest cities of Holland. In 1618-19 the synod of Dort, which discussed the points of difference between Calvinists and Arminians, met here. It is typically Dutch in appearance, with waterways, bridges, windmills, and quaint houses. Pop. 55,008.

DORÉ, LOUIS CHRISTOPHE GUSTAVE PAUL (1833-83). French artist. The son of German parents named Dorer, he was born at

Strasbourg, Jan. 6, 1833, and went to Paris in 1848. His Paolo ct Francesca, 1863, first brought him into notice, and was followed by the huge religious compositions popularised through the Doré Gallery in London. His real genius is to be found in his designs for the masterpieces of Dante, Milton, Shakespeare, Balzac, and La Fontaine. Doré was also a sculptor of no mean merit. He died Jan. 23, 1883.



Gustave Doré,
French artist

DORIANS. One of the three great branches into which the ancient Greek race was divided, the other branches being the Aeolians and Ionians. Traditionally the Dorians came from the small district of Doris in N. Greece, lying between Mt. Parnassus and Mt. Oeta, and overran virtually the whole of the Peloponnese somewhere about 1000 B.C. In historical times the Dorians inhabited, in addition to the bulk of the Peloponnese, Megara, Aegina, Crete, Melos, and other islands of the Aegean sea, the S.W. coast of Asia Minor, and colonies in Sicily. Sparta was the pre-eminent Dorian state.

Doric Order is the name given to the first of the three orders of Greek architecture. The Doric capital was generally carved out of a single block, and the drums of which the column was composed were bonded together by wooden dowels. The Parthenon (q.v.) is the best example of the Grecian Doric. See Architecture; Corinthian Order; Ionic Order; also illus. pp. 116, 133.

DORKING. Market town and urb. dist. of Surrey. It stands on the Mole, just below the N. Downs, 25 m. S.W. of London, and is served by the Southern Rly. (two branches). Lime burning is a local industry. It is noted for a breed of fowls. The chief building is S. Martin's church, rebuilt in the 19th century. The former King's Head in North Street is said to have been the Marquess of Granby of Pickwick.

In the vicinity is some of the finest Surrey scenery, including Box Hill, Leith Hill, Betchworth, Abinger, and Ranmore. Near are the mansion and grounds of Deepdene, now an hotel. In 1927 Lord Francis Hope, afterwards duke of Newcastle, presented Glory Woods to Dorking. George Meredith is buried here. Market day, Thurs. Pop. 8,058.



Dorking Fowl. Cock of this
old English breed of fowl

DORKING FOWL. Breed of fowls deriving its name from the town where it was at one time extensively bred and fattened. A peculiar characteristic of the breed is that it possesses a fifth toe. Compact, plump in build, and broad in the breast, it carries more meat in proportion to the size of its bone than any other fowl, while in quality and flavour its flesh is excellent. As a layer the hen compares favourably with any other bird of her size and weight, and excels both as a sitter and a mother. There are three main varieties, viz., dark, silver grey, and white.

DORMER (Lat. dormire, to sleep). In architecture, the name given to a window set in the inclined roof of a house. Its real value as an architectural feature was not discovered much before the 17th century. In Jacobean buildings dormer windows contribute to the balance and symmetry of a façade, and in

combination with the hipped roof they are a conspicuous and valuable feature of Georgian architecture.

DORMOUSE (*Muscardinus avellarius*). Small British rodent about 3 ins. long, exclusive of the tail, which is about the same length. It has a large head with conspicuous ears and prominent eyes. The fur is tawny on the back and yellowish beneath, with a white patch on the chest. It is usually found in small plantations and hedgerows. It feeds at night and spends the day asleep. In autumn it builds a special nest for the winter, and stores it with a supply of nuts and corn. It usually hibernates from Oct. to April.



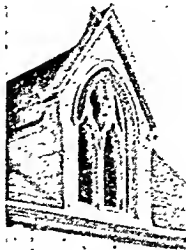
Dormouse, *Muscardinus avellarius*,
the British species

Dorpat. Alternative name of the Estonian town now known as Tartu (q.v.).

DORSET, EARL, MARQUESS, AND DUKE OF. English titles borne successively by the families of Beaufort, Grey, and Sackville. John Beaufort, earl of Somerset (d. 1410), the eldest son of John of Gaunt, was created marquess of Dorset in 1397. This title became extinct in 1464. Thomas Grey (1451-1501), 8th Earl Ferrars and stepson of Edward IV, was created marquess of Dorset in 1475. His grandson, Henry (1510-54), was made earl of Suffolk and, being implicated in Wyatt's rising, was beheaded in 1554, and the title once more became extinct.

Thomas Sackville was created earl of Dorset in 1604. His descendant Charles, the 6th earl (1633-1706), was a courtier and wit in the reigns of Charles II and William III. He wrote the lyric "To all ye ladies now on land." In his later years Dorset was a generous patron of literary men, as Wycherley and Prior. He died Jan. 29, 1706. His son Lionel, the 7th earl (1688-1761), was made duke of Dorset in 1720, and the title persisted until the death of Charles, the 5th duke, in 1843, when with the earldom it became extinct. See Sackville.

DORSET, THOMAS SACKVILLE, 1ST EARL OF (1536-1608). English statesman and poet. Born at Buckhurst, Sussex, son of Sir Richard

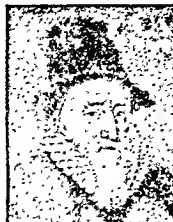


Dormer window in old
chapel, Cleeve, Somerset

In autumn it builds a special nest for the winter, and stores it with a supply of nuts and corn. It usually hibernates from Oct. to April.

DORNOCH. Burgh and county town of Sutherlandshire. It stands near the entrance to Dornoch Firth, a noted fishing ground, 58 m. N.E. of Inverness, is a favourite summer resort with excellent bathing facilities, and has an excellent golf course. The original cathedral (1222-45), of which only the tower survives, was restored in 1837, and became the parish church; it contains the tombs of the Sutherland family. Pop. 768.

Sackville, chancellor of the exchequer, he was called to the bar as a member of the Inner Temple. With Thomas Norton he collaborated in *Gorboduc* (also called *Ferrex and Porrex*), the first English tragedy in blank verse, acted 1561. Sackville, whose work influenced Spenser, was made a peer as Baron Buckhurst in 1567. In 1599 he was appointed lord treasurer, and in 1604 was created earl of Dorset. He died while at the council table in Whitehall, Apl. 19, 1608.



Thomas Sackville,
1st Earl of Dorset

DORSETSHIRE. Southern maritime county of England. It has about 75 m. of hold and picturesque coast on the English Channel, of which the chief features are Chesil Bank, St Alhan's Head (440 ft. high), and Poole Harbour. Chalk downs traverse the central and S. parts, on which are pastured the celebrated Dorset horned sheep. The Frome, flowing to Poole Harbour, Stour, and Puddle are the longest streams. Portland and Purbeck stones are largely quarried. The Southern and G.W. Railways serve the county. Dorchester is the county town; Poole, Weymouth, and Swanage are the chief ports. In the N. is the Vale of Blackmore, with famous pastures. The antiquities include Corfe Castle (q.v.). Area 977 sq. m. Pop. 228,160.

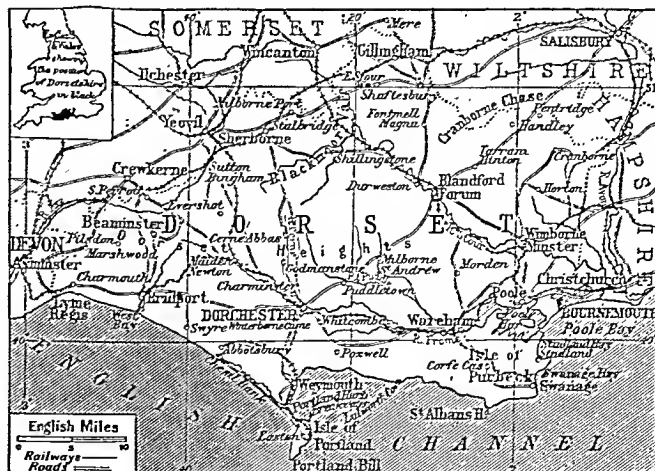
LITERARY ASSOCIATIONS. George Crabbe was rector of Evershot; and William Barnes, the English dialect poet, was born at Rushay.

Sir Thomas Wyatt was buried at Sherborne, Matthew Prior is believed to have been born at Wimborne, and Weymouth was the birthplace of Thomas Love Peacock. The chief modern literary associations centre in the novels of Thomas Hardy, who made Dorset the main part of his Wessex. Consult *The Hardy Country*, C. G. Harper, 2nd ed. 1911.

DORSETSHIRE REGIMENT. Formerly the 39th and 54th Foot, this was raised in 1702, and first saw active service in India. After assisting at the defence of Gibraltar it was in Egypt in 1801. Later the Dorseters took part in the Peninsular, Burmese, Mahratta,



Dorsetshire Regiment
badge



Dorsetshire. Map of one of the principal dairying counties of the south of England. Dorset also produces the Portland and Purbeck stone

DORSET, THOMAS SACKVILLE, 1ST EARL OF (1536-1608). English statesman and poet. Born at Buckhurst, Sussex, son of Sir Richard

Crimean, and South African Wars. In the Great War the 1st battalion distinguished itself at Le Cateau, La Bassée, Ypres, and the

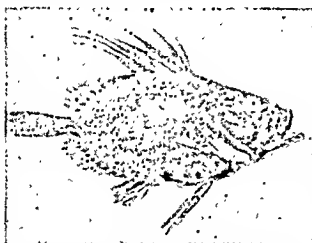
Somme. The 2nd battalion fought magnificently in the early stages of the Mesopotamian campaign. The motto is 'Primus in Indis'. The regimental depot is at Dorchester.

DORTMUND. Town of Prussia, in Westphalia. It stands on the Emschor, 50 m. N.E. of Düsseldorf. There are several beautiful old churches, including S. Reinold's, a 13th century building with later additions, the Romanesque S. Mary's, S. Peter's, and one formerly belonging to the Dominicans. The 13th century town hall was rebuilt in the original style in the 19th: it contains a museum. The town walls have been replaced by promenades. Dortmund was a free city until 1803, and in 1815 became part of Prussia.

Dortmund is the largest town on the Ruhr coalfield. The industries comprise foundries, and there are manufactures of iron goods, including rly. stock and machinery. It is well served by rlys., while the Dortmund-Ems canal takes its products to the sea. The canal is an alternative route to that provided by the Rhine. Pop. 321,743.

DORY OR **JOHN DORY.**

Marine fish, Zeus faber, of the Zeidae family, common in the Mediterranean, the English Channel and St. George's Channel, and valued for the table. It is greatly compressed laterally, and has a very large head. It is yellowish in colour, with metallic reflections, and has a repulsive appearance.



Dory. Fish of the zeidae family

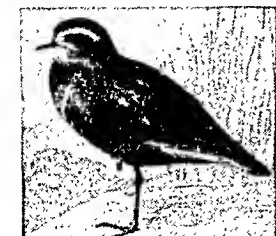
DOST MOHAMMED

(d. 1803). Ruler of Afghanistan. As leader of a revolt he obtained a portion of the country, including Kabul. In 1839, owing to his aggressive policy, the British declared war on him. In 1840 he gave himself up, and in 1842 was released and restored to his throne. Soon he brought the whole country under his rule, and in 1855 made a treaty with Great Britain, the friendly relations being maintained until his death, June 9, 1863.

DOSTOÏEVSKI, FIODOR MIKHAILOVITCH

(1822-81). Russian novelist. He was born, Nov. 11, 1822, at Moscow, son of a military surgeon. In 1846 appeared his first work, Poor Folk, and at once he became a celebrity. In April, 1849, he was arrested for his association with the Petrashevsky political society, and was sent to Siberia, where he spent four miserable years. He gave an account of his prison experiences in *Memoirs of a House of the Dead*, 1861-62.

In 1861 appeared *Downfallen and Oppressed*, and in 1866 his greatest work, *Crime and Punishment*. He continued writing story after story, and in 1873 began a series of miscellaneous papers, entitled *An Author's Diary*. He died February 9, 1881.



Dotterel, a species of plover which breeds in Scotland

black and white markings. It is found on mountain sides, and visits ploughed fields in search of grubs and insects.

DOUAI OR **DOUAY** Town of France, dept. of Nord. It is on the Scarpe, 18 m. S. of Lille. The hôtel de ville is a fine Gothic building. In the palace of justice the parliament of Flanders met. The chief churches are S. Pierre, with its 16th century tower, and Notre Dame, dating from the 12th century. There are a 15th century gateway and the old hall of the parliament of Flanders, since occupied by an appeal court. Douai has a state college of agriculture and a school of mines. Pop. 34,131.

Douai has been in existence since the time of the Gauls. It passed from Flanders to Burgundy, and then to Spain, but became French in 1713. From 1652-1793 there was a Roman Catholic university here, but the town is chiefly known for its English collegio (1568-1903), where priests were trained to work for the conversion of England. The Old Testament of the Douai Bible was issued from here in 1610.

Occupied practically throughout the Great War by the Germans, Douai was awarded the Cross of the Legion of Honour in 1919.

DOUAUMONT. Village, fort, and plateau of France. The village, which stands on the river Meuse, 3 m. N.E. of Verdun, was a noted centre in the battle of Verdun, the Germans capturing the fort on Feb. 25, 1916. The French recaptured it Oct. 24, 1916. The village was captured by the Germans, March 2, 1916, after heavy fighting, and, after changing hands several times, was retaken by the French, Oct. 24, 1916. See Verdun.

DOUBLE BASS, sometimes called the bass. Largest and heaviest toned of the orchestral stringed instruments played with a bow. Double basses have three or four strings. Their sounds come an octave lower than the notes written, so that when the violoncello (q.v.) and the double bass play from the same notes the effect is of octaves instead of unisons.

DOUBLE BASSOON OR **CONTRA FACOTTO**

Largest and deepest toned of the wood-wind instruments, bearing the same relation to the ordinary bassoon as the stringed double bass does to the violoncello, but used more rarely. It is used in military bands and orchestras.

DOUBLET OR **POURPOINT.** Tightly fitting body garment reaching from the neck to a few inches below the belt. Worn from the 14th to the 17th century, it probably took its name from the fact that it was doubled and padded.

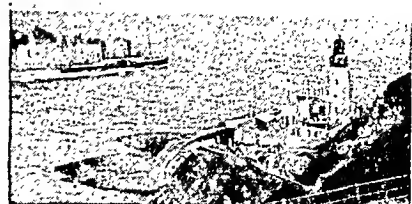


Doublet. Front view of the garment as worn in the 16th century

DOUBLOON (Span. doblon, double). Spanish gold coin originally worth two piteles, or 64s. 8d. Another doubloon, the doblon de Isabel, value 20s. 8d., was issued from 1848-68, when its use was discontinued.

DOUGHTY, CHARLES MONTAGU (1843-1926). British author and traveller. Born in Suffolk, August 19, 1843, the son of a clergyman, he was educated at Cambridge. He then began to travel, first in Europe, later in Africa, and finally in Western Asia. In 1876 he left Damascus on a journey which took him through unknown parts of Arabia. This, the most adventurous episode in a wholly adventurous career, is described in his book *Arabia Deserta*, 1888, notable almost as much

for its style as for its matter. Doughty's later years were passed in England, where he wrote *The Dawn in Britain* and other poetry. He died at Sissinghurst, Kent, Jan. 21, 1926



Douglas, Isle of Man. Promontory of Douglas Head, on which stands the lighthouse

DOUGLAS. Borough and watering place of the Isle of Man, capital of the island. It stands on the Douglas Bay, in which is a tower of refuge. Among its attractions are a series of promenades, the Villa Marina, good sands, bathing, and boating. It has piers and a harbour, public baths, and facilities for all kinds of sport. Dancing halls are a feature, and there are several theatres and cinemas.

S. George's is the oldest church; others are S. Thomas's, S. Ninian's, and a fine Roman Catholic church. The government buildings include the legislative buildings and court house; there are also the town hall, public library, and post office. Douglas is connected by steamer with Liverpool, Fleetwood, Barrow, Glasgow, Belfast, and other ports. It was a mere fishing village until its value as a health resort made it popular in the 19th century. Market day, Sat. Pop. 20,326.

Douglas Head is a promontory with a lighthouse at the S. of the bay

DOUGLAS. Famous Scottish family, now represented by the dukes of Hamilton and Buccleuch, the marquess of Queensberry, the earls of Home and Morton, Lord Torphichen, and various baronets and others. The name is taken from Douglas in Lanarkshire, a town 11 m. from Lanark, with a station on the L.M.S. Rly. There are remains of S. Bride's church, the old burial place of the Douglasses. Sir William Douglas was made earl of Douglas in 1358, and his son James, the 2nd earl, is the Douglas of the hall of Chevy Chase. In 1488 the main line died out and the earldom became extinct. In 1663 William, 11th earl of Angus, a descendant of an illegitimate son of the 1st earl of Douglas, was made marquess of Douglas, and in 1703 the 3rd marquess was made duke of Douglas. He died without sons in 1761, when the dukedom became extinct. The marquessate, however, passed to the duke of Hamilton.

Douglas Castle in Lanarkshire is the property of the earl of Home, a Douglas in the female line. See Hamilton.

DOUGLAS, SIR CHARLES WHITTINGHAM HORSLEY (1850-1914). British soldier. Born July 17, 1850, he joined the Gordon Highlanders in 1869.

He saw service during the Afghan War (1879-80) and the S. African War (1880-81). In 1904 Douglas, having served in the S. African War, was made adjutant-general. He was knighted in 1907; in 1909 he was transferred to the southern command, and from 1912-14 was inspector-general. In 1914 he was made chief of the imperial general staff, but on Oct. 25 of that year he died suddenly.

DOUGLAS, STEPHEN ARNOLD (1813-61). American politician. Born at Brandon, Vermont, April 23, 1813, he settled in Illinois, became a lawyer, and had soon a large



Doubloon. Spanish American gold doubloon, dated 1697
One-half actual size

practice. Combining politics with the law, he became a leader among the Democrats; in 1836 he entered the legislature of the state; in 1840 he was its secretary, and in 1843 he was sent to the House of Representatives. He remained there until 1847, and thence until his death he was in the Senate. In 1858 began his duel with Lincoln, by which he is perhaps chiefly known. Both were candidates in Illinois for the Senate, Douglas winning the seat, and in 1860 the two were again pitted, this time for the presidency, when Douglas was badly beaten. He died June 3, 1861.

DOUGLAS PINE (*Pseudotsuga douglasii*). Tall evergreen tree of the order Coniferae. A native of N. America, it attains a height of 100-300 ft. Its needle-like leaves are flat, with two white lines on the lower surface, and are spirally arranged on the twigs. The pendulous, oval cones, which vary in length from 2-4 ins., have scales with three-pronged ends, of which the middle prong is much longer and narrower than the other prongs. See Pine.



Douglas Pine, an evergreen of North America

DOULLENS. Town of France, in the dept. of Somme. It is 17 m. by rly. S.W. of Arras. During the Great War its central position behind the British lines made it of considerable importance, and it was here that, after the retreat of March, 1918, the Allied Powers placed Foch in supreme command, March 26, 1918. A cemetery here contains about 1,700 graves of British soldiers.

DOULTON, SR HENRY (1820-97). British pottery manufacturer. Born in Lamheth, the son of a potter, he joined his father. About 1867 the firm began to make the ware by which his name is known, and later opened branches at Burslem, Paisley, Paris, and elsewhere. Doulton, who was knighted in 1887, did a great deal for the development of artistic pottery. He died Nov. 17, 1897.

DOULTON WARE. In its more limited sense, Doulton ware consisted of salt-glazed stoneware, decorated with applied mouldings or scratched patterns, called sgraffito, filled in with colour. Later, the ornamentation was applied by thin layers of coloured clays, which led to the adoption of the *pâte-sur-pâte* process. A special form called *carrara* ware had a hard, white body, covered with an opaque egg-shell enamel, which takes subdued colours very well. Doulton faience had a terra-cotta or biscuit body, decorated with scenic or floral paintings and fired under a dull glaze.



Gaston Doumergue, French statesman

DOUMERGUE, GASTON (b. 1863). French statesman. Born at Aigues-Vivres, Aug. 1, 1863, he held law appointments in Indo-China and Algeria, 1890-93. Becoming a deputy in 1893, he was minister for the colonies, 1902-5; of commerce and labour, 1906-8; and of education, 1908-10. A senator since 1910, he was president of the council, and minister for foreign affairs, 1913-14, and then

colonial minister again. In 1924 he succeeded Millerand (q.v.) as president of the French Republic. See France.

DOURO (Sp. Dureo; anc. Durius). River of Spain and Portugal. Rising E. of Burgos, it curves E. and S., then flowing S.W. past Soria, Valladolid, and Zamora, enters Portugal, of which it forms the frontier for 65 m. Running W. for most of its length, it enters the Atlantic near Oporto, after a course of 485 m. Much impeded by rapids, it is navigable for about 90 m., but its mouth is partly blocked by a bar.

DOUROCOULI. Group of small nocturnal monkeys common in South America. They are thick and compact in body, with close fur and rather bushy tails, round heads, and large eyes. The eye-sockets occupy almost the entire width of the skull. They feed on insects. See Monkey.

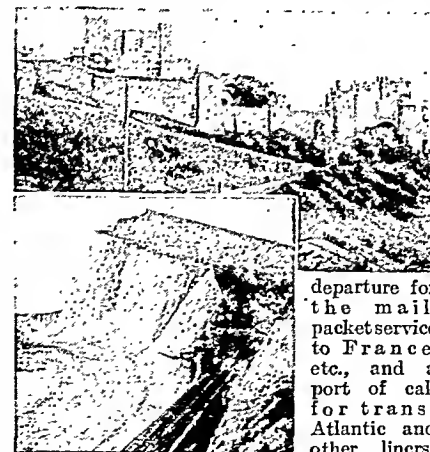
DOUW OR DOW GERARD (1613-75). Dutch painter. He was born at Leiden, April 7, 1613, and studied under Rembrandt, learning much of his master's treatment of light and shade. Later he developed a minuteness in his work that precluded more than a general application of Rembrandt's principles. The Potterer's Shop, in the National Gallery, London, is a representative example of his art.

DOVE. Name applied vaguely to various species of pigeon (q.v.). In Great Britain the stock dove, rock dove, and turtle dove are familiar examples.

The dove is the symbolic representation of the Holy Ghost. It was painted white as the emblem of purity, and sometimes a nimbus was placed round its head. Its figure may be seen on many baptismal fonts, and in Roman Catholic churches the pyx, or box which holds the Host, is made in the form of a dove.

DOVE. River of Derbyshire and Staffordshire. It rises on Axe Edge and flows between the two counties in a S. and S.E. direction to join the Trent after a course of 45 m. Dove-dale is a famous beauty spot.

DOVER. Borough, seaport, and market town of Kent. One of the Cinque Ports, it stands on the Strait of Dover, 77 m. E.S.E. of London on the Southern Rly. It is the port of



Dover. Shakespeare's Cliff, pierced by the railway tunnel. Above; Dover Castle; the keep (centre) is Norman

Saxon fortress, and within its precincts are a pharos or light tower and a fortress church. Other buildings are the town hall (1883), adjoining the old Maison Dieu (13th century).

the museum, and the Duke of York's Military School. Near the site of the round church of the Knights Templars stood the Bredenstone, where was held the court of Shepway. The rly. from Folkestone to Dover passes through three tunnels, one in Shakespeare's Cliff (350 ft.). The harbour is partly enclosed by the Admiralty Pier (1,360 yds.); the Prince of Wales Pier was opened in 1903, and a national harbour in 1909. A new station was opened for public traffic in 1919. The bishop of Dover is suffragan to the archbishop of Canterbury. Market days, Tues., Thurs., and Sat. Pop. 43,160. See Channel Tunnel.

The treaty of Dover was a secret treaty signed May 22, 1670, between Louis XIV of France and Charles II. The terms were that the English king should become a Roman Catholic, assist Louis in his war in the Netherlands, and receive an annual payment of money in return for his help.

DOVER PATROL. A section of the British navy, this was a force based on Dover and Dunkirk throughout the Great War. Its exploits included the blocking of Zeebrugge on the night of Apr. 23, 1918, and placing the *Vindictive* in the entrance of Ostend Harbour, May 10, 1918. The patrol kept the ways for merchant vessels passing through the narrow seas, and closed the gate against enemy submarines by maintaining a barrage across the Strait of Dover. In appreciation of its work, the public subscribed for memorials at Leathercote's Point, St. Margaret's Bay, Dover, at Cape Blanc Nez, France, and at the entrance to New York Harbour. The Dover memorial was unveiled in 1921. Consult The Dover Patrol, 1915-17, R. Bacon, 1919.

CHANNEL SWIMMERS. The Strait of Dover, which in its narrowest part is 21 m. across, has attracted the attention of swimmers, Captain Webb swam across it in 1875, and the feat was repeated Sept. 6, 1911, by T. W. Burgess, and by H. Sullivan, 1923; C. Toth, 1923; S. Tirahoschi, 1923; H. Vierkötter, Miss Ederle, Mrs. Corson, G. Michel, N. L. Derham, 1926; E. H. Temme, Miss M. Gleitze, Mrs. Ivy Gill, 1927; Miss Ivy Hawke, Miss Hilda Sharpe, and an Egyptian, J. Helmy, 1928.

Dover is the capital of the state of Delaware, U.S.A., and there is a Dover in New Hampshire, U.S.A., the co. seat of Strafford co.

DOVERCOURT. Seaside resort of Essex. At the entrance to the estuary of the Stour, 70 m. N.E. of London by the L.N.E. Rly., it is included in the borough of Harwich. The church of All Saints has some old and interesting features, and there is a breakwater 1,550 ft. long. Pop. 7,694.

DOVEY OR DYFL. River of N. Wales. It rises on the E. slope of Aran Mawddwy and flows S. and S.W. through Merionethshire and Montgomeryshire, and then between Merionethshire and Cardiganshire to Cardigan Bay, which it enters by an estuary 6 m. long. Its length is 30 m.

DOWDEN, EDWARD (1843-1913). British poet and critic. He was born at Cork, May 3, 1843, and became professor of English literature at Trinity College, Dublin, in 1867. In 1889 he was Taylorian lecturer at Oxford, and from 1893-96 Clark lecturer at Trinity College, Cambridge. He died April 4, 1913.

The chief of his numerous works are *Shakespeare: A Critical Study of his Mind and Art*, 1875; *Life of Shelley*, 1886; *Introduction to Shakespeare*, 1893; *History of French Literature*, 1897; *The French Revolution and English Literature*, 1897. Consult his *Letters*, ed. E. D. and H. M. Dowden, 1914.

DOWER (late Lat. dotarium, gift). In English law, the amount formerly allowed to a widow out of her husband's freeholds which he has not disposed of in his lifetime or by will. The act of 1925, which made many changes in the English law of real property, abolished the right of dower.

DOWIE, JOHN ALEXANDER (1847-1907). Religious impostor. He was born May 25, 1847, at Edinburgh, and was for some years a Congregational minister in Australia, where he called himself the second Elijah, claimed power to heal diseases, and described himself as the First Apostle of Christ and the General Overseer of the Catholic Church. He went to America in 1888 and founded Zion City. He died March 9, 1907.

DOWLAIS. Mining centre of Glamorgan-shire. It is 2 m. N.W. of the county borough of Merthyr Tydfil (q.v.), of which it is part, on the L.M.S. and G.W. Ry's. Iron-working and coal-mining are active industries. Market day, Sat.

DOWN. County of Northern Ireland, in the prov. of Ulster. It has a coastline of nearly 70 m. The chief indentations from N. to S. are Belfast Lough, Strangford Lough, Dundrum Bay, and Carlingford Lough; the chief rivers are the Lagan, Bann, and Newry. Mineral springs occur. Most of the surface is hilly, and in the S. the Mourne Mts. reach 2,796 ft. (Slieve Donard). Oats, wheat, potatoes, and flax are grown; fishing and horse breeding are engaged in, and linen and muslin manufactures and cotton and flax spinning are leading industries. Traffic facilities are afforded by the G.N.I. and Belfast and County Down Ry's. and the Newry and Lagan canals. The chief towns include Downpatrick (county town), Newry, Bangor, Banbridge, and Holywood. Area 951 sq. m. Pop. 209,228.

The title of marquess of Downshire has been borne since 1789 by the family of Hill.

in the borough of Bromley. Here the London County Council laid out a housing estate. It is served by tramways and motor omnibuses.

DOWNHAM MARKET. Urban dist. and market town of Norfolk. It stands on the Ouse, 10½ m. S. of King's Lynn on the L.N.E. Ry. It is in a dairy farming district. Market day, Fri. Pop. 2,342.



Downing Street, London. The Council Chamber at No. 10 arranged for a meeting of the British Cabinet

DOWNING STREET. London street containing the official residence of the prime minister. A small turning out of Whitehall, it was built by and named after Sir George Downing, whose grandson founded Downing College. No. 10 is the official residence of the first lord of the Treasury, who is nearly always the prime minister. No. 11 is the official residence of the chancellor of the exchequer and No. 12 the office of the Government whips. On the opposite side of the street is the block of buildings devoted to the Foreign, Colonial, and Home Offices, built by Sir Gilbert Scott.

DOWNPATRICK. County town of co. Down, Northern Ireland. It stands near the S.W. end of Strangford Lough, 27 m. S.E. of Belfast, on the Belfast and County Down Rly. It derives its name from a great mound or "dun" in the vicinity, and is the reputed burial place of S. Patrick. The seat of the diocese of Down, which was united with Connor in 1441 and Dromore in 1842, Downpatrick has an imposing cathedral and several holy wells. Market days, Tues. and Sat. Pop. 3,199.

DOWNs. Ranges of chalk hills in S.E. England. They extend from the middle of Hampshire to the coast in Kent and Sussex, and are usually divided into the N. Downs and the S. Downs. The former go through Surrey and Kent to the coast at Dover; the latter through Sussex to the coast at Beachy Head. Between them is the valley known as the Weald.

The Downs is the name of a roadstead in the English Channel, between Deal, on the E. coast of Kent, and the Goodwin Sands. A secure anchorage for vessels, except during

southerly gales, it has a length of 8 m., a width of 6 m., and a greatest depth of about 72 ft. In 1639 the Dutch fleet gained a signal victory over a Spanish squadron, and several engagements between the Dutch and English fleets took place here during the 17th cent.

DOWNSIDE ABBEY. English Benedictine monastery and school, near Bath. It was established in 1814. The community was founded at Douai in 1605, and from the first has been engaged in the education of English boys. It was broken up at the French Revolution, and in 1795 the monks moved to England and maintained their school in Shropshire. The present buildings were begun in 1823; in 1899 Downside was raised from a priory to an abbey.

DOWNTON. Town of Wiltshire. It is on the Avon, 8 m. S.S.E. of Salisbury, on the Southern Ry. The mound called the Moot is a relic of the Anglo-Saxon period. Pop. 1,906.

DOXOLOGY (Gr. doxologia, a praising). Hymn of praise to God. The term is specially applied to the Lesser Doxology, the Gloria Patri, Glory be to the Father, and to the Son, and to the Holy Ghost, sung at the end of each psalm and canticle except the Te Deum. The Greater Doxology is the hymn Gloria in Excelsis Deo at the Eucharist. Both date from the 4th century.

The last verse of Bishop Ken's evening hymn beginning Praise God from Whom all blessings flow is also known as the doxology.

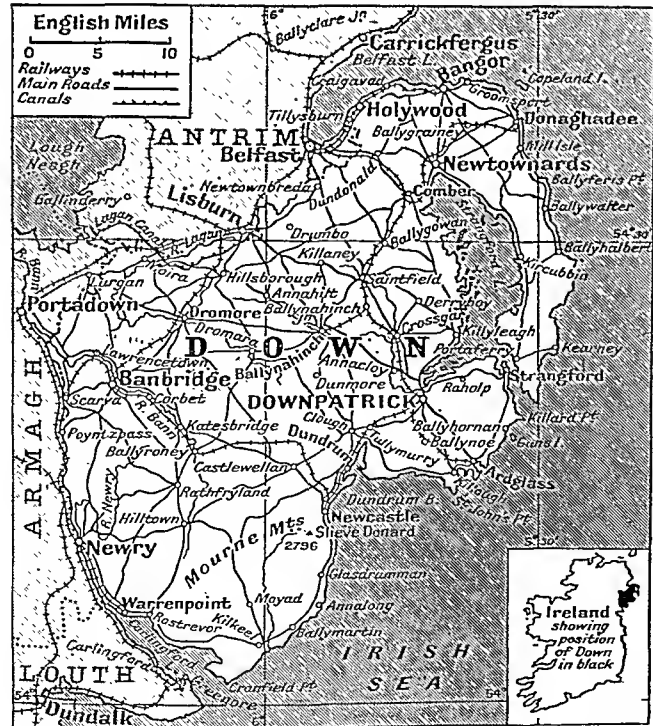
DOYLE, SIR ARTHUR CONAN (b. 1859). British novelist. Descended from a famous family of artists, he was born at Edinburgh, May 22, 1859. He was in medical practice, 1882-90, at Southsea and in London, but the success of his early work in fiction caused him to devote himself to literature. His first stories were A Study in Scarlet, 1887; Micah Clarke, 1889; The Sign of Four, 1890; and The White Company, 1891. In 1892 came The Adventures of Sherlock Holmes, which gave him immediately the widest popularity. Later works of fiction included Uncle Bernac, 1897; The Hound of the Baskervilles, 1902; Sir Nigel, 1906, and several others.

In the South African War, 1899-1902, Doyle went out as physician with a field hospital, and in 1902 was knighted. His history of The Great Boer War, 1900, is a popular and readable narrative, and for the Great War he wrote The British Campaign in France and Flanders, 1916, etc. During the Great War Doyle took an interest in spiritualism, and on it he published The New Revelation, 1918; The Vital Message, 1919.

DOYLE, JOHN (1797-1868). British painter and caricaturist. He was born at Dublin, and began a career as a portrait painter while still a boy. Six plates of The Life of a Racehorse were his first publication in London, whither he went in 1821. In 1829 he began the long series of political caricatures signed "H. B." which occupied twenty-two years of his life. These drawings, many of which are in the British Museum, are character studies rather than caricatures, and are generally excellent likenesses. He died Jan. 2, 1868.

His son, Richard Doyle (1824-83), studied under his father, and in 1843 became a regular contributor to Punch. In 1849 he designed the cover, which has been retained ever since. Later he devoted himself to book illustration. He died Dec. 10, 1883.

DRACHENFELS (Ger. dragon's rock). Mountain of Germany, on the right bank of the Rhine, 8 m. S.E. of Bonn. It is 1,065 ft.



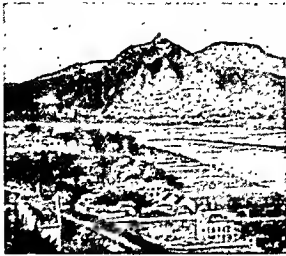
Down. Map of this Ulster county, notable for its horse and cattle breeding

DOWNHAM. District of London. It is about 9 m. to the south, being partly in the metropolitan borough of Lewisham and partly



Sir A. Conan Doyle, British novelist

high. At the summit, which can be reached by a rly. from Königswinter, are the ruins of a castle erected by Arnold,



Drachenfels. The castle-crested mountain from across the Rhine

DRACHMA. Greek silver coin, equivalent to the franc in the Latin Monetary Union. The unit of account, it is divided into 100 lepta and coined in 1, 2, and 5 drachmae pieces in silver, and in 5, 10, and 20 drachmae in gold, also nominally in 50 and 100 drachmae. The coins drachmae and lepta are used also in the currency of Crete.

DRACO OR FLYING DRAGON. Genus of so-called flying lizards found in India and Malaysia. All small in size, they are remarkable for the length of the hind ribs, which stretch out the skin and form a pair of wing-like expansions. The lizards live in the trees, and, aided by their "wings," take long flying leaps.

The name Draco is given to a long, winding stream of stars between Ursa Major and Ursa Minor, and almost encircling the Lesser Bear. See Constellation.

DRACO. Archon or magistrate of Athens. He was the first to codify and commit to writing (c. 621 B.C.) the laws of the state as formulated in the decisions of its judges. The severity of this code has made the word "draconian" a synonym for unmerciful, but the Draconian code was no more severe than other early codes of law. Its severity was mitigated by Solon.

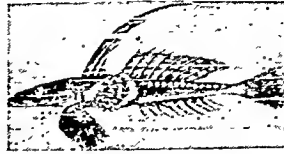
DRAFT. Military term for a party of soldiers sent to join some unit of their own corps. The Draft was the name given to the Conscription Act passed by the Congress of the U.S.A., Nov. 3, 1863, which empowered the President to draft into the army all men between the ages of 20 and 45.

DRAGA (d. 1903). Queen consort of Serbia. As Draga Mashiu she was maid-in-waiting to the Serbian queen, Natalie. In July, 1900, she married King Alexander I, and on July 11, 1903, she and her husband were murdered at Belgrade by the supporters of the Karageorgevitch family.

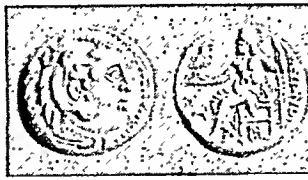
DRAGO, LUIS MARIA (1859-1921). Argentine statesman and author. He was born at Buenos Aires, May 6, 1859, and became a judge at Buenos Aires, and later a member of Congress. He was minister for foreign affairs under President Broca, and as such sent in 1902 to the Argentine minister at Washington the instructions which came to be known as the Drago doctrine. This doctrine asserts the independence of the Spanish-American nationalities and affirms the principle that no power by force of arms may impose itself upon any of them. Drago, who was the author of many books, including *Antropologia Criminal*, died June 9, 1921.

DRAGON. Fabulous monster common to the folk-lore of most nations. It is generally in the form of a gigantic reptile with four legs and a fierce (often fire-breathing) head, and frequently furnished with wings. It is the form often taken by the monster overcome by the hero of folk-tales and legends of many lands. Consult *The Evolution of the Dragon*, G. Elliot Smith, 1919.

In British heraldry the dragon is a monster having a lion-like scaly body, bat-like wings, barbed tail and tongue, and pricked up, pointed ears. It is one of the national badges of Wales.



Dragonet, C. yra. See below



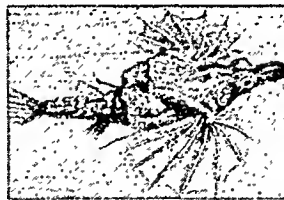
Drachma. Silver drachma, slightly reduced, of Alexander the Great

DRAGON (*Dracunculus vulgaris*). Perennial herb of the order Araceae. A native of S. Europe, it is similar to the eucalypt, but differs in its taller stem (spotted with purple), its divided leaves, and the more open spathe. The flowers give off an offensive odour.

DRAGONET (*Callionymus*). Group of brilliantly coloured fish, related to the gobies. There are about forty species, one found in deep water off the British coasts. The fore part of the body is flattened, and the pectoral and dorsal fins are large and conspicuously spined. The females are dull-coloured. See illus. above.

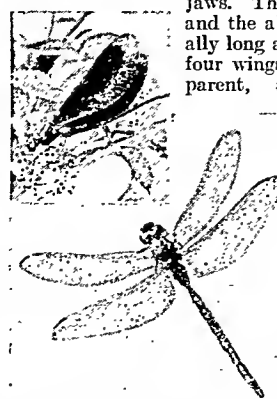
DRAGON FISH (*Pegasus*). Genus of small fish found around India, China, and Australia.

The broad, flattened body is completely covered with small bony plates instead of scales, and the gill cover consists of only one plate.



Dragon Fish. *Pegasus draco*, a fish with bony plates instead of scales

DRAGON FLY (*Odonata* or *Lihellulidae*). Family of neuropterous insects comprising about 2,000 species. They are handsome insects with large heads, conspicuous compound eyes, short antennae, and powerful jaws. The thorax is thick, and the abdomen is generally long and slender. The four wings are long, transparent, and beautifully veined. Many species are brilliantly coloured. The earlier stages of life are passed in the water, and the larva breathes by means of gills. There is no distinct pupal stage, but after about a year in the water the nymph crawls up the stem of a



Dragon Fly. Specimen of *Aeschna cyanea*. Above, demoiselle dragon fly, *Calopteryx virgo*

plant, or on the bank of the pond, where presently the skin cracks open down the back and the perfect insect emerges.

DRAGONNADES. Name given to the persecution of the Huguenots in France just before and after the revocation of the edict of Nantes in 1685. It is so called because dragoons were employed to see that the king's orders against the Protestants were enforced.

DRAGON'S BLOOD. Red resinous exudation from the fruits of a number of palms. Dragon's blood is obtained from species of *Daemonorops*, the varieties East Indian, Malay, Sumatra, and Borneo being from different kinds. It was formerly used as an astringent in medicine, and is still employed as a colouring matter for varnishes.

DRAGON TREE (*Dracaena draco*). Tree of the order Liliaceae. A native of the Canary Islands, it has long, slender, lance-shaped leaves in a crowded head at the summit of the stem, giving it a palm-like aspect. The small, greenish-white, bell-



Dragon Tree. A very old specimen of the tree growing in Tenerife

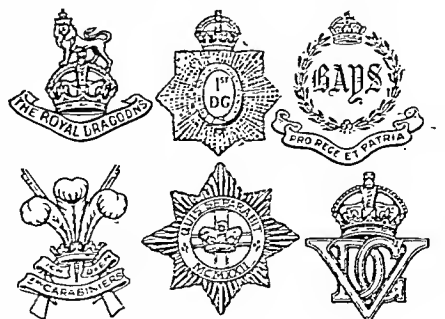
shaped flowers are produced in a large panicle. When of great age, the trunk branches above. There was a great tree of this species at Orotava in Tenerife which was believed to have an antiquity greater than that of the Pyramids. In 1827 a great storm subjected it to much injury, and in 1851 it was entirely destroyed.

DRAGON. At one time a mounted infantryman. They used horses for marching purposes only, but were trained and organized to fight on foot. They took their name from the short musket, called a dragon, which they carried.

In the British army there are regiments of dragoons and dragoon guards, but the number



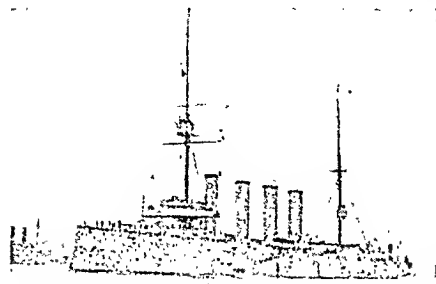
2nd Dragoons (Royal Scots Greys) regimental badge



Dragoons. Regimental badges of the 1st Royal Dragoons and those of the 1st, 2nd, 3rd, 4th and 5th Dragoon Guards

of each has been reduced since the Great War. There are now five regiments of dragoon guards instead of seven, as the 6th has become a S. African regiment allied with the 3rd and the 7th amalgamated with the 4th. Of the three regiments of dragoons, the 1st (Royals) and 2nd (Scots Greys) remain, but the 6th (Inniskillings) has been disbanded and the name transferred to the 5th Dragoon Guards.

DRAKE. Nameship of a class of four British cruisers. She was torpedoed off the north coast of Ireland, Oct. 2, 1917, but reached harbour, and there sank in shallow water. She was 520 ft. in length, 71 ft. in



H.M.S. Drake, name-ship of a class of British cruisers. She was sunk Oct. 2, 1917. Cribb, Southsea

beam, displaced 14,100 tons, and had engines of 30,000 horse power, giving a speed of 23 knots. She carried two 9.2-inch, 16 6-inch, 20 smaller guns, and two submerged torpedo tubes. Of the Drake class only the King Alfred and the Leviathan survived the Great War.

DRAKE, Sir Francis (d. 1596). English seaman. Born probably at Crowndale, near Tavistock, he is believed to have served an apprenticeship on a coasting vessel. In command of the fifty-ton craft *Judith*, he sailed with his cousin, John Hawkins, on a trading expedition which barely escaped destruction by the Spaniards at San Juan d'Ulloa, in 1567. In 1572 he sailed with a small but picked force, sacked Nombro do Dios, crossed the Isthmus of Panama until he came in sight of the Pacific, captured a great Spanish mulc-train of treasure, and returned home.

On Nov. 15, 1577, with five ships, he made his way through the Strait of Magellan (Aug., 1578), and then with the one ship that remained to him, the *Pelican* or *Golden Hind*, attacked the Spanish ports on the Pacific, where no hostile ship had been before. After capturing and clearing a great treasure ship, he sailed north, landed in California, where the natives proposed to deify him, and then sailed across the Pacific. He passed the Cape of Good Hope in January, 1580, and sailed into Plymouth Sound on Sept. 26, and was knighted.

In 1585, when the official declaration of war with Spain was imminent, Drake put to sea unofficially with a considerable flotilla, sailed into the port of Vigo, which was put to ransom, crossed the Atlantic to the Spanish Main, fell upon San Domingo and Cartagena, which were also put to ransom, captured a great treasure ship, and returned to England. In 1587 he commanded the expedition which sailed to Cadiz, burnt the shipping, and postponed the sailing of the Armada for twelve months. In 1588 he was second in command and real director of the operations against the Armada (q.v.). He died at sea, Jan. 28, 1596, and his body was committed to the Atlantic Ocean.

DRAKENSBERG or **QUATHLAMBA.** Range of mountains in S. Africa. They form a rampart from Griqualand East to Mont aux Sources in Basutoland, the highest peak, 11,000 ft., and thence in an easterly direction to Majuba Hill, 7,000 ft. The erosion of the lavas has produced remarkable escarpments, as at Maclear, Cape Province.

DRAM or **DRACHM.** Unit of weight, being one-sixteenth of an ounce avoirdupois. Previous to 1864 it formed also the eighth part of 1 oz., apothecaries' weight. The name comes from drachma, and is still used in the Levant, 400 drams making one olea. See *Pound*.

DRAMA (Gr. dran, to do). The art of expression by action. Its beginnings are found in the instinctive pretences, for the mere sake of expression, common to all savage races and many animals. Probably long before the arrival of speech tragedy had taken a set form in the war-dance and comedy in phallic revels, both afterwards merged in the ritual of primitive religions.

The all-important Greek drama is presumed to have developed from the dithyrambs or hymns in honour of Dionysus, god of wild vegetation, fruits, and especially the vine, sung by a chorus dressed as satyrs, who engaged also in mimic dance-stories.

Much as the dramatic revival of the 16th and 17th centuries owed to the plays of the Church and of the people, it would not have come about in the way it did without the stimulus of the New Learning and the re-awakened interest in the classics. The revival of tragedy began in Italy with Galeotto's *Sofonisba* (1502), which was written still under the influence of Seneca, and noticeable for the fact that the unity of place was disregarded.

In England, lay performances in the universities and elsewhere, both of Latin comedies and of translations, were encouraged, partly for anti-papal purposes, by Henry VIII and Edward VI.

In 1551 appeared the first English comedy, Ralph Roister Doister, based by Nicolas Udall upon Plautus's *Miles Gloriosus*; and in 1562 Lord Buckhurst and T. Norton produced the first English tragedy, *Gorboduc*, or *Ferrex and Porrox*, inspired by Seneca's *Thebais*. With these plays, and with John Heywood's *Interludes*, the revival of English secular drama, which reached its highest point in Shakespeare, may be said to have been launched. See *Acting*; *Theatre*.

DRAMA. Town of Macedonia, Greece, the ancient *Drabescus*, 70 m. N.E. of Salonica. It changed hands in the Great War, being recovered by the Greeks, Oct. 8, 1918. Near it was fought the battle of Philippi (q.v.) in 42 B.C.

DRAPER (A.S. from Fr. *drap*, cloth). Originally one who made woollen cloth.

The Drapers' Company is the third of the twelve chief City of London livery companies.

It received the first of its seven charters in 1364, and was granted arms in 1439. The guild first met in S. Mary Bethlem hospital church, Bishopsgate. Its first hall was in St. Swithin's Lane. A new hall was built in 1667, and rebuilt in 1772-74 and 1866-70. The company has large estates and a corporate and trust income of about £78,000, and administers numerous charities, including a number of almshouses.



Drapers' Company arms

DRAUGHT. Term used in various meanings. (1) The least depth of water in which a ship can float without touching bottom. The largest vessels have a draught of about 35 ft. when fully laden. Draught scales in feet are painted on the bow and stern post.

(2) The current of air passing through a furnace to promote combustion. Natural

draught is produced by the column of hot gases rising through a chimney to displace heavier air outside. Forced draught implies the blowing of air through the furnace at a pressure somewhat higher than atmospheric.

DRAUGHTS. Game of skill played with 24 disks or draughtsmen on a chequered board of 64 alternate black and white squares. It is of great antiquity, forms of it being known in ancient Egypt, Greece, and Rome.

The game is played by two players, each having 12 men, one selecting white, the other black; they are set up in three rows at each end of the board, using either the white or the black squares only. The men are moved one square at a time in a diagonal direction, and take an opponent's piece by passing over it whenever there is a vacant square beyond. When a player succeeds in getting one of his pieces across the board into the last row, it is crowned by placing another piece upon it, and becomes a king, thereby acquiring the very advantageous privilege of moving either backwards or forwards.

DRAVE, DRAVA or **DRAU.** River of Central Europe, formerly entirely within Austria-Hungary, now in parts the N. boundary of Yugoslavia. It is one of the chief right-bank tributaries of the Danube. Its length is 450 m.

DRAVIDIAN. Name given to an ancient non-Aryan race in S. India and Ceylon. They are dark, broad-nosed, thick-lipped, curly-haired, and long-headed. The Dravidians are by some held to be related to the Australian aborigines; by others to the Negroid race. A style of architecture often called Dravidian is also designated S. Indian.

Dravidian is the name of a group of languages spoken by the Dravidians in Baluchistan, N. and S. India, the Deccan, and Ceylon. Although the vocabulary contains a considerable Sanskrit element the language has a distinctive grammatical system.

DRAWING. The pictorial or diagrammatical representation of objects seen or imagined. It is the basis of an art, whether architecture, sculpture, or painting, and thus the art student must of necessity begin with simple studies of shape, form, and proportion.

The modern highly specialised world has placed drawing in several categories apart from the purely pictorial, which is commonly meant. Architectural drawing, strictly considered, is an exposition in pure outline of the elevation and details of a building and building design, for technical use alone, for the information of the architectural profession and the builder. It is essentially an affair of measurements. Of a like nature is the drawing of architectural plans and engineering details, although the man who works at these is a draughtsman, not an artist. See *Illustration*; *Perspective*.

DRAYTON, MICHAEL (1563-1631). English poet and dramatist. Born at Hartshill, Warwickshire, a friend of Shakespeare and a shareholder in the Whitefriars Theatre, he is best remembered for two sonnets, "Since there's no help, come, let us kiss and part"; and "Dear, why should you command me to my rest?" He also wrote a *Ballad of Agincourt*, and a charming fairy poem, *Nymphidia*. His *Polyolbion*, a patriotic poetical topography of some 30,000 lines, is packed with allusions of antiquarian interest. He died in Dec., 1631, and was buried in Westminster Abbey.

DREADNOUGHT. Name borne by first-class ships of the British navy almost continuously since 1873. The ninth Dreadnought was the first "all-big-gun" ship of the



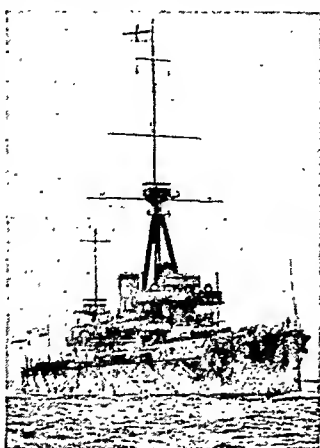
Sir Francis Drake, English sailor. From a contemporary portrait



Michael Drayton, English poet. Nat. Port. Gall.

modern era. Her principal dimensions were: length, over all, 526 ft.; beam, 82 ft.; and normal displacement, 17,900 tons. She was larger and faster (21 knots) than any earlier British warship, and was the first of any nationality, larger than a light cruiser, to be equipped with turbine machinery. Her principal distinctive characteristic, however, was the elimination of all secondary or intermediate guns from the armament, which comprised nothing between ten 12-inch battle guns and 24 3-inch (12-pounders) for repelling torpedo-craft.

By general consent all vessels subsequently designed on similar principles as to armament are called Dreadnoughts. Vessels built on the all-big-gun principle but having weapons heavier than the 12-in. are popularly known as super-Dreadnoughts, the first of these being H.M.S. Lion, 26,350 tons, launched August 6, 1910. See Battle-ship; also illus. p. 157.

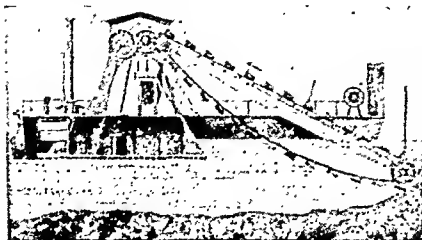


H.M.S. Dreadnought. First of the modern all-big-gun battleships. launched in 1905

DREAM. Involuntary manifestation of the subconscious mind during sleep. Assuming that the deepest sleep is unconscious, and that normal slumber is subconscious, dreams arise mostly in that state between sleeping and waking when the faculty of imagination is regaining the power of exercising itself upon sense-impressions stimulating the subconscious mind. The subject matter of dreams is built up of material already present in the mind, and of that alone.

An interesting theory of the psychology of dreams has been propounded by Sigmund Freud, professor of neuropathology in Vienna. His view is that dreams are the outcome of definite and highly significant psychological processes, that they are a method of satisfying repressed desires, controlled during consciousness by a censor in the mind. The practical application of this theory is seen in the treatment of persons suffering from neurasthenia and allied disorders. See Psychoanalysis.

DREDGING. Operation of excavating material from the bed of a river, harbour, or other water-covered area, in order either to improve navigation by increasing the depth of water, or to form new channels. Dredging machines are classified as hucket or ladder, hydraulic pump or suction, spoon or dipper, and grab. Some dredgers are fitted with buckets and pumps. Self-propelling machines, which are, as a rule, of large size, frequently contain hoppers in which the material dredged is stored for removal into deep water, where it is afterwards dumped.



Dredger. Sectional diagram of a ladder dredger. The steel buckets travel round the ladder, scooping up material and discharging it into a hopper

DRESDEN. City of Germany, capital of Saxony. It stands on both banks of the Elbe, 110 m. S. of Berlin. It is famous as an artistic and educational centre, its museums

and schools (including the technical high school) being especially notable. It is also important as a rly. centre and as a centre for river traffic. The industries include the manufacture of pianos, cycles, sewing-machines, hardware, and chemicals. As a business town it developed greatly in the 19th century, although it had long been noted for its porcelain. Pop. 619,157.

In the museum is the former royal picture gallery, with many Italian and Dutch masterpieces, including Raphael's Sistine Madonna. The royal palace contains a remarkable collection of jewels and other curios. The Japanese museum houses the public library, and the Johanneum has a valuable collection of porcelain. The chief Roman Catholic church, the court church, was built in the 18th century, and is connected structurally with the palace. The principal Protestant church is S. Sophia, dating from about 1400 and restored about 1860. Other churches are those of Our Lady, of the Cross, of the Three Kings, and the Martin Luther Church.

DRESDEN CHINA. In 1709 J. F. Böttger discovered the secret of making this china,



Dresden. Panorama, looking north. Left, the twin spires of the Church of S. Sophia; centre, towers of the palace and of the court church; right, dome of the Church of Our Lady. The course of the Elbe is also seen

and it was produced in the royal factory at Dresden, whence it was transferred in 1710 to Meissen. The china is remarkable for fineness of body and delicacy of colouring. In 1731 Kändler began to model small and large figures and groups, busts and animals. In 1740 the rococo style prevailed and long persisted, while the figures were mostly of Arcadian shepherdesses and swains, cupids, etc. The mark is two crossed swords and a crown. See China Marks; Pottery.

The battle of Dresden was a victory of Napoleon over the allied armies, Aug. 26-27, 1813. Napoleon put 96,000 men into the field, while the allied forces amounted to 200,000. The French lost 10,000 killed, wounded, and prisoners; the allies 38,000. The latter were commanded by the Austrian general Schwarzenberg.



Dresden China. Figure of a flower-seller, c. 1745

DRESDEN. German light cruiser. She was sister ship to the Emden (q.v.), her length being 387 ft., beam 43 ft., and speed 24 knots. Her armament was ten 4-in. and eight 3-pounder guns. On March 14, 1915 the Dresden was put out of action by the British cruisers Kent, Glasgow, and Orama near Juan Fernandez. The Dresden hoisted the white flag, and her crew sank her.

DRESSER. Fixture in a kitchen or pantry. It consists of a base with cupboards and drawers, a flat top, and a superstructure of shelves for holding plates and dishes upright. A development of the sideboard, dressers were originally side tables whereon dishes were dressed for the table.

DRESSINGS. Fabrics employed for the protection of wounds or injuries. Cotton wool, which consists of hair and seeds of various species of gossypium, contains about 10 p.c. of fatty material. When this is removed it is called absorbent cotton wool. Bandages are made of buttercloth, calico, crêpe, domette, flannel, muslin, gauze, elastic rubber webbing, and other materials. Gauze tissue is prepared plain and also medicated with boric acid, iodoform, mercuro-zinc cyanide, and other antiseptics. Lint may be medicated with boric acid or iodoform. Collodion, for painting small wounds, consists of a solution of pyroxylin in alcohol and ether.

A dressing station is a medical post established as near as practicable to the actual fighting line to render first aid to casualties. See Ambulance; Red Cross

DREYFUS CASE. Miscarriage of justice in connexion with Alfred Dreyfus, a captain of artillery in the French army. In Dec., 1894, Dreyfus was sentenced by a court-martial, on the charge of telling French military secrets to the German government, and imprisoned on Devil's Island, in the W. Indies. The published evidence appeared defective, and agitation for a revision of the sentence began. The affair assumed national importance, a newspaper war followed, and France was divided into two camps.



Alfred Dreyfus, French soldier

Emile Zola, the novelist, charged the government officials with having lent themselves to a deliberate conspiracy for the destruction of Dreyfus, and with now refusing justice in order to shield themselves from disgrace. For this Zola was prosecuted and heavily fined. Then a member of the intelligence department, Colonel Henry, confessed that he had himself forged certain leading documents in the case, and committed suicide. Count Esterhazy, a major in the French army, fled from France and made public some contradictory "confessions" of his own guilt.

In 1899 a fresh court-martial was held on Dreyfus. This court again pronounced him guilty, though "with extenuating circumstances," and condemned him to ten years' imprisonment. This further injustice was, however, prevented by a formal pardon. In July, 1906, the Cour de Cassation declared the innocence of Dreyfus, who was thereupon restored to the army. In Sept., 1919, he received the Legion of Honour.

DRIFFIELD OR GREAT DRIFFIELD. Market town and urban district of Yorkshire (E.R.). The principal agricultural centre of the Yorkshire wolds, it is a junction on the L.N.E. Ry., 20 m. N.N.W. of Hull, with which it is connected by canal. Its chief church, All Saints, has a 15th century tower. Oil-enke is manufactured. Market day, Thurs. Pop. 5,674.

DRIFTER. Small vessel about 100 ft. long, used in the herring fisheries, and so called because it drifts its nets and does not pull them. The fine-meshed drift net is made to move through the water parallel with shoals of such fish as herring, mackerel, or pilchards, in such a way that they run into the net and are caught by their gills and suffocated. See Trawler.

DRILL (*Cynocephalus leucophaeus*). Large baboon found in W. Africa. It closely resembles the mandrill, but lacks the red and blue colouring of the face, which in this species is jet black. See Mandrill.

DRILL (Dutch, *drillen*, to bore). Tool used by miners for boring holes in which to place explosives or for obtaining samples. The complete apparatus is generally called a rock drill. In percussive drills, the hole is made by the tool striking against and breaking chips from the substance to be bored, while at the same time the tool is revolved to make a circular hole. The cutting edge is of various forms. Rotary drills cut by rotating. The diamond drill consists of a short steel tube with the circular edge at one end studded with diamonds forming a "crown." As the tool rotates the diamonds cut an annular hole. The efficiency of a drill depends on true shaping of the cutting facets and, in addition, correct tempering of the steel. The name is given to an agricultural machine for sowing seed or manure, or both.

DRINA. River of S.E. Europe, forming part of the boundary between Serbia and Bosnia. It rises among the mountains of E. Montenegro in several headstreams, the chief of which is the Tara, and flows N., N.W., and then N.E. to join the Save, 58 m. W. of Belgrade. Its length is 160 m. During the Great War fighting took place in the Drina district between the Austrians and Serbians, Sept., 1914.

DRINKWATER, JOHN (b. 1882). British poet and critic. He was born June 1, 1882, and published his first volume of verse in 1908.

One of the founders of the Pilgrim Players, he became manager of the Repertory Theatre, Birmingham. His published work includes the plays *Cophtua*, 1911, and *Rebellion*, 1914, both in verse. Other plays are *Abraham Lincoln*, 1918; *Mary Stuart*, 1921; *Oliver Cromwell*, 1921; and *Robert E. Lee*, 1923. He also wrote *Studies of William Morris*, 1912; *Swinburne*, 1913; *The Pilgrims of Eternity*, 1925; *Mr. Charles, King of England*, 1926; *Cromwell*, 1927; an autobiographical volume, *All About Me*, 1928; and many volumes of poetry.

Dripstone. In architecture, the projecting tablet or moulding placed on the crown of an arch, window, or doorway. See Moulding.

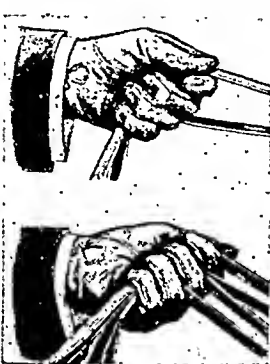


John Drinkwater, British poet
Hoppé

DRISCOLL, JIM (1880-1925). Professional boxer. Born at Cardiff, Dec. 15, 1880, he had more than 50 victories to his credit. He secured the feather-weight championship in 1910, and became the winner outright of the Lonsdale belt for that weight. Driscoll retired from boxing after his drawn battle with Owen Moran, Jan. 27, 1913. He died Jan. 30, 1925.

DRIVER, SAMUEL ROLLES (1846-1914). British Biblical scholar. Born at Southampton, Oct. 2, 1846, he was Regius professor of Hebrew and canon of Christ Church, Oxford, from 1883 until his death, Feb. 26, 1914. One of the greatest Hebraic scholars of his time, Driver wrote an *Introduction to the Literature of the Old Testament*, 1891, *Commentaries on various books of the O.T.*, and edited (in collaboration) *A Hebrew and English Lexicon of the Old Testament*, 1906.

DRIVING. Controlling and guiding a horse or horses harnessed to any vehicle. In driving a single horse the reins should be taken in the left hand,



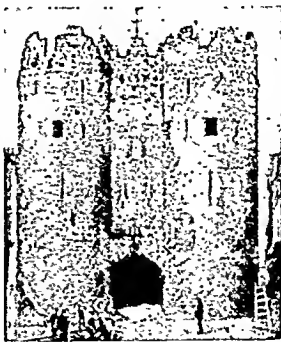
Driving. How reins should be held when driving a four-in-hand. Above, grip for single reins

the left or near side rein being held between the forefinger and thumb, and the off-side, or right-hand one, between the second and third fingers. In driving a pair the reins are held in the same manner.

In Great Britain the left-hand side of the road is always adhered to and retained when passing another vehicle coming in the opposite direction. When overtaking anything going in the same direction, it is necessary to draw towards the middle of the road and pass on the right side. See Horse; Riding.

DROGHEDA. Borough, seaport, and market town of co. Louth, Irish Free State. It stands on the Boyne, 4 m. from Drogheda Bay, and 32 m. N. of Dublin on the G.N.I.R. It has a good harbour. In 1649 Cromwell entered the town and massacred its defenders. Market day, Sat. Pop. 12,716.

The title of earl of Drogheda has been borne by the Moore family since 1661. Pron. Dro-heda.



Drogheda. S. Lawrence Gate, on the N. side of the town; it is believed to date from the 12th cent.

DROITWICH. Borough and market town of Worcestershire. On the Salwarpe, 5½ m. N.E. of Worcester and 126 m. N.W. of London, it is served by the G.W. and L.M.S. Ry., while a canal connects it with the Severn. The chief industry is the production of rock salt. It is chiefly known as a watering place. Its brine springs are efficacious for rheumatism, neuritis, gout, etc. There are two old churches, S. Andrew's and S. Peter's. In 1928 almost the whole of the town, long the property of the Corbet family, was sold. Market day, Fri. Pop. 4,538.

DROMEDARY. In zoology, the one-humped camel (*Camelus dromedarius*) of Arabia and N. Africa. In common speech the term dromedary is used for riding camels as distinguished from the heavier baggage animals. See Camel.

DROMORE. Urban dist. and market town of co. Down, Northern Ireland. It stands on the Lagan, 17½ m. S.W. of Belfast, on the G.N.I.R. Dromore was formerly the seat of a bishopric, which was united to Down and Connor in 1842. The cathedral was destroyed during the insurrection of 1641. The church contains the tomb of Jeremy Taylor, its builder. Market day, Monday. Pop. 2,364.

DRONE. Name given to the male of the honey bee. See Bee.

In music the name drone is applied to the pipe or pipes, in instruments of the bagpipe class, on which the sustained and unaltering bass tones are produced. The melody pipe is called the chanter. See Bagpipe.

DROPSY (Gr. *hydrops*, from *hydor*, water). Accumulation of fluid—the watery part of the blood—in the tissues and cavities of the body. The commonest conditions giving rise to general dropsy are disease of the heart, kidneys, and liver. Localised dropsy, or oedema, may result from local weakness of the vessels, as in varicose veins, and from inflammation. Dropsy is generally first noticeable in puffiness of the eyelids, and in swelling of the ankles.

Treatment must be directed towards the cause of the condition, but frequently relief is afforded by measures which drain the body of fluids. In severe cases of accumulation of fluid in the abdomen or pleural cavities, tapping may be adopted.

DROPPWORT (*Spiraea filipendula*). Perennial herb of the order Rosaceae. A native of Europe, N. Africa, and N. Asia, it is a plant of downs and dry pastures. It has a grooved stem, 2 ft. or 3 ft. high. The leaves are chiefly from the rootstock, broken into many pairs of deeply-toothed leaflets. The small but numerous white flowers are rosy on the outside, and borne in panicles.



Droppwort. Perennial herb to be found on downs

DROUAIS, FRANÇOIS HUBERT (1727-75). French painter. Born at Paris, Dec. 14, 1727, he became an academician in 1758; and a little later painter to the court. Notable portraits by him are those of the Pompadour (at Orleans) and the Comte d'Artois (in the Louvre). He died in Paris, Oct. 21, 1775.

His son, Jean Germain (1763-88), also a painter, was born at Paris, Nov. 25, 1763. In 1784 he won the prix de Rome with his *Woman of Canaan at the Feet of Jesus Christ*. He died at Rome, Feb. 13, 1788.

DROWNING. Death from asphyxia owing to submersion of the mouth and nostrils. When the drowning person is struggling the rescuer should leave him for a few seconds until he becomes quiet; then seize him by the hair, turn him on his back, and swim on the back towards the shore, or support him face upwards in this way until a boat arrives.

The most convenient method of performing artificial respiration is that recommended by Schäfer (see illus. p. 135). Meanwhile, the wet clothing should be drawn off, the body wiped dry and covered with hot blankets, and hot bottles may be placed to the feet. Friction of the limbs from below upwards is useful, and

ammonia may be cautiously held to the nostrils. When breathing is established a hot bath is useful for restoring the bodily heat.

DROYLSDEN. Urban dist. and manufacturing town of Lancashire. It is on the Rochdale Canal, 5 m. E. of Manchester on the L.M.S. Ry. There are cotton and print factories, and dye and chemical works. Pop. 14,150.

DRUG. Medicinal substance obtained from the vegetable and mineral kingdoms. The term also includes the substances as prepared for use in the treatment of disease, but these are better distinguished as pharmaceutical preparations.

Continuous taking of certain drugs produces in some persons an irresistible craving for them, despite their injurious effect upon both mind and body. The commonest instances are addiction to alcohol, and smoking. The less frequent drug habits, such as the taking of opium or cocaine, may originate in taking the drug in the first instance under medical orders.

To check the serious growth of the drug habit an act of parliament was passed in 1923 which aimed at the suppression of illicit traffic in cocaine and other dangerous drugs.

Druggist is one of the titles reserved by the Pharmacy Act, 1868, for persons who keep an open shop for the sale of poisons and are registered under the Act. See Chemist.



Druid. The Druid Circle near Keswick, Cumberland. It was vested in the National Trust in 1913

W. F. Taylor

DRUID. Priest among the Celtic people, especially those of Britain and Gaul. The Druids were learned in the natural sciences and astrology. Their worship was carried on in groves, the oak being their sacred tree, and human sacrifices took place at special festivals. The last stand of the Druids in Britain was made at Mona, or Anglesey, when the Romans are said to have exterminated them.

The name Druid Circle is popularly used for a prehistoric stone circle now recognized to be pre-Druidic. Noted examples are at Keswick, Stonehenge (q.v.), Callernish (q.v.), near Stornoway, on Dartmoor, near Chagford, and elsewhere. See illus. p. 341.

The Ancient Order of Druids is a friendly society established on masonic principles in London in 1781, and introduced into the U.S.A. in 1883, where it spread rapidly.

DRUM. Instrument of percussion, consisting of a hollow body over which a membrane is stretched. Drums of cauldron shape, made of metal, with single head of vellum, are known as kettledrums (or timpani). These are struck vertically by pairs of padded sticks, and produce notes of definite musical pitch. Drums of cylindrical shape are made usually of wood with two vellum heads. The pitch of these drums is indefinite. They are played with hard wooden or heavy padded sticks.

The serjeant-major who marches with baton (see illus. p. 207) at the head of a regimental band is called the drum major.

DRUMCLOG. Hamlet of Lanarkshire, Scotland. It is 6 m. S.W. of Strathbaven, near the border of Ayrshire, and was the scene of a victory of the Covenanters over the king's troops under Claverhouse (Viscount Dundee), on Sunday, June 1, 1679. A granite obelisk marks the site of the battle. Drumclog figures in Scott's Old Mortality. See Covenanters.

DRUMMOND, HENRY (1851-1897). Scottish theological writer and scientist. Born at Glenelg, Stirling, Aug. 17, 1851, he was trained for the ministry, but did not adopt the title of minister. From 1873-75 he worked with D. L. Moody and I. D. Sankey, and was appointed in 1877 lecturer on, and in 1884 professor of, natural science at the Free Church College, Glasgow. He held this appointment until his death, March 11, 1897.



Henry Drummond, Scottish theologian
Lafayette

In the intervals of extensive travel he devoted himself to mission work and to the organization of the Boys' Brigade. His published work included Natural Law in the Spiritual World, 1883; The Ascent of Man (Lowell Lectures), 1894, and Tropical Africa, 1888.

DRUMMOND, SIR JAMES ERIC (b. 1876). British diplomatist. He was born Aug. 17, 1876, a younger son of the 14th earl of Perth, and entered the Foreign Office in 1900. In 1912 he became private secretary to Asquith, then prime minister; but in 1915 he returned to the Foreign Office. Knighted in 1916, he became in 1919 the first secretary-general to the League of Nations.



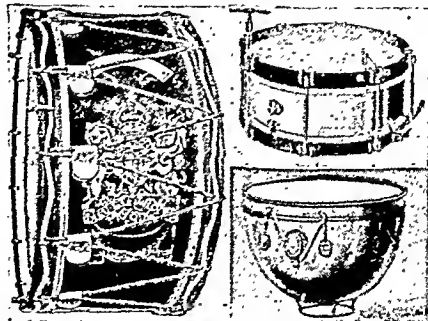
Sir Eric Drummond, British diplomatist

DRUMMOND, WILLIAM (1585-1649). Scottish poet. He was born at Hawthornden, near Edinburgh, Dec. 13, 1585. He studied for the law, but on his father's death in 1610 settled down at Hawthornden to the companionship of his books. His best work is in his sonnets, in which he followed closely Italian models. The best example of his prose is A Cypress Grove, 1623. The outstanding incident of his life is the visit Ben Jonson paid to him in 1618-19, his Notes on which were published in 1842. He died Dec. 4, 1649. Consult Poetical Works and A Cypress Grove, ed. L. E. Kastner, 2 vols, 1913.



William Drummond, of Hawthornden
After Jansen

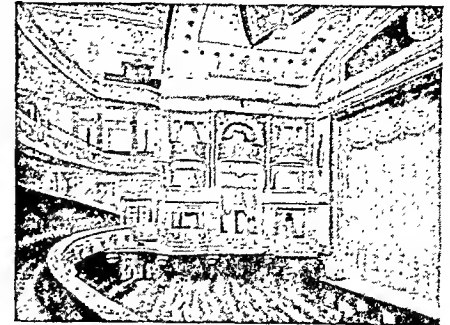
DRUNKENNESS. State of intoxication, which in certain cases is an offence against the law. In English law it is no excuse for crime. At the same time, when it is a question of quo animo, or with what intention a man did an act, he may escape because he may



Drum. Left, bass drum. Right, above, screw orchestral side drum; below, cavalry kettledrum

have been so drunk as to be incapable of forming any intention at all. Thus, a case of homicide may be manslaughter if committed

by a man so drunk as not to know what he is doing. It is an offence to be drunk in a public place or a licensed house, or to be drunk and



Drury Lane. Interior of Drury Lane Theatre, built in 1812 and reconstructed in 1921-22. See below
Bedford Lemere

disorderly. An habitual drunkard may be ordered to be confined in an inebriates' home by sentence of the magistrate. A contract made by a drunken man is voidable by him when he becomes sober; but only if the other party knew he was drunk when he made it.

DRURY, EDWARD ALFRED BRISCOE. British artist and sculptor. Born in London, his first contribution to the Academy was the Triumph of Silenus, 1885; and in 1896 his bronze S. Agnes was bought for the Chantry collection. He was elected A.R.A. in 1900, and R.A. in 1913. His later works include many war memorial sculptures, King Edward VII memorials for Aberdeen, Sheffield and Birmingham University, exterior decorations of public buildings, and portraits of children.

DRURY LANE. Thoroughfare and district in London, W.C., largely rebuilt in recent years. Extending from the modern crescent of Aldwych to Broad Street, St. Giles's, and High Holborn, its present name derives from Drury Place, a mansion built in the 15th century by a member of the Drury family.

On the W. side of Drury Lane, in Russell Street, is Drury Lane Theatre. The first theatre on the site of the present building was erected in 1661, and opened April 8, 1663, with Beaumont and Fletcher's play, The Humorous Lieutenant. This theatre was burnt down in 1672. Sir Christopher Wren designed its successor, which was replaced in 1794 by a much larger edifice, also destroyed by fire in 1809. Benjamin Wyatt was the architect of the fourth and present theatre, opened Oct. 12, 1812. It was on its boards that Edmund Kean achieved his first great triumph on Jan. 26, 1814. Drury Lane won new prestige from Macready's brief management during 1842-43. Under the respective management of Augustus Harris, Arthur Collins, and Alfred Butt, the huge building was associated with popular pantomimes and musical comedies. See illus. above.

DRUSES. Syrian people inhabiting the W. slope of Lebanon, anti-Lebanon and Hermon, and Hauran (Druz), whose total number is estimated to be from 100,000-200,000. They are probably an admixture of different stocks, with a preponderating Arab element, the language spoken by them being Arabic. The vine, olive, and tobacco plant are cultivated, and silkworms reared. Their religion is a curious mixture of Mahomedanism, Judaism and Christianity, but they pride themselves on being Muwahiddin, believers in one god.

After the Great War Hauran was included in the French mandated territory of Syria. Discontent with this change and with the conduct of the French resident political officer led, in 1925, to a great Syrian rising in which the Druses took the lead. This was not finally suppressed until June, 1926.

DRUSILLA, LIVIA (d. A.D. 29). Wife of the Roman emperor Augustus. She was previously the wife of Tiberius Claudius Nero, whom Augustus compelled to divorce her. Her elder son by the first marriage became the Roman emperor Tiberius, while her second son was Drusus. She is not to be confounded with Drusilla, wife of Felix, procurator of Judaea before whom S. Paul preached; nor with the daughter of Germanicus.



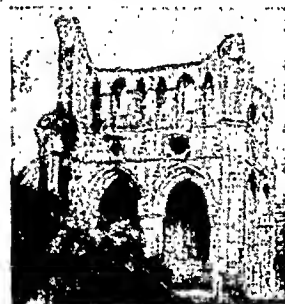
Nero Claudius Drusus, Roman soldier
From a bust in the British Museum

DRUSUS, NERO CLAUDIUS (38-9 B.C.). Roman soldier. Son of Livia Drusilla by her first husband, Tiberius Claudius Nero, he became one of the most distinguished generals of her second husband, the emperor Augustus, and was the father of the emperor Claudius. This Drusus was called Senior, to distinguish him from his nephew, the son of Tiberius the Roman Emperor.

DRYAD (Gr. drys, oak). In Greek mythology, nymph associated with trees. A dryad was supposed to live only as long as the particular tree with which she was associated. See Nymph.

DRYAS (Dryas octopetala). Perennial dwarf shrub of the order Rosaceae. It is a native of Europe, Asia, and N. America. The short stem is embedded in the soil, and the spreading branches lie along the surface, bearing tufts of oblong, toothed, evergreen leaves. The white flowers are 1½ in. across.

DRYBURGH ABBEY. Monastic ruin in Berwickshire. It stands on the Tweed, 4½ m. S.E. of Melrose. Generally stated to have been founded in 1150, it was destroyed in 1544. The remains include the chapter house, parts of the church, and traces of the monastic buildings. Sir Walter Scott was buried in S. Mary's aisle. In 1918 it was presented to the nation by Lord Glenconner, and a certain amount of restoration work was undertaken.



Dryburgh Abbey. S. Mary's aisle, containing the tomb of Scott

conner, and a certain amount of restoration work was undertaken.

DRYDEN, JOHN (1631-1700). English poet. Born at Aldwinkle, Northamptonshire, Aug. 9, 1631, he decided upon a literary career, and, to satisfy popular taste, he began to write plays, of which he eventually produced twenty-two. The best known are The Indian Emperor, 1665; The Conquest of Granada, 1670; and Marriage à la Mode, 1672.



John Dryden, English poet
From the painting after Kneller in the Nat. Port. Gall.

Dryden's career in poetry proper began in 1659, when he published some verses on the death of Cromwell. In 1681 and 1682 he published his three great satires Absalom and Achitophel, The Medal, and MacFlecknoe. Dryden's next poems, Religio Laici, 1682, and The Hind and the Panther, 1687, show him in a new light. The first was written in defence of the Church of England, the second in defence of the Church of Rome, to which he had in the meantime become a convert.

During the closing period of Dryden's life appeared his two noble odes, the Ode for S. Cecilia's Day, 1687, and Alexander's Feast, 1697; several verse translations of classical poets, and a number of miscellaneous writings.

In 1670 he was made poet laureate in succession to Davenant, and received several other government appointments, but the accession of William III deprived him of these offices. He died May 1, 1700.

DRYGALSKI. Islet in Davis Sea, Antarctica, off the coast of Queen Mary Land. It is about 9 m. in diameter. It was discovered by Sir Douglas Mawson, of the Australasian Antarctic Expedition, Jan. 21, 1914.

DRY POINT. Process of etching, without the use of acid, closely akin to line engraving. The tool is a steel rod tapering at one or both ends to a strong, fine, sharp point. With this the etcher draws with a firm hand, the point scratching a line of exquisite sensitiveness on the copper plate, and raising, as it goes along, a very distinct hurr on the sides



Dublin. 1. O'Connell (formerly Sackville) Street from O'Connell Bridge.
2. Four Courts, King's Inn Quay, before the bombardment of 1922.
3. S. Patrick's Cathedral from the north-east

of the furrow, which lends particular value to early prints from the plate.

DRYPTOSAUR. Extinct N. American reptile of the genus Dryptosaurus. It was a carnivorous, beast-footed dinosaur, living in Montana in Upper Cretaceous times. It was 20 ft. long, rapacious and sharp-toothed; it used hind limbs and tail like a kangaroo.

DRY ROT. Diseased condition of timber due to the ravages of certain species of fungi, especially Merulius lacrymans. This fungus rapidly consumes the woody cells and fibres, the affected parts crumbling to a brownish powder upon exposure to a dry atmosphere. A certain degree of moisture is essential to the growth of the fungus. The popular term serves to distinguish this condition from wet rot, a kind of putrefaction occurring in wood exposed to the weather.

Dry rot, it is believed, cannot develop (though it may long remain latent) in wood to which air-currents have free access and from which moisture is excluded. The dry rot of oak-built ships is usually due to another species of fungus, Poria hybrida.

DRYSALTERY. Term applied to the business of a drysalter or the articles sold by him. These consist of heavy chemicals (borax, salt, soda, sulphur, etc.), dye-stuffs (alkaneet, indigo, etc.), gums (arabic, shellac, kauri, resin), oils (paraffin, linseed oil, boiled oil, turpentine), and crude drugs (linseed,

senna, Epsom salt, Glauber's salt, etc.). Drysalters also sell pickles, preserved meat, and sauces.

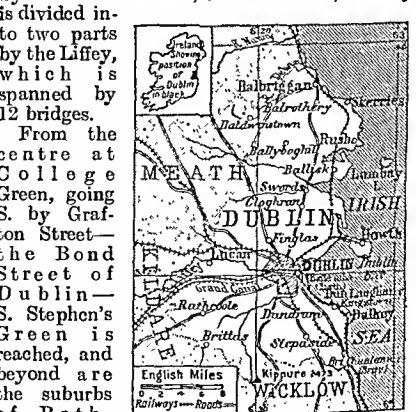
DUALA. Town and district of Cameroons, W. Africa. The town, on the Cameroons river, about 18 m. from the sea, is the chief seaport of Cameroons. Duala proper occupies the site of the former Bell Town. Akwa is a native centre, and Dido the residential quarter for native clerks and workmen. These three towns, known collectively as Duala, represented the headquarters of the three native chiefs at the time of the German occupation in 1884. There is a wireless station Duala was captured by a combined British and French force on Sept. 27, 1914. It is now in the French sphere. Pop., district, 77,000; town, 22,000. See Cameroons.

DUAL MONARCHY. Name given to the empire of Austria-Hungary. Formed in 1867 by the union of Austria and Hungary, for half a century the two countries were joined under the same ruler, emperor of Austria and king of Hungary. After the Great War they became separate countries. See Austria-Hungary; Czechoslovakia.

DUBBO. Town of New South Wales. On the Macquarie river, 278 m. by rly. N.W. of Sydney, it is the trade centre of a pastoral and coal and copper mining area. Pop. 5,560.

DUBLIN. Eastern maritime county of the Irish Free State, in the prov. of Leinster. It has about 72 m. of coastline. Dublin Bay is the largest inlet, the Liffey, which debouches into it, the chief river, and Howth Head the most prominent cape. Lambay and several smaller islands near the coast are included in the county. Mountains occur in the S. The Gt. Southern and Gt. Northern Rlys. afford communication. Dublin (county town) and Kingstown are the most important towns. Its area is 342 sq. m. Pop., exclusive of Dublin city, 188,961.

DUBLIN. City, seaport, and county borough in the prov. of Leinster, capital of the Irish Free State. It is at the mouth of the Liffey, 61 m. W. of Holyhead. Enclosed by the Circular Road, 9 m. in circuit, the city is divided into two parts by the Liffey, which is spanned by 12 bridges.



From the centre at College Green, going S. by Grafton Street—the Bond Street of Dublin—S. Stephen's Green is reached, and beyond are the suburbs of Rathmines, Rathgar, Ranelagh, and Donnybrook. Northwards from College Green another radial cuts the Liffey at O'Connell Bridge, and is continued along O'Connell (formerly Sackville) Street. Eastwards, on both sides of the Liffey, run the quays and docks.

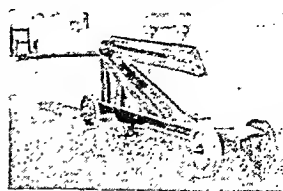
Dublin has two Protestant cathedrals, Christ Church and S. Patrick's, a Roman Catholic one, and many churches. Dublin

or less aquatic, and most are powerful flyers. They are mainly herbivorous, but frogs and worms are also readily eaten. The plumage is dense and compact, so that the water readily runs off it. The male, or drake, has more showy plumage than the female.

Ducks are found all over the world, but are most numerous in the northern regions. They associate in flocks, and the majority migrate farther N. for the nesting season. The numerous breeds of domesticated ducks are believed to have descended from the mallard, or wild duck. The ornamental varieties are mainly different species of British and foreign wild

ing with poison glands. The duck bill has no teeth, but is provided with two pairs of horny plates on each jaw. It is peculiar to Australasia.

DUCKING STOOL. Instrument formerly in use in Great Britain and in certain parts of



Ducking Stool. Example in the Priory Church, Leominster

the U.S.A. for the punishment of scolds. It consisted of a chair fastened to the end of a beam, projecting over a pond or river. The victim was tied in the chair, and

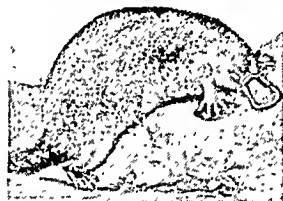
ducked by lowering the beam.

DUCKWEED (Lemna). Genus of minute, scale-like flowering plants of the order Lemnaceae. They are annual aquatic plants, floating on the surface of ponds and ditches, and consisting of a green disk, with or without a simple root or roots.

DUCKWORTH, Sir JOHN THOMAS (1748-1817). British sailor. Born at Leatherhead, Feb. 28, 1748, he entered the Navy when 11 years old, and was promoted commander in 1780. Returning from the W. Indies in 1793, he was appointed to Orion,



Sir J. T. Duckworth, British sailor
From an engraving



Duck Bill. Mammal of Australasia

in which he greatly distinguished himself at Ushant, June 1, 1794. Knighted in 1801, in 1803 he was commander-in-chief of Jamaica, and defeated the French off San Domingo in 1806. He was governor of Newfoundland from 1810-13, and was made a baronet in 1813. He was appointed commander-in-chief of Plymouth in Jan., 1817, and died Aug. 31 of the same year.

DUCTILITY. In metallurgy, the general property of metals which permits them to be drawn into rods or wire. It is closely related to the property of malleability. The measure of ductility is determined by the fineness of the wire down to which a metal can be drawn. The metals rank as follows in order of ductility: 1, gold; 2, silver; 3, platinum; 4, iron; 5, nickel; 6, copper; 7, zinc; 8, tin; 9, lead. The ductility of iron is greatly increased when the iron is converted into steel; and, similarly, many of the copper alloys have greater ductility than copper.

DUDLEY. County borough of Worcestershire. It is 8 m. N.W. of Birmingham and 121 from London, and is served by the L.M.S. and G.W. Rlys. and by a canal. Dudley is in the heart of the Black Country, and iron and steel goods are among its chief products. There are a hospital, founded by Joseph Guest, a grammar school, a technical school, and a geological museum. The grounds of the old castle, around which the town grew up, are



Dublin. Plan of the capital of the Irish Free State, showing the situation of the Castle and other principal buildings

Castle was once the headquarters of the executive. The Four Courts, the legal centre, was damaged in 1922, when the handsome Custom House was destroyed. The Parliament House, until 1800 the seat of the Irish parliament, is now the Bank of Ireland. The city has a National Gallery of Art and a National Portrait Gallery, both with fine collections. Charlemont House, the city's finest example of 18th century domestic architecture, has been bought for an art gallery. The Royal Colleges of Physicians and of Surgeons of Ireland have their headquarters here. To control the docks there is a port and docks board, created in 1898. Phoenix Park is a magnificent open space containing a zoological gardens. Since 1665 the chief magistrate has had the title of lord mayor. Market days, Tues., Wed., and Fri. Pop. 316,693.

Trinity College, Dublin, founded in 1591, has always been the educational headquarters of Protestant Ireland, and its religious tests were only abolished in 1873. The library has a priceless collection of manuscripts. Among the modern buildings are the museum and those for the medical school. At Dunsink (q.v.) is the university observatory.

DUBOIS, GUILLAUME (1656-1723). French statesman and cardinal. Born at Brive, Limousin, Sept. 6, 1656, he entered a religious brotherhood, later becoming tutor to the prince, Philip of Orleans. After 1715, when Philip became regent, Dubois was his chief counsellor. He was strongly hostile to Spain, and brought about an alliance between France and Great Britain and Holland. Dubois secured the archbishopric of Cambrai, and was made a cardinal in 1721. He died at Versailles Aug. 10, 1723.

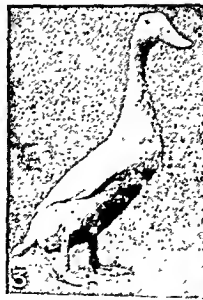
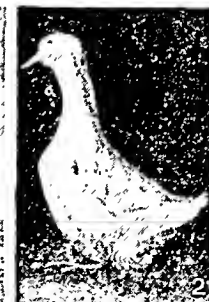
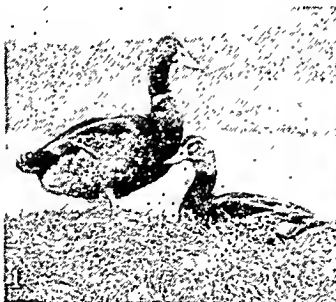
DUCAT. Name of a medieval coin, generally of gold, value 9s. 4d. It was first coined in silver, by Roger II of Sicily, 1140, deriving its name from his duchy of Apulia, and in gold at Florence, 1252. From Italy the coin and the name went to Hungary, Bohemia, Austria, Germany, and Russia, Spain, Denmark and Holland to Hanover, as late as George III's reign, and in 1837 to England, as a trial decimal gold coin, worth 100 pence.

DUCK. Name of the largest group of birds of the order Anseres, which includes swans, geese, and ducks. There are over 40 genera of ducks and nearly 200 species. They are distinguished by short legs, webbed feet, and a depressed and expanded beak. All are more

ducks maintained in a half-wild state on lakes and in parks. Utility breeds include the Aylesbury, most commonly bred in Gt. Britain, the Rouen, for which France is famous, the Pekin, and the Indian runner duck.

DUCK SHOOTING. This is a sport mostly practised on the E. shores, inlets, estuaries, and broads of Great Britain. It may roughly be divided into (1) shooting with stanchion guns fixed in single or double handled punts; (2) from a punt with an ordinary gun while the birds are in flight; (3) and following on foot by open streams or drains. The British wild ducks principally met with are the mallard, shoveller, gadwall, pochard, teal, and widgeon.

DUCK BILL, DUCK-BILLED PLATYPUS or **DUCKMOLE.** Small web-footed and oviparous mammal (*Ornithorhynchus anatinus*), with a snout like the bill of a duck. It is about 18 in. in length. No ears are visible above the fur,



Duck. 1. Rouen duck, much favoured in France. 2. Pekin, a valuable egg-layer. 3. White Runner duck. 4. Aylesbury, a popular variety 1 and 4, C. Reid; 2 and 3, courtesy of The Agricultural Gazette

though the hearing is acute; the nostrils are near the tip of the bill. The hind feet of the male are armed with hollow spurs, communicat-

mar school, a technical school, and a geological museum. The grounds of the old castle, around which the town grew up, are

used as a public park. Adjacent, but in Staffordshire, are Brierley Hill and Kingswinford, while Netherton is another industrial suburb. In 1928 a new town hall and other civic buildings were opened. They include a clock tower and war memorial. Market day, Sat. Pop. 55,894.

DUDLEY, EARL OF. English title held by the family of Ward since 1860. John Ward was made Viscount Dudley in 1763. John William Ward, the 4th viscount (1771-1833), was foreign secretary in 1827-28, and a prominent figure in his day. In 1827 he was made earl of Dudley, but the title became extinct on his death in 1833. A kinsman, William Ward (1817-85), inherited much of his wealth, and in 1860 was made earl of Dudley. His son, William Humble, 2nd earl (b. May 25, 1867), was lieutenant of Ireland from 1902 to 1906, and governor-general of Australia from 1908 to 1911. In 1924 he married, as his second wife, Gertie Millar, the actress. The earl's eldest son is known as Viscount Ednam.

DUEL (Lat. duellum, old form of hellum, battle, from duo, two). Single combat engaged in by arrangement after challenge, and carried through on a recognized method of procedure, to settle a private quarrel or vindicate personal honour. Historically the duel derives directly from the old legal method of settling disputes by ordeal by battle.

France is the country of origin of the modern duel, and the custom still prevails there, though rarely with serious consequences. In England the practice of duelling continued until the middle of the 19th century, but at the present day in English law duelling is an offence amounting to murder or manslaughter in the event of a death.

DUFFERIN AND AVA, FREDERICK TEMPLE HAMILTON-TEMPLE BLACKWOOD, 1ST MARQUESS OF (1826-1902). British diplomatist and administrator. Born at Florence, June 21, 1826, son of the 4th Baron Dufferin and Helen Selina, granddaughter of Richard Brinsley Sheridan, and herself a poet, he succeeded in 1841 to his father's title, an Irish one, and in 1850 was made a British peer as Baron Clandeboyne. He went as special commissioner to Syria in 1860 to inquire



1st Marquess of Dufferin and Ava, British diplomatist

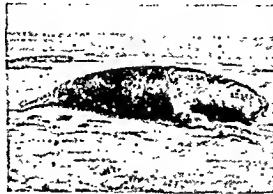
into the religious massacres, was appointed under-secretary for India in 1864, for war in 1866, and was created an earl in 1871. Governor-general of Canada, 1872-78, and viceroy of India, 1884-88, he became ambassador at Rome in 1888, and in Paris in 1891. In 1888 he was created marquess of Dufferin and Ava. He died Feb. 12, 1902, and was succeeded by his son, Lord Terence Temple-Blackwood (1866-1918), on whose death the title passed to a younger son, Frederick (b. 1875).

DUGDALE, SIR WILLIAM (1605-86). English antiquary. Born at Shustoke, Warwickshire, Sept. 12, 1605, he came to London in 1635 to collect materials for his Antiquities of Warwickshire (1656). He was made Garter king-of-arms and knighted in 1677. He published a History of St. Paul's Cathedral, 1658; collaborated in a history of religious foundations, Monasticon Anglicanum, 1655-73; compiled a History of Embanking and Draining of Fens and Marshes, 1662; and The Baronage of England, 1675-76. He died Feb. 10, 1686.



Sir William Dugdale, English antiquary
From a portrait in the Bodleian Library

DUGONG (Halicore). Genus of herbivorous aquatic mammals, known as sea-cows, from 8 to 12 ft. long. They are found in the Red Sea and round the E. Indies and Australasia.



Dugong. Sea-cow of the Indian Ocean. It feeds on seaweed

ways and canals. Near the Westphalian coalfield, it has a great variety of industries and a considerable transit trade, for which there are extensive wharves. In the old town are the Gothic church of S. Salvador, the town hall, and other buildings of interest, as well as several of the old gates. In 1905 several populous industrial suburbs were included in the town's area. There was a university here from 1655 to 1802. Pop. 274,200.

DUKE (Lat. dux, leader).

Title of nobility. The word was first applied to military commanders in the early Roman empire. Later a duke was a civil and military official. Gradually all the dukes became territorial. In Great Britain duke is the highest title of nobility. The first was Edward the Black Prince, son of Edward III, created duke of Cornwall in 1337.



Duke's coronet

DUKE OF CORNWALL'S LIGHT INFANTRY. English regiment. Originally of two battalions, the old 32nd and the old 46th Foot, it was raised in 1702. Its war record includes Gibraltar, 1704-5, Dettingen and Fontenoy, Canada (1760), Copenhagen (1807), the Peninsula, Waterloo, second Sikh War, Crimean War, Indian Mutiny (defence of Lucknow), Egyptian Campaigns (1882-84), and the S. African War.

In the Great War the first battalion especially distinguished itself on the Aisne and at Ypres (1914). The second battalion rendered fine service at St. Eloi and Neuve Chapelle (1915).



Duke of Cornwall's L.I. badge

DUKE OF EDINBURGH. Ship of a class of British cruisers built in 1906. They were two in number, the Duke of Edinburgh and the Black Prince. The Duke of Edinburgh was 480 ft. long, 73½ ft. in beam, had a normal displacement of 13,550 tons, and had engines of 23,000 h.p. giving a speed of 23 knots. Her main armament was six 9.2-in. guns, four 6-in. guns, with strong batteries of lighter weapons, and three torpedo tubes. The Duke of Edinburgh assisted Indian troops in capturing Turkish forts at the S. end of the Red Sea, Nov. 15, 1914. See Cruiser.

DUKERIES. District in the N.W. of Nottinghamshire. It covers an area of about 100 sq. m. and stretches from just N. of Mansfield to Worksop. It is usually entered from Edwinstone, where the L.M.S. Rly. crosses the district. Ollerton is another centre. It includes the remains of Sherwood Forest. Coal mines have been opened in the S. part. The name is due to the fact that in the 18th century four dukes resided here. At Welbeck Abbey was the duke of Portland; at Clumber the duke of Newcastle; at Thoresby, now the seat of Earl Manvers, the duke of Kingston; and at Worksop Manor, the duke of Norfolk.

DUKINFIELD. Borough of Cheshire. It stands on the Tame, 6 m. E. of Manchester on the L.N.E. and L.M.S. Rlys. The principal

buildings are the town hall, free library, and technical school. The chief industries are cotton manufacture, calico-printing, iron working and engineering. There are collieries in the neighbourhood. A bridge across the Tame connects Cheshire with Lancashire. Market day, Mon. Pop. 19,509.

DULAC, EDMUND (b. 1882). Franco-British artist. Born at Toulouse, he settled in Great Britain in 1905. In 1907 the first annual exhibition of his drawings at the Leicester Galleries caused a sensation; and his illustrations to fairy tales and other classics enjoy a wide popularity. An exhibition of his caricatures was given in London in 1920.

DULCIMER (Lat. dulcis, sweet; Gr. melos, song). Musical instrument consisting of a trapeze-shaped sounding-board, over which metal strings are stretched. These are struck by two hammers with flexible stems, and heads of which one side is hard and the other padded. The dulcimer, or cimbalom, is an important feature in Magyar bands.

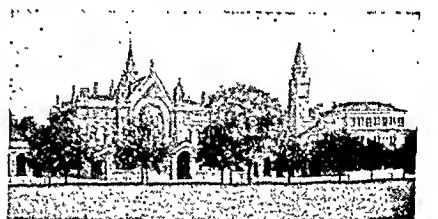
DULSE (Rhodymenia palmata and Dilsea edulis). Two fleshy, purple seaweeds of the order Rhodophyceae, growing on rocks in shallow water. The name belongs more especially to the first mentioned, which is used as food, e.g. an ingredient in stews, by the Scottish Highlanders and the Irish, who call it dillisk.



Dulse. Leaves of this edible seaweed

DULVERTON. Market town of Somerset. On the Barle and near the S. edge of Exmoor, 20 m. W. of Taunton, it has a station on the G.W. Rly. In the midst of lovely scenery, it is a fishing and hunting centre. Near is Pixton Park. Dulverton is referred to in Blackmore's Lorna Doone. Pop. 1,298.

DULWICH. London residential suburb. It lies S.E. of the city, in the borough of Camberwell, and has stations on the Southern Rly. The oldest part is known as the Village, and contains the buildings, much restored, of the college, the chapel of which has served as the parish church and as a chapel of ease, the



Dulwich College. Buildings in the Italian style, designed by Sir Charles Barry, and opened in 1870

rest of the quadrangle being offices and almshouses. Dulwich Park was presented to the public by the college trustees in 1890.

Dulwich College or The College of God's Gift was founded and endowed by Edward Alleyn (q.v.) in 1619. In 1857 a new scheme was approved by Parliament and carried out. This provided for two schools, an upper school, Dulwich College proper, and a lower school, known as Alleyn's School. The college contains four sides, classical, modern, science, and engineering. The buildings, of red brick in the Italian style, were from the designs of Sir Charles Barry. They are in College Road and were opened in 1870.

The Dulwich Picture Gallery is housed in a building near old Dulwich College. The collection is notably rich in examples of the Dutch school, Rembrandt and others being represented.

DUMA. Representative state council of the former Russian Empire. The Duma, created Aug. 6, 1905, numbered 442 members, elected indirectly for five years.

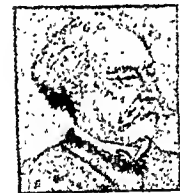
The Duma could not touch "the fundamental laws of the Imperial Administration," but within its sphere were the making of new laws, the modification of existing laws, the national budgets, and the construction of state rlys. The chamber could be summoned or dissolved by the ukase of the emperor. With the military revolution of Nov. 7, 1917, the Duma ceased to exist.

DUMAS, ALEXANDRE (1802-70). French novelist and dramatist, whose full name was Alexandre Dumas-Davy de la Pailleterie. He was born at Villers-Cotterets, July 24, 1802, his father being the illegitimate son of a French noble, the Marquis Alexandre Davy de la Pailleterie, who had settled in San Domingo, and of a negress who was named Marie-Cessette Dumas.



Dumas père,
French novelist

About 1822 Dumas went to Paris. His first success was with a play, *Henri III et sa cour*, 1829. He is best known as the author of *The Count of Monte Cristo*, 1844-45. The most familiar of his other works are *The Three Musketeers*, *Twenty Years After*, *Memoirs of a Physician*, *The Queen's Necklace*, *Taking the Bastille*, *Chicot the Jester*, *The Black Tulip*, and other romances. Dumas' masterpiece was *Le Vicomte de Bragelonne* (26 vols., 1848-50) prodigious in extent, and scarcely rivalled in literature as a piece of pure, sparkling, and unflagging narrative. Altogether he set his name to over a thousand



Dumas fils,
French novelist

volumes; dramas, romances, books of travel, historical scraps, compilations on art, crime, and cookery. He died Dec. 5, 1870. His son, Alexandre (1824-95), was only twenty-four when he made a sensation with a novel of passion, *La Dame aux Camélias*. After this he wrote other novels (e.g. *Diane de Lys*, 1851, *L'Affaire Clémenceau*, 1866); but the success of the dramatized versions of *La Dame* and *Diane* turned his energies to the stage, and it is as a playwright rather than as a novelist that he keeps his distinctive place. He died in Paris, Nov. 27, 1895.

DU MAURIER, GEORGE LOUIS PALMIELLA BUSSON (1834-96). British artist and author. Born at Paris, March 6, 1834, he studied chemistry and art. In 1865 he joined the staff of *Punch*, then under Mark Lemon's editorship, and began his famous series of social satires. His sight failing rapidly towards the close of his life, he took to novel-writing, and produced *Peter Ibbetson*, 1892; *Trilby*, 1894; and *The Martian*, published posthumously. These and other volumes illustrated by him included *Thackeray's Esmond* (Lib. ed.), 1869; and *F. C. Philips' As in a Looking-glass*, 1889. He died in London, Oct. 8, 1896.



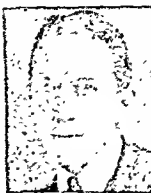
George Du Maurier,
artist and author

His elder son, Guy Louis Busson Du Maurier (1865-1915), who was killed in France, March 11, 1915, was the author of a play, *An Englishman's Home*, produced in London, 1909.

DU MAURIER, SIR GERALD (h. 1873). British actor. Son of George Du Maurier, he

was born in London, March 26, 1873, and educated at Harrow. He first went on the stage at the Garrick Theatre, London, 1894, and in 1910 became the manager at Wyndham's Theatre. The original Captain Hook in Barrie's *Peter Pan*, he was knighted in 1922.

DUMBARTON. Burgh, seaport, and county town of Dumbartonshire. It stands where the river Leven falls into the Clyde, 15½ m. from Glasgow on the L.M.S. and L.N.E. Rlys. On the other side of the Leven is the suburb of Bridgend. There are large shipbuilding yards, also engineering works, brass foundries, and establishments for making ropes and sails. The chief buildings include the castle, standing on a rock 240 ft. high;



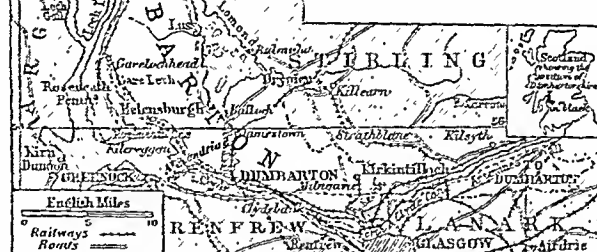
Sir G. Du Maurier,
British actor
Hugh Cecil



Dumbarton. The Rock of Dumbarton, showing the castle where Wallace was imprisoned in 1305

the burgh hall, the county hall, the Denny memorial, the public library, and the academy. Both a Celtic and a Roman settlement,

Dumbarton was known as Alcluith, hill of the Clyde, and was the capital of Strathclyde. Market day, Tues. Pop. 22,933.



Dumbartonshire. Map of this western county of Scotland; a small detached part lies between Stirlingshire and Lanarkshire

DUMBARTONSHIRE. Western county of Scotland. It is almost entirely surrounded by water—E. by Loch Lomond, W. by Loch Long, and S. by the Clyde estuary. A small detached part lies between the shires of Stirling and Lanark. The surface is mountainous in the W. (highest point Ben Vorlich, 3,092 ft.), and generally hilly elsewhere, except in the S. The chief rivers, after the Clyde, are the Leven and Kelvin. Roseneath Castle, on Roseneath peninsula, is a seat of the duke of Argyll. Along the Vale of Leven are bleachfields and dye works. Coal, iron, and slate are the principal mineral products. The L.M.S. and L.N.E. Rlys. and, in addition, the Forth and Clyde Canal serve the county.

Dumbarton, the county town, Clydebank, and Kirkintilloch are the largest towns. Dumbarton was part of the old Scottish territory of Lennox. Many literary associations linger about Loch Lomond, which is partly in this co., notably with Scott's *Rob Roy*. Area 246 sq. m. Pop. 152,300.

DUMB BELL. Short iron or wooden bar with a knob at each end, used as an aid to health and by athletes as part of their training. They are grasped, one in each hand, and a series of exercises are then gone through. It is claimed that their use brings every muscle of the body into play. The first dumb-bells consisted of sticks loaded with lead at the ends, and were so called because these ends were shaped like bells.

DUMBNESS. Inability to articulate, which in the vast majority of cases is congenital. Acquired dumbness, although occasionally a symptom of mental disease or of an apoplectic stroke, is more often a manifestation of hysteria; it may also be due to tumours, organic disease of the vocal chords, or complete paralysis of the chords following diphtheria. General treatment will relieve the hysterical variety. Recovery is usual from dumbness following diphtheria, but tumours require removal by operation.

Congenital dumbness may be due to mental weakness, but much more frequently to deafness, congenital or acquired in infancy. Any middle ear disease or adenoids should be dealt with to improve the bearing up to its maximum. See Deaf and Dumb.

DUMFRIES. Burgh and co. town of Dumfriesshire. It is on the Nith, 82 m. S.E. of Glasgow, on the L.M.S. Rly. In 1929 it amalgamated with Maxwelltown, with which it is connected by three bridges. Dumfries manufactures tweeds, hosiery, bats, and clogs, and has ironworks and tanneries. Among prominent buildings are the new town hall, Crichton institute for the insane, and the county buildings. Robert Burns was buried in S. Michael's churchyard, and his remains were transferred to a mausoleum in the S.E. corner in 1815. There is a marble statue of the poet in front of Greyfriars Church. Market day, Wed. Pop. 15,778.

DUMFRIESSHIRE. Border county of Scotland, with coastline of about 21 m. along Solway Firth. Hills (highest summit, White Coomb, 2,695 ft.) line the N., W., and E. boundaries, whence the surface declines to Lochan Moss, in the S., now largely reclaimed. The county includes three sections—Nithsdale, Annandale, and Eskdale. The rivers are well stocked with salmon and trout. Lochs Skene and Urr and the cluster round Lochmaben are the chief lakes; the first gives rise to the Grey Mare's Tail waterfall. Lead ore underlies the Lowther Hills in the N., and sandstone, limestone, and coal are worked. Cattle

and sheep are reared. Moffat has mineral springs. The L.M.S. and the L.N.E. Rlys. supply communication. Dumfries (the county town), Annan, Langholm, Lockerbie, and Moffat are the largest towns. Gretna Green (q.v.) is on the S. border. Area, 1,072 sq. m. Pop. 74,100. See map p. 532.

Dumfriesshire claims many associations with Scottish and English literature. Its richest poetic memories are associated with Robert Burns. The greatest man of letters who was a native of the county was Thomas Carlyle. Edward Irving was born at Annan.

DUMPING. Originally, the act of throwing down a large quantity of material in a heap, as in shooting rubbish. In economics the term is applied to a practice adopted by some countries, e.g. Germany, of producing goods in vast quantities with the assistance of bounties or tariffs, and then exporting them to other countries, with the object of securing control of the market. In Great Britain

dumping was partially prevented by the Safeguarding of Industries Act, passed by Parliament in 1921. See Safeguarding; Tariff Reform.

1782 he became first lord of the Admiralty, and in the Blenheim took part in the relief of Gibraltar. Promoted

—are the most notable of many churches. Educational institutions include the University College, founded in 1880, and incorporated with the university of St. Andrews in 1897; the technical institute, high school, technical college, and training college. Broughty Ferry is included in the city.



Isadora Duncan,
American dancer

Dundee has a commodious harbour with extensive docks and quays. The city is an important centre of the jute and linen industries. Other

industries include shipbuilding and fruit preserving. Dundee being noted for its marmalade. The public parks comprise Baxter Park, Balcay Hill, Loches Park, and Caird Park. Dundee Law, the hill at the back of the town, is a conspicuous landmark. Market days, Tues. and Fri. Pop. 174,800.

DUNDEE, JOHN GRAHAM OF CLAVERHOUSE, VISCOUNT (c. 1649–89). Scottish soldier. The eldest son of Sir William Graham, of Claverhouse, near Dundee, he served in France and Holland, and was sent as a cavalry leader to Scotland, 1678, with orders to enforce conformity to the established church, and by his relentless repression of the Covenanters earned the name of "Bluidy Clavers." In 1688 he was created Viscount Dundee by James II. An ardent supporter of the Stuart cause, he was mortally wounded at the battle of Killiecrankie, July 17, 1689. The title became extinct when his son died in the same year. The use of Bonnie Dundee as an epithet for Graham dates from Sir Walter Scott's song.



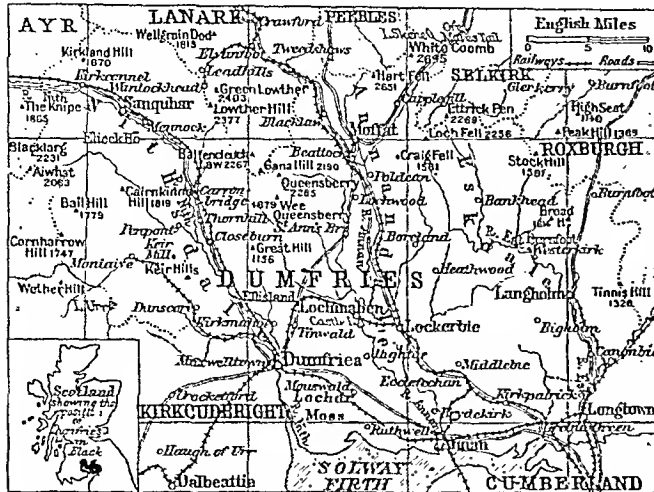
Graham of Claverhouse,
Viscount Dundee
After Leith

DUNDONALD, EARL OF. Scottish title borne since 1669 by the family of Cochrane. In 1647 Sir W. Cochrane, a supporter of Charles I, was made a baron, and in 1669 earl of Dundonald. Archibald, the 9th earl, was a noted scientist, while his son Thomas, the 10th earl (1775–1860), was the admiral. As a sailor he was noted for his daring and resource; as an M.P. he was unpopular, for his denunciation of abuses in the Navy. In 1814 he was unjustly condemned and cashiered for fraud on the Stock Exchange, after which he commanded successively the navies of Chile, Brazil, and Greece. In 1832 he was reinstated in the British Navy, his honours were restored to him, and in 1851 he was made full admiral.

In 1885 his grandson Douglas (b. 1852) became the 12th earl. A soldier, he saw service in various campaigns in Egypt and the Sudan, and in 1899–1902 went through the S. African War. His seat is Gwyreth Castle, Abergele, N. Wales. Dundonald is a large parish in Ayrshire, which contains the ruins of a castle, long the residence of the Cochrane.



10th Earl of Dundonald,
British admiral



Dumfriesshire. Map of the south-western border county of Scotland, which has a coastline of 21 miles along the Solway Firth. See art. p. 531

DUNAJETZ. River of W. Galicia, Poland. A tributary of the Vistula, which it joins 40 m. N.E. of Cracow, it gives its name to a series of battles fought between the Austro-Germans and the Russians, April and May, 1915. The Russian lines lay across the east bank of the Dunajetz and the Biala. The fiercest battles took place early in May, resulting in the defeat and retreat of the Russians.

DUNBAR. Burgh and seaport of Haddingtonshire. It stands at the mouth of the Firth of Forth, 29 m. E.N.E. of Edinburgh on the L.N.E.R. A popular health resort, Dunbar has a good golf course and a racecourse near. Of its two harbours the Victoria Harbour is a refuge for ships in distress. There are ruins of the old castle. The battle of Dunbar, in which Cromwell defeated the Covenanters, took place close to the town in 1650. Pop. 3,839.

DUNBAR, WILLIAM (c. 1460–1513). Scottish poet. He travelled as an itinerant friar through Scotland, England, and part of N. France. About 1490 he entered the diplomatic service, and in 1505 he received a pension from King James IV as Court Laureate. Dunbar is not heard of after the battle of Flodden, and it is probable that he fell there. His poetical genius, influenced by Chaucer, was many-sided; the rich allegorical poem *The Thistle and the Rose* is far removed from the grim humour of *The Dance of the Seven Deadly Sins*, or the serious pieces, such as *The Passion of Christ*.

DUNBLANE. Burgh of Perthshire. It stands on Allan Water, 5 m. N.N.W. of Stirling on the L.M.S. and L.N.E. Ryds. It has a hydropathic establishment and a mineral spa. Once the seat of a bishopric, its cathedral is one of the few which escaped destruction at the Reformation; restored in 1893, it is now the parish church. Robert Leighton, bishop 1661–70, is commemorated by the Leighton library, Bishop's Walk and Bishop's Well. The Queen Victoria Military School (opened 1908) is near. Market day, Thurs. Pop. 2,942.

DUNCAN (d. 1040). King of the Scots. He succeeded his grandfather Malcolm II as king in 1034. Little is known of him except that he was slain by Macbeth. Shakespeare's version of the tragedy is based on legend.

DUNCAN, ADAM DUNCAN, VISCOUNT (1731–1804). British sailor. Born at Lundie, Forfar, July 1, 1731, he was present at the actions of the Basque Roads (1757), Goree (1758), and the blockade of Brest (1759). In

graphy was published posthumously in 1928.

DUNCANSBY HEAD. Promontory of Caithness, the N.E. extremity (210 ft. high) of the mainland. Off the head are the Stacks, three small rocks, and about 2 m. to the W. is John o' Groat's House.

DUNDALK. Urban dist. and co. town of Louth, Irish Free State. It stands on Castle town river, near Dundalk hay, 54 m. N. of Dublin on the G.N.I. and L.M.S. Ryds. An important rly. centre, the G.N.I.R. has its locomotive works here. Market day, Mon. Pop. 13,996.

DUNDEE. City and seaport of Angus (Forfarshire). It stands on the N. shore of the Firth of Tay, 59½ m. by rly. N.N.E. of Edinburgh, on the L.M.S. and L.N.E. Ryds., and is the third largest city in Scotland.

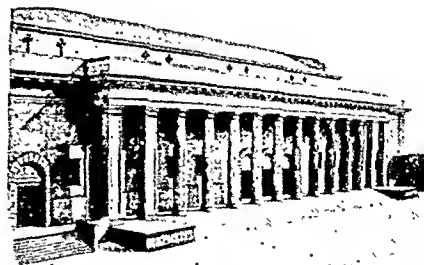


Dundee. The Town Churches: churches of S. Mary, S. Paul and S. Clement under one roof, and the 12th century steeple. Above, Caird Hall, built 1914–23

The Tay Bridge is 3,593 yds. long. Prominent buildings include the town hall (1734), royal exchange (1853–56), custom house (1843), and new City (Caird) Hall. The Albert Institute commemorates the Prince Consort. The Town Churches—three beneath one roof



Duncansby Head, Stacks and reefs off this bold northern cape



DUNEDIN. Chief city in South Island, New Zealand. It stands on Otago Harbour, 8 m. S.W. of Port Chalmers. It has good sea communication with other N.Z. ports, Sydney and Melbourne, and is an important rly. junction on the main E. coast line. The town is surrounded by a forest preserve called the Town Belt. Its chief industries are connected with wool and frozen meat. The university (opened 1871) has a school of mines. Dunedin is the seat of Anglican and Roman Catholic bishops. Founded in 1848 by members of the Free Church of Scotland, its commercial prosperity dates from the discovery of gold in Otago in 1861. Pop. 84,990.



Dunedin. General view of the chief city of South Island, New Zealand, taken from Mornington. Beyond is Otago Harbour
Courtesy of the High Commissioner for New Zealand

DUNEDIN, ANDREW GRAHAM MURRAY, 1st Viscount (b. 1849). British lawyer and politician. Born Nov. 21, 1849, he became an advocate in 1874 and a Q.C. in 1891. In the same year chosen M.P. for Buteshire, he entered the Unionist ministry as solicitor-general for Scotland. In 1896 he was promoted to be lord advocate. From 1903-5 he was secretary for Scotland and a cabinet minister. In 1905 Murray left Parliament to become president of the court of session, and was made a peer as Baron Duncdin. In 1913 he was appointed a lord of appeal, and in 1926 was created a viscount.

DUNFERMLINE. City and burgh of Fifeshire. It stands on the Firth of Forth, 17 m. N.W. of Edinburgh, on the L.N.E.R. Since 1911 the burgh has included the naval base at Rosyth. It was a favourite residence of the Scottish kings, and the Benedictine abbey, founded by Malcolm Canmore in 1072, was their burial place from the 11th to the 14th century. The abbey was partly demolished by Edward I, and, except for the nave, which did duty as the parish church till 1821, was destroyed by the Reformers in 1560.

The Carnegie Dunfermline Trust, founded by Andrew Carnegie in 1903, is devoted to objects beneficial to the community of Dunfermline, Carnegie's birthplace. Among these are the maintenance of the beautiful Pittencrieff Glen, in which are the ruins of Malcolm Canmore's castle and palace. There is a garden city between Dunfermline and Rosyth. The town is celebrated for its table linen. Pop. 39,886.

DUNGANNON. Urban dist. and market town of co. Tyrone, Northern Ireland, 40 m. W. of Belfast on the G.N.I.R. There is a grain trade and linen and muslin manufactures. Market day, Thurs. Pop. 3,830.

DUNGARVAN. Urban dist. and market town of Waterford, Irish Free State. It stands at the mouth of the Colligan on Dungarvan Bay, 28½ m. S.W. of Waterford on the Gt. Southern Rlys. Woollen manufacture and its fisheries are important. There are remains of an abbey and a castle. Market days, Tues. and Sat. Pop. 5,207.

DUNGENESS. Low promontory on the S. coast of Kent. It has a lighthouse, coast-guard station, Lloyd's signalling station, and small fort. The scene of many wrecks, it was off here that Tromp defeated Blake in 1652.

Dungeness, in Queensland, is an important port of entry on Hinchinbrook Channel, 935 m. N. of Brisbane. It handles the traffic of the Herbert river. The chief export is sugar.

DUNKELD. City of Perthshire. It stands on the Tay, here spanned by a seven-arched bridge, 15½ m. N.W. of Perth, on the L.M.S. Rly. The chief object of interest is the ruined cathedral, presented to the nation in 1918 by the duke of Atholl. This was built in the 11th or 12th century, but was partially destroyed at the Reformation. The aisleless choir has been restored to serve as the parish church. Pop. 1,049.

Dunkery Beacon.

Hill on Exmoor, Somersetshire. About 5 m. S. of Porlock, it is 1,707 ft. high, the highest point on the moor. See Exmoor.

DUNKIRK or **DUNKERQUE.** Sea-port of France, on the Strait of Dover. Near the Belgian boundary, in the dept. of Nord, 40 m. N.W. of Lille, it lies in the district called the Watteringues. One of the chief ports of the country, it exports the coal of

Belgium and N.E. France, the manufactures of the industrial region therein, and the agricultural produce of other adjacent areas. Steamers regularly ply between here and London, Hull, and other ports. The old buildings include the church of S. Eloi, with a modern façade and a detached belfry, and the pilgrim chapel of Notre Dame des Dunes. The church of S. Jean-Baptiste dates from the 15th century. Malo-les-Bains is a watering place. An important Allied base in the Great War, Dunkirk was heavily bombarded from sea and land. Pop. 34,748.

DUNLIN or **Ox Bird** (*Tringa alpina*). Species of shore bird belonging to the Sandpiper group. It breeds rather rarely in Great Britain, and is usually seen about estuaries. It is about 8 ins. long.

DUNLOP, JOHN BOYD (1839-1921). Irish inventor. After practising as a veterinary surgeon he evolved the idea of an inflated tire about 1888. This Dunlop tire was placed on the market by the Pneumatic Tyre and Booth's Cycle Agency. A patent for the wire edge attachment expired in 1904. He died Oct. 23, 1921. See Cycling; Tire.

DUNMOW, LITTLE. Village of Essex. It stands on the Chelmer, 1½ m. S.E. of Great Dunmow. It was celebrated for the custom of presenting a fitch of bacon to any married couple who could prove that they had not repented of their marriage for a year and a day after its celebration. The custom now takes place at Ilford (q.v.). Roman remains have been unearthed at Great Dunmow.

DUNNOTTAR. Parish of Kincardineshire, on Carron Water, 1 m. S.W. of Stonehaven. The ruined stronghold, Dunnottar Castle, dates from the 7th century. In one of its dungeons, known as Scotland's Black Hole or Whigs' Vault, in 1685, during the



Dunnottar Castle. Ruins of the ancient stronghold from the N.

Covenanters' rebellion, 167 men, women, and children were incarcerated. The castle was dismantled in 1720.

DUNOON. Burgh of Argyllshire. On the W. shore of the Firth of Clyde, it is 8 m. W. of Greenock, on the L.M.S. and L.N.E. Rlys. Formerly a small fishing village, it is now one of the most popular watering places on the W. coast. It includes Kilm and Hunter's Quay. Pop. 14,659.

DUNRAVEN, EARL OF. Irish title borne since 1822 by the family of Wyndham-Quin. Valentine R. Quin, an Irish landowner, was made earl of Dunraven and Mountcarl in 1822. Edwin, the 3rd earl (1812-71), who was M.P. for Glamorganshire 1837-51, was made Baron Kenry, a British title, in 1866. A remarkable man, he was an archaeologist, astronomer, and author. In 1871 his son, Windham Thomas (1841-1926) became the 4th earl. In 1885-86 and 1886-87 he was under-secretary for the colonies, but was perhaps better known as a sportsman. The earl's seats are Adare Manor, Limerick, and Dunraven Castle, Glamorganshire, and his eldest son is called Viscount Adare.

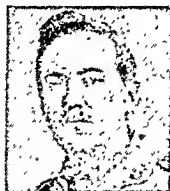


4th Earl of Dunraven
Russell

DUNROBIN CASTLE. Seat of the duke of Sutherland, Sutherlandshire. Beautifully situated on Dornoch Firth, it is one of the oldest inhabited mansions in Great Britain, the earliest portion dating from the 13th century. In the grounds are two brochs or circular towers and a museum of antiquities.

DUNS. Burgh, county, and market town of Bervickshire, 55 m. S.E. of Edinburgh, on the L.N.E. Rly. The original town of Duns or Dunse was situated on Duns Law (713 ft.), which has traces of the encampment set up by the Covenanters in 1639. Market day, alternate Mons. Pop. 1,868.

DUNSANY, BARON. Irish title borne since 1439 by the family of Plunkett. The first baron was Sir Christopher Plunkett, a landowner in co. Meath, from whom the title passed to his son and other successors. Edward, the 18th baron (b. 1878), has written a number of novels, a volume called *Fifty Poems*, 1929, and several plays, including *The Glittering Gate*, 1909; *The Gods of the Mountain*, 1911; *A Night at an Inn*, 1916; *If, 1921*; and *Alexander and Other Plays*, 1925. Dunsany is in Meath, 7 m. from Trim.



18th Baron Dunsany,
British writer

DUNSLANE. Peak of the Sidlaw Hills, Scotland, 8½ m. N.E. of Perth. On it are traces of an ancient fort known as Macbeth's Castle. Shakespeare has immortalised the defeat here of Macbeth by Siward, earl of Northumbria, in 1054. See Macbeth.

DUNSINK. Hill and village of co. Dublin, Irish Free State, 4 m. N.W. of the city of Dublin. On the hill (alt. 210 ft.) is Trinity College observatory, founded in 1785.

DUNS SCOTUS (c. 1265-1308). Medieval schoolman. Little but legend exists as to his personal history. He appears to have been professor of theology at Merton College, Oxford, to have joined the Franciscans, and about 1304 to have gone to Paris, where, in contention with the Dominican upholders of the teaching of Thomas Aquinas, his dialectical skill won for him the name of Doctor Subtilis, and where he popularised the theory of the

Immaculate Conception of the Virgin Mary, since 1854 a dogma of the Roman Catholic Church. He died Nov 8, 1908.

From Duns Scotus and Thomas Aquinas arose respectively the schools of Scotists and Thomists, opposed especially in regard to the Immaculate Conception, and generally as to free will, grace, and kindred topics. The Scotist views were adopted by the Jesuits.

DUNSTABLE. Borough and market town of Bedfordshire. It stands at the entrance of a gap of the Chiltern Hills, 37 m. N.W. of London on the L.M.S. and L.N.E. Rlys. The parish church is a part of the priory founded by Henry I in 1131. The grammar school, founded in 1715, was rebuilt in 1888. Straw-plaiting and printing are among the industries. Market day, Wed. Pop. 8,889.

DUNSTAN (d. 988). English saint. He was born at Glastonbury, and became abbot about 945. The chief adviser of King Eadred, he was banished by his successor, Edwy, but recalled by Edgar, who appointed him bishop of Worcester in 957, bishop of London in 959, and archbishop of Canterbury in 961. He died May 19, 988.

DUNSTER. A village of Somersetshire, 23 m. N.W. of Taunton on the G.W.R. It is a quaint old town, containing many interesting buildings. Dunster Castle dates from the 12th century, and the Yarn Market from the beginning of the 17th century. Pop. 705.

DUNSTERVILLE, LIONEL CHARLES (b. 1865). British soldier. Born Nov. 9, 1865, he was educated at Westward Ho College, where he had as a schoolfellow Rudyard Kipling, who made him the hero of *Stalky & Co.* Dunster-ville joined the Indian army, and served in the Waziristan expedition, 1894-95, on the N.W. frontier, 1897-98; and in China, 1900. In the Great War he held various appointments in India, then went to Mesopotamia, where in 1918 he commanded the expedition to Baku (q.v.). He wrote the *Adventures of Dunsterforce*, 1920; and *Stalky's Reminiscences*, 1928.



L. C. Dunsterville
British soldier
Elliott & Fry

where in 1918 he commanded the expedition to Baku (q.v.). He wrote the *Adventures of Dunsterforce*, 1920; and *Stalky's Reminiscences*, 1928.

Dunvegan. Sea-loch on the N.W. coast of the Isle of Skye. On the E. shore is Dunvegan Castle, the ancient seat of the Macleods.

DUNWICH. Village of Suffolk. It stands on the North Sea, 4½ m. S.W. of Southwold. The chief town and harbour and at one time the only see of East Anglia, Dunwich has suffered severely from sea encroachments. Of its ancient churches and monasteries only the ruins of a friary remain. Pop. 189.

DUPLEIX, JOSEPH FRANÇOIS (1697-1763). French administrator. Born at Landrecies, Jan. 1, 1697, he was the son of a merchant. As a youth he went on voyages to India, where, about 1720, he settled. In 1730 he was made governor of Chandernagore, and in 1741 became governor of Pondicherry, and the chief official in French India. In 1744, when war broke out between England and France, Duplex took vigorous action to defend his country's interests. He held on to Madras and defended Pondicherry, and had scored other successes when peace was made in 1748. He then turned his attention to the Carnatic, and there, deposing one ruler after another, he became master of that region and also of the Deccan. His grandiose



Joseph François
Duplex, French
administrator
After Sergeant.

plans, however, were spoiled by the appearance of Clive, and after a vain struggle Duplex was recalled in 1754. He lived in poverty in France until his death, Nov. 10, 1763.

DURA. Buried city on the Euphrates. Its site was discovered in 1920, and on it traces of Greek and Roman civilization have been unearthed. In 1928 its exploration was undertaken by an expedition from Yale.

DURALUMIN. Alloy of aluminium. It contains 3½ p.c. of copper and smaller quantities of magnesium and manganese. Its tensile strength is very great, and this quality, in conjunction with its light weight, makes the alloy very suitable for use in aircraft. See Airship.

DURAND, SIR HENRY MORTIMER (1850-1924). British administrator. The second son of Sir Henry Marion Durand (1812-71), he was born Feb. 14, 1850, and in 1873 joined the Bengal Civil Service. From 1880-85 he was in the foreign department of the government of India. From 1894-1900 he was British minister at Teheran; from 1900-03 ambassador and consul-general at Madrid; and from 1903-06 ambassador at Washington. He died June 8, 1924. Durand wrote his father's life.



Sir Mortimer Durand,
British administrator
Elliott & Fry

DURAZZO. Seaport of Albania, on the Adriatic, 60 m. S. of Sentari. Founded 621 B.C. by Corinthian and Corevran colonists under



Durban. Town Hall, built in the Renaissance style in 1906-08.

the name of Epidamnus, it was renamed Dyrrhaeum by the Romans. In 1501 it passed to the Turks. From the end of 1914 until March, 1916, it was occupied by the Italians, and again in 1913 to 1921 it was the capital of Albania. The harbour is much silted up. Pop. 5,100.

DURBAN. Seaport and health resort of Natal, S. Africa. It is situated on the S. shore of a land-locked bay, 812 m. from Cape Town by sea and 1,253 m. by rly. It owes its position as premier port of the Union to the neighbouring coal fields and to its coal bunkering facilities. It is the terminus of the Natal Rly. system, is connected by rail with all the other important cities of the Union, and is the only harbour of any importance between East London and Delagoa Bay. There are a fine town hall (opened in 1910), public gardens and parks, racecourse, and museum. Pop. (whites), 58,085.

DURBAR (Pers. dar, door: har, admittance, court). Term used in India for the

court, council, or council chamber of a native ruler, for an official reception or audience, or for a great state ceremony. Specially magnificent durbars were held at Delhi on the proclamation of Queen Victoria as empress of India in 1877 and of Edward VII and George V as emperors in 1903 and 1911 respectively.

DÜRER, ALBERT OR ALBRECHT (1471-1528). German artist. He was born at Nuremberg, May 20, 1471, the third of eighteen children of a goldsmith. He was brought up to the goldsmith's business, but in 1486 was allowed to enter the school of Michael Wohlgemuth. In 1505 he visited Venice, at the invitation of the Nuremberg merchants established in the city, who desired him to decorate their bourse. Returning to Nuremberg in 1507, he produced single figures of Adam and Eve, 1507; The Massacre of Ten Thousand Christians, 1508; The Virgin of the Iris and The Adoration of the Trinity, 1514. Between 1512-19 he was in the service of the emperor Maximilian. He died April 6, 1528. His house at Nuremberg is now a Dürer museum.



Albert Dürer, German painter and engraver.
Self-portrait in the Pinakothek, Munich.

On the whole, Dürer was less a painter than a designer. His famous woodcuts include the series of The Apocalypse, 1497; the 20 scenes of the Life of the Virgin, 1511; and a number illustrating the writings of Maximilian I. He published Four Books on Human Proportion, 1528. See illus. pp. 390, 409.

DURHAM. County of England. With about 33 m. of coast line, its area is 1,013 sq. m. Branches of the Pennine Chain enclose fertile valleys in the W., whence the surface slopes to the E. The Wear, Don, and Tees are the chief rivers of the county. Immense coal measures occupy its centre and, in addition to coal, large quantities of ironstone, millstone, granite, lead, etc., are obtained. Durham is noted for horses and shorthorn cattle, and sheep rearing



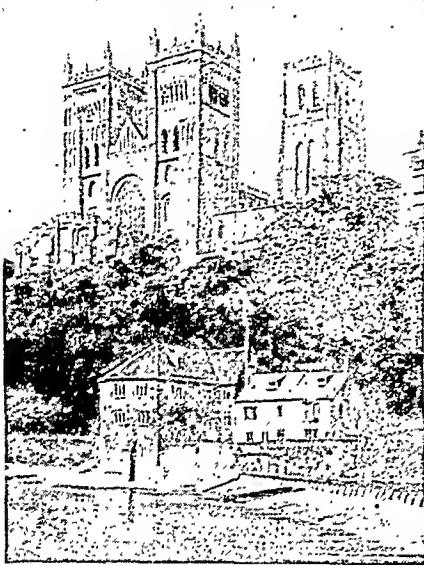
Durham. Map of the coal-mining county of north-eastern England, notable also for its shipbuilding, ironworks and manufacturing industries.

is carried on. The L.N.E.R. serves the county. Durham is the county town, and besides the ports of Sunderland, Stockton-on-Tees, Jarrow, the Hartlepoons, and S. Shields.

the largest towns are Gateshead and Darlington. Durham formed part of Northumbria. As a county palatine, its ruler, the bishop, had exceptional powers, and retained his own courts until 1836. Pop. 1,479,933.

Literary associations start with the Benedictine monastery at Jarrow, founded by Benedict Biscop, but its greatest name is that of the Venerable Bede (q.v.), who was born near Wearmouth. At Stanhope, in Weardale, Joseph Butler (q.v.), its rector, wrote *The Analogy of Religion*. Elizabeth Barrett Browning was born at Coxhoe Hall, near Durham. Scott's Rokeby has much about Barnard Castle and the upper Tees valley.

DURHAM. City and county town of Durham. It stands on the Wear, 287 m. from London, and has a station on the L.N.E. Rly. The greatest glory of Durham is the cathedral. The present building, which replaced an older one, was begun in the 11th century, and much of it, including the nave and the restored chapter house, is Norman. The Galilee chapel (q.v.) is notable, as are the central tower and the chapel of the nine altars. The cloisters, rebuilt in the 15th cent., and other parts of the monastic buildings still exist.



Durham. The cathedral, seen from across the river Wear. The lancet and perpendicular work of the two western towers, and that of the central tower, is imposed upon the original Norman architecture

Photocolor

The first castle was built by William the Conqueror, but little remains. The present building is the headquarters of the university. In 1927 it was reported that the castle was in danger of collapsing. The great hall and other parts were closed, and repairs begun.

Interesting also are some of the churches and the bridges across the Wear, especially Framwellgate of the 14th century. Elvet Bridge leads to the suburb of Elvet. The town hall dates from the 16th century. The grammar school is an old foundation; its present buildings at the top of South St. date from 1844. Market day, Sat. Pop. 17,346.

The university of Durham was founded in 1832. In 1908 it was divided into two parts, one at Durham and the other at Newcastle.

DURHAM, EARL OF. British title borne since 1833 by the family of Lambton. The Lambtons had lands in Durham as early as the 12th century, but they remained commoners until the time of John George Lambton (1792-1840), who was made Baron Durham in 1828 and earl of Durham in 1833.

A Whig politician, Lambton was in the Cabinet from 1830 to 1833, being one of the

promoters of the great Reform Act. From 1835-37 he was ambassador to Russia, after which he went to Canada as governor-general.



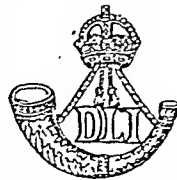
1st Earl of Durham, British statesman After Lawrence

There he prepared the Report on the Affairs of N. America which profoundly influenced the development of Canada. Durham died July 28, 1840. His grandson, John George (1855-1928), who became the 3rd earl in 1879, was a patron of the turf. He died in Oct., 1928, when his twin brother, Hon. F. W. Lambton, became the 4th earl. He died early in 1929, when his son John became the 5th earl. The earl's seat is Lambton Castle, Durham.

DURHAM LIGHT INFANTRY. British regiment, of which the two battalions were formerly the 68th and 106th regiments of light infantry. The former, raised in 1756, was organized as a light infantry regiment in 1808, and called the 1st battalion Durham Light Infantry in 1881. It took part in the ill-fated Walcheren expedition (1809), in the Spanish campaign of 1811, and in the Crimean War. The 2nd battalion served in the Persian War (1856). During the Great War the regiment won further distinction.

DURSLEY. Town of Gloucestershire. It is situated 15 m. S.S.W. of Gloucester by the L.M.S. Rly., at the foot of the scarp of the Cotswolds. Cycles are manufactured and bathstone is quarried. Pop. 2,792.

DUSE, ELEONORA. (1859-1924). Italian actress. Born near Venice; Oct. 3, 1859, her first success came at Turin, 1879, and in 1882 she was a leading player in Rossi's company, winning at Florence further success as Frou-Frou. Her finest impersonations included Magda, La Tosca, Marguerite Gautier in *La Dame aux Camélias*, Santuzza in *Cavalleria Rusticana*, Mirandolina in *La Locandiera*, Paula in *The Second Mrs. Tanqueray*, Nora in *A Doll's House*, and heroines in D'Annunzio's dramas. She died April 21, 1924.



Durham Light Infantry Regimental badge



Eleonora Duse, Italian actress

DÜSSELDORF. City of Prussia. It stands in the centre of a plain, on the right bank of the Rhine, at the junction of several rivers, 24 m. by rly. N. W. of Cologne. Important buildings include the old electoral palace, once the home of the Academy of Art; the Gothic Renaissance Rathaus, 1570-73, extended in 1885; the public library, municipal theatre, palace of justice, and post office. Notable among the

churches are S. Lambert, a Gothic building of the 14th century; S. Andrew, 1629, once the church of the court and of the Jesuits; and S. Roche. The Academy of Art is a famous school of genre painters. The greater part of the old masters in the original picture gallery was removed to Munich in 1805. The Düsseldorf art school flourished 1820-40 under Peter Cornelius and W. Schadow. The municipal art gallery is devoted to modern work. Of recent years Düsseldorf has developed iron, textile, brewing, distilling, printing, dyeing, and other industries, and has become an important banking centre. Here the poet Heine was born. Pop. 432,633.

DUTCH AUCTION. Auction at which the property is offered at a price higher than the seller will accept. The price is lowered until a purchaser bids, when the lot is at once knocked down, or sold, to him at the sum last mentioned by the salesman.

DUTCH METAL. Alloy of copper and zinc, and therefore technically a brass. The proportion of the copper may range from 77.75 to 84.5 p.c. The colour varies from a pleasing pale yellow to a dark yellow, according to the proportions used. It is a very ductile metal and much used in the preparation of Dutch gold leaf, employed instead of gold for gilding purposes.

DUVAL, CLAUDE (1633-70). Highwayman, born at Domfront, in Normandy. He came to England at the Restoration in the train of the duke of Richmond, took to the road, and became notorious for his daring robberies and for his gallantry. He was captured while drunk in a London tavern and executed at Tyburn.

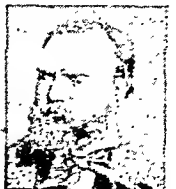
DVINA. Name of two Russian rivers. The northern Dvina, formed by the Sukhona and the Yug, flows past Archangel into the White Sea. It is navigable in the summer, but there are shoals at the mouth. Its length is nearly 500 m. The western Dvina flows into the gulf of Riga, 9 m. below Riga. With a canal it links the Baltic and Black Seas. Its length is 640 m.

Two battles were fought between the Germans and the Russians in the region of the western Dvina. One was in Aug.-Sept., 1915, when the German attempt to capture Riga failed. The other lasted with intervals from Jan. to Aug., 1916.

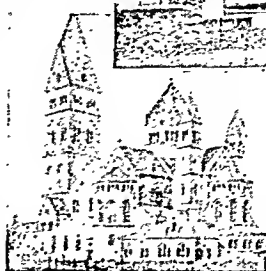
DVINSK (DAUGAVPILS). Town of Latvia, capital of the E. prov. of Latgale. On the right bank of the Dvina, it is an important rly. centre for the traffic with Russia and Poland. There is considerable trade in grain, flax, and timber. In 1772, having been hitherto Polish, it was added to Russia, remaining part thereof until the collapse of the Russian empire in 1917. During the Great War, after much fighting for its possession, it was occupied by the Germans Feb. 18, 1917. Pop. 40,000.

DVORAK, ANTONIN (1841-1904). Bohemian composer. Born at Mühlhausen, Sept. 8, 1841, he joined the orchestra of the National Theatre, Prague, in 1862, and began to devote himself to composition. A set of Slavonic dances made him

famous. From 1892-95 he was principal of the National Conservatoire of Music at New York, but returned to Bohemia, where he died, May 1, 1904. His works include a Stabat Mater, a cantata, *The Spectre's Bride*, several brilliant symphonies and overtures, and fine examples of chamber music.



Antonin Dvorak, Bohemian composer



Düsseldorf. Modern Church of S. Roch. Above, the Rhine Bridge, 75 ft. above water level, built 1898-8

DWARF. Abnormally short human being. Dwarf races are primitive peoples whose average adult male stature is below 4 ft. 11 ins. There are two main groups: Asiatic negritos, comprising Acta, Andamanese, Semang, Tapiro, and others; African negrillos, including Akka, Batwa, Bambute, and allied tribes. The most satisfactory theory of pygmy origins regards these peoples as representing the early divergence from the main human stock of a tropical hunting type.

From earliest times dwarfs attracted attention and were obtained as attendants by royalty and wealthy persons. They have also been much exploited by showmen, as for example, Tom Thumb.



Dyak. Gala costume of a boy and girl in British N. Borneo

DYAK or **DAYAK.** Popular name for the Indonesian non-Malay peoples in Borneo. The land Dyak embrace some settled agricultural tribes in the Klemantan group. The round-headed proto-Malayan sea Dyak, preferably called Iban, are the most tattooed Bornean tribe and were the most inveterate head-hunters. See Borneo.

DYER, SIR EDWARD (c. 1540-1607). English courtier and poet. Born at Sharpham Park, Somersetshire, son of Sir Thomas Dyer, he was introduced at court in 1566. A close friend of the Sidneys, and a member of the literary coterie known as the Areopagus, he enjoyed a high reputation as a man of character and a poet. Knighted and made chancellor of the order of the Garter in 1596, he died in 1607. As a poet, he is best remembered by the ballad, *My Mind to Me a Kingdom* is.

DYER, REGINALD EDWARD HARRY (1864-1927). British soldier. Born Oct. 9, 1864, he entered the army and later transferred to the Indian army. In command of a brigade, he was sent in April, 1919, to Amritsar, where his men fired on a mob. Later an inquiry was held and Dyer was censured. He retired from the army, and received £21,000 from sympathisers through the agency of *The Morning Post*. He died at Long Ashton, Bristol, July 23, 1927.



R. E. H. Dyer. British soldier

DYER'S BROOM or **DYER'S GREENWEED** (*Genista tinctoria*). Dwarf shrub of the order Leguminosae. A native of Europe, it extends into N. and W. Asia.



Dyer's Broom, flowers and foliage

The bright yellow flowers are small, and are succeeded by smooth, flat pods, an inch long, containing about five seeds. It yields a yellow dye, which was largely used by dyers in connexion with neutral indigo. Another name for the plant is woad-waxen.

citron and yellow-barked oak, the rough, brown bark being orange-coloured internally. It has variously divided large leaves and small hemispherical acorns. The bark is extensively used in tanning and dyeing.

Dyer's Weed. Variant name for weld (*Reseda luteola*). See Weld.

DYES OR DYESTUFFS.

Substances used for dyeing the various textile fibres, as wool, silk, cotton, artificial silk; also for dyeing leather, paper, etc., and for colouring oils, varnishes, foodstuffs. Mineral dyestuffs comprise Prussian blue, iron buff, chrome yellow, chrome orange, manganese bronze, and metallic oxide khaki. Chiefly used for cotton, they have lost their former importance.

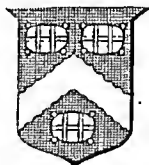
The most important natural dyestuffs are natural indigo, logwood, fustic, cochineal, Persian berries, orchil, cudbear, and eutech. With the exception of indigo and orchil, the natural dyestuffs, applied alone to textile fibres, possess little affinity for them, and are only of use when combined with metals previously applied to the fibres in the form of salts, this process being called mordanting.

The artificial dyestuffs, commonly called coal-tar dyes, comprise a very large number of organic compounds. The first was discovered by Perkin in 1856, and called mauve. Chemically, they are divided into about 15 classes, the dyestuffs in each conforming to a definite structure. Taking the dyeing point of view as a basis for differentiation, the following classes are obtained: (1) acid, (2) basic, (3) direct cotton or salt colours, (4) mordant, (5) sulphide, (6) vat, (7) insoluble colours or colours formed on the fibre. As the name indicates, the dyestuffs of this group are derived from coal tar. From this are obtained such important substances as benzene, toluene, phenol, naphthalene, and anthracene. These are the primary raw materials for the production of all artificial dyestuffs.

THE DYERS' COMPANY. This is a London livery company. Incorporated 1471, it was originally one of the 12 chief companies. With the Vintners it has the right of keeping swans on the Thames, and it administers a number of charities. The hall in Dowgate Hill, E.C., was erected in 1857.



Dyer's Oak, leaf and acorn



Dyer's Company arms

DYKE OR DIKE. Defensive earthwork or its adjacent ditch, especially in early Britain. Dykes may be promontory forts, or protective works as used in Holland, and in Great Britain as fenland causeways. Some were made or re-used for national or tribal boundaries.

In geology, dykes are wall-like masses of rock formed in vertical or highly inclined fissures in older formations. The name arose from their resemblance, when the softer enveloping rocks have been weathered away, to the structures made by man. The most typical dykes comprise basalts and similar rocks intruded by igneous action. They often form ribs spreading radially from volcanic craters. Sedimentary dykes have been formed in all geological ages, such as the pre-Cambrian sandstone dykes at Ben Slioch, Scotland.

DYKES, JOHN BACCHUS (1823-76). British musician and churchman. Born at Hull, Mar. 10, 1823, he studied music at Cambridge and became a clergyman. In 1849 he was appointed precentor of Durham Cathedral and vicar of S. Oswald's, Durham. He composed a large amount of church music, includ-

ing many hymn tunes; some—Nearer my God to Thee, and Jesu, Lover of my Soul—had immense popularity. He died Jan. 22, 1876.

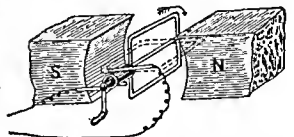
DYMOKE. English family in which the ancient office of king's champion is hereditary. Sir John Dymoke (d. 1381) was champion at the coronation of Richard II. Henry Dymoke (d. 1865) was champion at George IV's coronation, after which the ceremony was discontinued, though the office remained. In the reign of George V the champion was Frank Seaman Dymoke. See Champion.

DYNAMICS (Gr. *dynamis*, power). Branch of the science of mechanics which investigates the action of force. It therefore includes the investigation of the conditions of bodies which are in a state of equilibrium owing to the forces acting upon them, although this special branch of the science is often referred to as statics.

DYNAMITE. Name applied to a variety of high explosives of which the essential feature is a high content of nitroglycerine, absorbed in an active or inert porous base. Dynamite was invented by Nobel in 1866. He found that nitroglycerine could be rendered comparatively safe by absorption in kieselguhr (q.v.), which is capable of retaining up to three times its weight of nitroglycerine. About 1 p.c. of magnesium carbonate or chalk is usually added. Dynamite is a powerful high explosive of considerable brisance. If ignited in small quantities it burns fiercely without exploding. It is chiefly used for blasting operations where a powerful shattering effect is required.

DYNAMO. Machine used for converting mechanical energy into electrical energy. Faraday discovered (1831) that if a magnet were passed through a coil of wire a current of electricity was induced in the wire while the magnet was moving. The same effect was produced if the magnet were kept still and the wire moved. This is the essential principle of the dynamo. As the coil of wire moves across the magnetic field the strength of the induced electric current varies. Decreasing the number of lines of force passing through the conductor produces an induced current in one direction, while increasing the number of lines through the conductor produces an induced current in a contrary direction. By a device known as the commutator (q.v.) the alternating current induced in the coil can be changed into a direct or continuous current.

The intensity of the current is increased if a flat coil of many turns of wire be used, but even then a cycle occurs only once per revolution. To increase the number of cycles and so make the current more constant, a large number of coils is arranged in external grooves cut upon the surface of a drum of soft iron plate. An intense magnetic field is obtained by using electric magnets, excited by a current through the coils encircling them. These two chief parts of a dynamo are the armature (q.v.) and the field magnet system, or field.



Dynamo. Diagram showing the essential principle of a dynamo. N and S are the opposite poles of a magnet between which the wire coil is made to revolve

Direct-current dynamos are not adapted to the production of high voltage currents, owing, mainly, to the difficulty in collecting such currents from the commutators, and to the difficulty in insulating the coils on the revolving armature. With alternating-current dynamos, or alternators, these difficulties can be overcome. The high voltage generally associated with alternators has led to a fundamental

change in their design, viz. the moving of the magnetic field in relation to the armature wires, instead of the armature in relation to the

its name from a cave near Dysart House reputed to have been the cell of S. Serf. Once a busy centre of export trade, the harbour was closed in 1928 owing to the shutting down of the adjacent coal pits. Pop. 4,598.

The Scottish title of earl of Dysart has been borne since 1643 by the families of Murray and Tollemahe. The earl's seats are Buckminster Park, Grantham, and Ham House, Petersham, and his eldest son is known as Viscount Huntingtower.

DYSENTERY. Medical term applied to several distinct affections.

These resemble each other in having irritation of the bowel as a prominent symptom, often associated with diarrhoea and blood in the motions.

Amoebic dysentery is caused by a minute organism (amoeba) which enters the body with food or drinking water. The disease is widespread throughout the tropics, and is also met with elsewhere. Emaciation is a marked feature of this disease, while abscess of the liver is a frequent complication. Ipecacuanha, or emetine, has proved of great value.

DYSON, SIR FRANK WATSON (b. 1868). British astronomer. He was born Jan. 8, 1868, the son of a Baptist minister in Yorkshire, and became a fellow of Trinity College, Cambridge. In 1894 he entered the Royal Observatory, Greenwich, as chief assistant. Five years later he became secretary of the Royal Astronomical Society, and in 1901 F.R.S. In 1905 Dyson was made astronomer-royal for Scotland, and in 1910 was transferred to the corresponding position in England. In 1915 he was knighted, and made K.B.E. in 1926.



Sir Frank Dyson,
British astronomer
Russell

DYSPEPSIA OR INDIGESTION. Acute dyspepsia or acute gastric catarrh is most frequently due to errors in diet, but is sometimes an early symptom of many of the infectious fevers. The symptoms are pain in the stomach, nausea, vomiting, headache, and depression. Treatment consists in withholding food for 24 hours, and then giving an easily digested diet. A cathartic should be administered.

Chronic dyspepsia results from chronic gastritis, which may follow the long-continued habit of taking unsuitable food or excess of alcohol, or may be a symptom of many diseases, such as gout, diabetes, Bright's disease, tuberculosis, anaemia, and cancer of the stomach. The symptoms are a sense of fullness after eating, with heartburn, nausea, flatulence, headache, depression, and usually constipation, though sometimes diarrhoea. Treatment consists in taking a light and easily digested diet. Various digestive ferments and bitter tonics, such as quassia and gentian, are often useful. Where the dyspepsia is a symptom of a general disease, that also must be treated.

DYSPROSIUM. Metallic element, symbol Dy; atomic weight 162.5; atomic number 66. It was isolated from oxide of holmium by Lecoq de Boisbaudran in 1886, and occurs chiefly in gadolinite and samarskite.

E. Fifth and most frequently used letter, and the second vowel of the English and Latin alphabets. Its chief sounds are those heard in me, and in men, really the short sound corresponding to a in man. In clerk, serjeant, e has the sound of a. As a rule, e final is itself mute, but its usual effect is to lengthen the preceding vowel; e.g. mat, mate, but give, live.

The combinations of e with other vowels represent various sounds: ea usually ee, as in meat, but at times as in bread. head, great, pear, heart. Ei is a long a or ee, as in weight, deceit, but has a short i-sound in foreign, sovereign, sometimes long, as in height. Eo is a long ee, as in people, but yeoman is an exception. Eu, ew have the sound of iu (yu), as in deuce, new, but of o in sew.

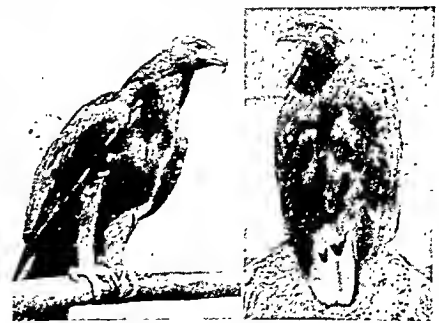
EADIE, DENNIS (1875-1928). British actor. Born at Glasgow, Jan. 14, 1875, in 1899 he toured with the St. James's Repertoire Company, making his first appearance in London under George Alexander at the St. James's Theatre, Feb. 7, 1900, in *The Prisoner of Zenda*. He entered into management of the Royalty with J. E. Vedrenne in 1911. He made a success in *Milestones*, produced in 1912, and in *The Man Who Stayed at Home*, in 1915. In 1928 he was playing in *The House of the Arrow* at the Vaudeville when he died, June 10.



Dennis Eadie,
British actor
Hugh Cecil

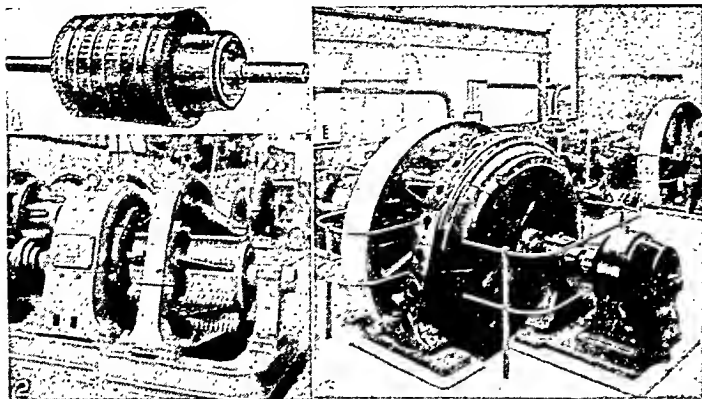
EAGLE (Fr. aigle, Lat. aquila). Group of large birds of prey, including some 14 genera and a large number of species, found throughout Europe, Asia, Africa, and N. America. The true eagles belong to the hawk family. All have strong, curved beaks with sharp cutting edges, and the head has usually a flattened and rather snake-like look. The plumage is generally dark, and the wings are long and powerful. All are carnivorous, and most eat carrion. The golden eagle (*Aquila chrysaetus*), is not uncommon in Scotland and in the wilder parts of Ireland. The bird is about a yard in length, with dark brown plumage showing a tawny tinge at the neck. It lives mainly on hares, rabbits, and game birds, and will occasionally attack a lamb or young fawn. Its nest, made of sticks and often of a huge size, is usually built on a ledge of an inaccessible cliff. The white-tailed sea eagle (*Haliaeetus albipectus*) is found in the Hebrides. The spotted eagle (*A. maculata*) is a rare winter visitor.

In heraldry the eagle is almost universally displayed full front, with expanded wings. From a Roman standard-symbol the eagle became the emblem of the rulers of the Eastern Empire, and Charlemagne made it the badge



Eagle. Left, golden eagle found in Scotland; right, white-tailed sea eagle from the Hebrides
W. S. Berridge and Gumbler Bolton

of the medieval empire. From this early form was evolved the later German imperial eagle, and the eagles of the Austrian and

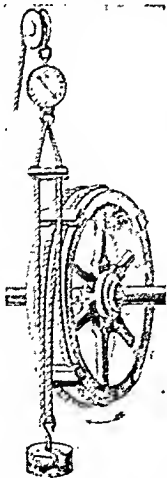


Dynamo. 1. Complete drum armature. 2. Direct current dynamo, showing commutator (right) and brushes. 3. Alternating current dynamo or alternator, showing revolving field magnet system (rotor)
2 & 3. Courtesy of Murray & Pace

field. The field magnets are usually included in the revolving parts, whilst the armature forms the stationary part. In this way the current from the armature can be led off without the interposition of any moving collector, while the insulation is not cramped or subjected to mechanical stress.

In another kind of machine (the "inductor" alternator) both field magnets and armature are stationary, but have an annular space between them. The annular space is traversed by bare poles (inductors), attached to a revolving spider. The poles complete the magnetic circuit between field-magnets and armature coils as they pass between them. The revolving portion of an alternator is called the "rotor" and the stationary part the "stator"—names which do not necessarily distinguish between armature and field magnets.

DYNAMOMETER. (Gr. dynamis, power; metron, a measure). Device for measuring force or power. The term is commonly applied to instruments used for measuring the h.p. of engines. They may be divided into three classes: (1) those for measuring the pull of anything; (2) those for measuring the push or thrust; and (3) those for measuring twisting power or torsion. The first type measures such forces as those exerted by railway locomotives, etc., and consists essentially of a powerful spring balance through which the power is applied. The second type measures such forces as the thrust of an aeroplane propeller, and the third the force exerted by a revolving shaft, and both the latter may consist of recording springs or brake attachments.



Dynamometer. Common type of brake dynamometer

DYNE (Gr. dynamis, power). Unit of force which, applied to a mass of one gramme, produces an acceleration of one centimetre per second every second. The erg, the unit of work, is the work done when a body acted on by a force of one dyne moves through a centimetre in the direction of the force. 10,000,000 ergs equal one joule. See Erg.

DYSART (Lat. desertum, solitude). Burgh of Fifeshire. It lies on the Firth of Forth, 28 m. N.E. of Edinburgh on the L.N.E.R. It derives

Russian Empires. The origin of the assumption of the eagle as a national emblem by the United States of America is obscure.



Eagle on standard of Ancient Rome

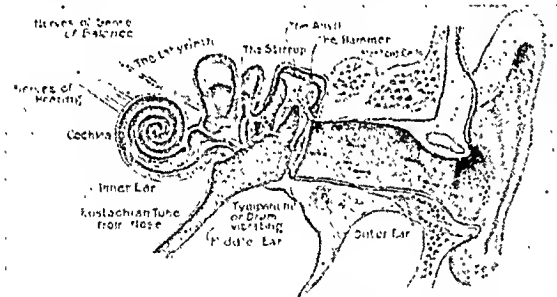
From the symbol they bore, the military standards employed in ancient Rome and in France under Napoleon I and Napoleon III were known as eagles.

A gold coin of the U.S.A., value ten dollars, is known as an eagle, so named because it bears a representation of the U.S.A. crest.

EALING. Borough of Middlesex. It is 5½ m. W. of Paddington by the G.V., L.M.S., Cen. Lon., and Dist. Rlys., there being stations at Ealing Common, Ealing Broadway, and West Ealing. Its chief buildings are the Victoria Hall and the town hall. Its open spaces include Ealing Common, Walpole Park, and (with Acton) Gunnersbury Park. Perivale has a tiny church, probably 800 years old, restored in 1875. The chief churches are S. Mary's, the parish church, and Christ Church. Ealing became a borough in 1901, and in 1926 was enlarged to include Hanwell and Greenford. Pop. 94,300.

EAR. Organ of hearing. The ear is divided into three parts. (1) The outer ear is composed of (a) the auricle, or pinna, leading into (b) the external auditory meatus, a narrow tube passing inwards to the drum.

(2) The middle ear is a small cavity in the side of the skull separated from the outer ear by the ear drum. It has a chain of minute bones, the hammer, anvil, and stirrup bones, which run across it and carry sound waves



Ear. Diagram showing how sound waves are conveyed to the brain

from the drum to the oval window, a small hole closed by a membrane and leading into the inner ear. The cavity has in front a tube connecting it with the throat, the Eustachian tube, which allows air to pass into the middle ear in order that the pressure of air inside the drum may equalise the atmosphere pressure.

(3) The inner ear is a cavity embedded in the skull deeper than the middle ear, and communicates with it through the oval window. It is filled with fluid, called perilymph, submerged in which are two hollow structures composed of membrane—the cochlea and the semicircular canals. These, again, are filled with fluid, called endolymph. The cochlea is a spiral tube, in which the nerve of hearing terminates. Sound waves are carried through the outer and middle ear and put the membrane closing the oval window in motion, which is communicated to the fluid filling the inner ear, whence it passes to the fluid contained within the cochlea, in which the termination of the nerve of hearing floats, the stimulus thus given to the nerve being perceived in the brain as sound.

The semicircular canals, which are entirely concerned in the balance of the body, are three tubes filled with fluid, having fine hair-

like nerve terminals floating in it. The fluid is set in motion by any change in the position of the body. The stimulus so produced is carried to the brain and enables it to judge of our position in space and automatically to adjust our muscles accordingly.

Infection from the throat can reach the middle ear through the Eustachian tube. This may result in catarrhal inflammation, leading to deafness and possibly to disease of the mastoid process, the bony projection behind the auricle, which lies in very close relationship with the brain. See Audiometer; Audiphone; Deafness; Hearing; Sound.

Earby. Urban dist. of Yorkshire (W.R.). It is situated 6 m. S.W. of Skipton, on the L.M.S. Rly. Pop. 5,898.

EARL. Title in the British peerage, ranking third. The French equivalent is comte, and the German is graf. The wife of an earl is called a countess, a reminder of the days when earl and count were synonymous. His eldest son bears his father's second title; the other sons are known as the Hon., the daughters as Lady So-and-So.

Earl is the oldest title of nobility. At first a mark of office, it gradually became one of rank. The premier earl of England is the earl of Arundel, a title held by the duke of Norfolk. Of those who have no higher title, the earls of Shrewsbury (1442), Derby (1485), and Huntingdon (1529) are the senior. In Scotland the earl of Crawford is the senior earl. See Peerage.

EARL MARSHAL. In England the earl marshal is the eighth great office of state. He is head of the Herald's College and has ceremonial duties. Since 1672 the office has been hereditary in the family of Howard, duke of Norfolk. The office of earl marshal (formerly great marischal) of Scotland was hereditary in the Keith family until 1716, when it was abolished.

EARL'S COURT. District of London in the metropolitan borough of Kensington. It is on the Met., Dist., and L.M.S. Rlys., also the Piccadilly tube. The name is synonymous with exhibitions, which, from that of the Fisheries Exhibition in 1884, down to 1914, delighted millions. The Great Wheel was removed in 1906.

EARLSFIELD. District of London. Within the metropolitan borough of Wandsworth, it is 2 m. S.W. of Clapham Junction, on the Southern Rly. Pop. 18,286.

EARLSTON. Burgh of Berwickshire, formerly called Erskildoune. It stands on Leader Water, 72 m. S.E. of Edinburgh on the L.N.E.R. There are traces of the old tower of Thomas the Rhymer (d. 1299), whose remains lie in the churchyard. Market day, Fri. Pop. 1,643.

EARLY CLOSING. Movement among shopkeepers and others to secure shorter working hours on week days. The Shops Act of 1912, in addition to providing a half holiday for the assistants, ordered all shops to be closed on one afternoon in each week. In 1928 an Act made it compulsory for shops to close not later than 9 p.m. on one evening in the week and not later than 8 p.m. on the others. Exceptions are made in the case of shops where sweets, tobacco, and certain kinds of provisions are sold. This Act does not prevent local authorities from fixing earlier hours of closing. The organization which is mainly responsible

for the movement is the Early Closing Association, founded in 1842. Its offices are at 34-40, Ludgate Hill, London, E.C.4. See Shop.

EARLY ENGLISH. Style of architecture originating in the reign of Henry II, and prevalent throughout the 13th century. It has been called the "lancet" style or period, from the resemblance of the slender pointed arch, its leading characteristic, to a surgeon's lancet. Norman work had retained the round arch of Romanesque pattern, and Early English inaugurated the new era of Gothic architecture by substituting the pointed for the round. Vaulted roofs in stone took the place of the old flat timber roofs. Windows were lengthened and crowned by the lancet arch; piers were formed of clustered columns, each having its own cap, but united under one capital from which sprang the trefoiled pointed arches of the vault; mouldings were deeply undercut, often with dog-tooth ornament; the entire design became more elegant and flexible. The choir of Lincoln Cathedral (12th-13th century) is one of the earliest and most beautiful extant examples of Early English architecture. See Architecture.

EARN. Loch of Perthshire, about 11 m. W. of Crieff. Lying 317 ft. above sea level, it is 6½ m. long. Scott's Legend of Montrose introduces Ardvorlich House, on its shore, as Darnlinvarach. The river Earn issues from Loch Earn and flows E. for 46 m. across Strathmore to the Tay, which it enters 2 m. N.E. of Ahermethy.

EARNEST. Name given to a sum of money paid on account in order to show the good faith of the buyer. Such payments are recognized in English law, and also in other codes, the fact that such has been made being taken as proof that a contract has been entered into.



Earl Marshal of England in his robes of office

EARRING. Object attached to the ear, usually by passing it or a subsidiary ring or hook through the lobe. Its purpose may be amuletic, ceremonial, or ornamental. Earrings appear early in the metal age in the form of plain bronze and gold bands or wires. In ancient Egypt the simple hoop

developed complex forms. The development of design is observable in Mycenae, Troy, Etruria, and S. Russia, through the winged sirens of Greece and the pearls and other jingling jewels of imperial Rome to the massive pendants of the Byzantine age.

Dormant during the Middle Ages, the use of earrings revived after the Renaissance. Mediterranean mariners introduced the single plain gold hoop to the seafaring world. In modern India rings may have a hundred pendant pearls, with supporting chains over the top of the ear, or the ear may have 12-13 borings, each with a separate ornament. Garo women sometimes wear 50 brass rings in each ear. Silver is preferred by Syrian women; other materials are the shell of the Hottentots and iron wire of the Dinka.

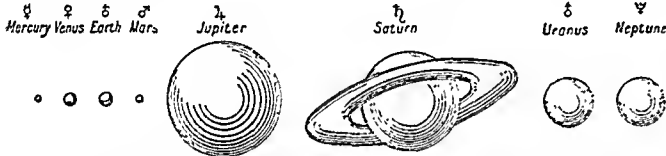
EARSDON. Urban dist. of Northumberland, 4 m. N.W. of North Shields. The inhabitants are employed in the local collieries. Pop. 11,310.

EARTH. Name given to the planet on which we live. It is also used for the soil and other constituents of the earth's crust. The earth is a planet with the moon as its satellite. Many solar systems form the universe. The earth's rotation causes the rhythmic succession of day and night, and the steady

pulsation of the tides. The direction of rotation from west to east causes the sun to rise in the east. The axis of rotation tilts through an angle of $23\frac{1}{2}^\circ$ from the vertical towards the line joining the centres of the earth and the sun. Consequently the polar regions are tilted now away and later towards the light. The angle of tilt determines the arctic and antarctic circles.

The tilt is responsible for the variations in the length of the day during the year, and also for the seasons.

Like the other planets, the earth rotates upon an axis inclined to the plane through which it revolves round the sun in an elliptical orbit, and receives light and heat from the sun. The earth has a bulging hilt round the equator and a flattening at the poles, so that it is an oblate spheroid. Its diameter is 7,900 m., less than a hundredth part of that of the sun, from which body it is distant 92 $\frac{1}{2}$ million miles. The earth rotates once in 23 hrs. 56 mins., and its revolution round the sun occupies a year.



Earth. Diagram showing the relative sizes of the earth and the other seven planets. The earth is one of the four smaller planets. Note the relatively immense sizes and distances of the four major planets

The earth is a cooling body, and very slowly becoming smaller. Because the earth's crust is attached to a shrinking interior the crust crinkles into folded mountains. The hydrosphere, or water covering of the earth, consequently tends to form four basins: the best marked of these is the Arctic Ocean. Of the total surface of 196 $\frac{1}{2}$ million sq. m., 141 $\frac{1}{2}$ million sq. m. are water. The earth is a magnet, the magnetic poles corresponding approximately to the geographical poles.

In common with the forms of life which provide his sustenance, man exists on the earth because of the atmosphere. The annual revolution causes the seasons and the well-marked differences between the tropical and polar belts, and the tetrahedral conformation produces variations in atmospheric circulation which govern climatic differences. See Planet.

The name earths or earth colours is given to pigments, such as the ochres, umbers, siennas, and terre verte, which were used universally before the introduction of oil colours.

In electricity an earth plate is a metal plate, frequently of copper, buried in the ground to form the earth end of a conductor.

EARTH PILLAR. Pillar of clay capped by stones. In an area consisting of clay or soft rock containing large stones the softer materials are readily washed away by the rains, but the stones protect the soft rock immediately beneath them. In this way pedestals capped by stones are formed.

EARTH HOUSE. Primitive underground structure of the early metallic age, especially in Scotland. Normally it is a round or

rectangular chamber of unhewn masonry, with a beehive roof, beneath an artificial mound. Frequently one or more chambers are approached by stone-lined, stone-paved corridors. Similar structures occur in Ireland and Cornwall. See Broch.

EARTHQUAKE. Sudden movement of the earth's crust. Lines of structural weakness in the outer crust of the earth sometimes give opportunity for earthquakes, which occur when a hidden segment of the crust breaks away from its original location. The shock produced by the sudden fracture sets up vibrations in the solid matter of the earth's crust, and these vibrations, waves, or tremblings travel long distances and produce movements in buildings, bridges, rly. lines, etc.

Earthquakes usually arise at no great depth below the land surface, and are to be expected wherever the slope of the land is very steep. The coast lands of the Pacific are usually tilted very sharply; deep water is close to the sea shore, and high mts. rise close to the coast; consequently Japan is a land of earthquakes, which also occur in New Zealand, near Wellington, while San Francisco was devastated by the convulsion of 1906. This was marked by a vertical displacement which in places amounted to 10 ft. and which extended for over 250 m. Usually the shock lasts for a little longer than a minute, but the tremblings which follow may continue for days or even weeks.

The earthquake at Messina in 1908 cost 77,000 lives. Another in north and central Italy in 1920 resulted in some hundreds of deaths and caused much damage. Perhaps the most disastrous in history was that in Japan in 1923. The number of killed and injured was nearly 200,000.

EARTH STAR (Geaster). Genus of fungi of the order Gastromycetes. They are distinguished from the puff-balls (Lycoperdon) by the two outermost layers splitting from the apex into several pointed segments which expand and give the plant its stellate form.

EARTHWORK. Ancient stronghold defended by earthen mounds. There are several thousands in England and Wales. Promontory forts, utilising natural defences, are either coastal or inland. They developed into cliff castles. Hill-forts are characteristic of neolithic Britain. Plateau forts are on flatter ground. When round or oval they are pre-Roman, but often were used successively by neolithic, Celtic, Roman, Saxon and Norman occupants. See Caesar's Camp; Dyke; Rath.

In engineering an earthwork is the excavation and disposal of materials which can be loosened without blasting.

EARTHWORM. Segmented worm living in the soil. Their rounded shape and the short bristles with which the segments are provided enable the worms to push their way through the soil. They eat their way, also, and derive their food largely from vegetable matter contained in the soil swallowed. When this has been extracted the soil is discharged at the mouth of the burrow. Although without eyes, earthworms dislike light, and usually only emerge from their burrows after dark. Even when they have emerged they usually keep their tail in the hole. They plug the mouth of the burrow with leaves or small stones, and vegetable matter is drawn in for future consumption. Earthworms are hermaphrodite. The eggs are deposited in a kind of horny cocoon, formed by a secretion. See Annelid; also illus. below.

EARWIG. Family (Forficulidae) of orthopterous insects, which vary considerably from other members of the order. The fore wings are modified into elytra, and the hind wings—which are rarely used—are folded like a fan. They are readily recognized by the pincer-like appendages on the abdomen. The female sits on her eggs and watches over her young for some time. It is generally supposed that these insects are garden pests, but this is very doubtful. Recent observers maintain that they are largely carnivorous.



Earwig; it is shown natural size

EASEMENT. Term used in English law for what is called servitude in Scots law and in other legal systems. There must be two pieces of land (tenements), and the owner of the one, called the dominant tenement, has a right over the other, servient tenement. Common easements are right of way, right of light, or the right to prevent obstruction to windows; drainage support for buildings: e.g. where one house leans on another.

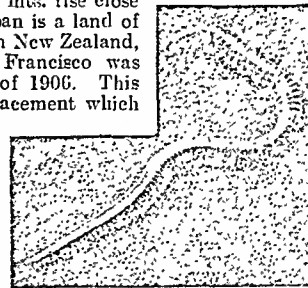
EAST. One of the cardinal points. When the observer faces north the east is on the right hand. At an equinox the sun rises due E. and sets due W. As a noun East is used for Asia and the eastern part of the world generally. That part which lies, roughly, east of Germany is known in Britain as the Near East, the Middle East, and the Far East, China and Japan.

EAST, SIR ALFRED (1849-1913). British painter and etcher. Born at Kettering, Dec. 15, 1849, he became a landscape painter of pronounced individuality, though with a strong sympathy with Corot. He was elected A.R.A. in 1899 and R.A. in 1913; was chosen president of the Royal Society of British Artists in 1906, and was knighted in 1910. He is well represented in English municipal art galleries. He died Sept. 28, 1913.

EAST AFRICA. General term for that part of the continent that includes the British colony and protectorate of Kenya, formerly the E. Africa protectorate, the British protectorate of Uganda, and the island of Zanzibar, as well as Portuguese E. Africa, usually called Mozambique. It also includes Tanganyika territory, formerly German E. Africa, which was overrun by British and Indian troops during the Great War and ceded by Germany at the peace of 1919. It is now ruled by Great Britain as mandatory of the League of Nations. In 1929 it was proposed to unite the E. African possessions. See Africa; Kenya; Tanganyika; Uganda, etc.



Earth Pillar. An example at Euseigne, Switzerland



Earthworm, a valuable agent in fertilisation. See article above

an income of £3,070,000, of which £1,512,000 came from estates. In London, the latter are in Paddington and elsewhere, and the revenue is derived from ground rents. The offices are in Millbank, Westminster, London, S.W.

ECCLESIASTICAL LAW. In England this branch of the law relates to the officers, who are the archbishops, bishops and clergy, and the laity, who are persons not in Holy Orders; the government and discipline; the faith, form of worship, rites and ceremonies; the fabric of the church, vicarage house and buildings, and various other forms of church property.

Ecclesiastical law is administered in the civil courts. It includes part of what is called the common law of England, based on custom; it also comprises a considerable body of statute law; while the canon law is binding upon the officers of the church and to some extent upon the laity. See Bishop; Canon; Church of England; Diocese, etc.

ECCLESIASTICUS. Name in the Vulgate of one of the most important of the O.T. Apocrypha. It was originally written in Hebrew, between about 190 and 170 B.C., by Jesus the son of Sirach, and was translated into Greek soon after 130 B.C. by a grandson of the same name. The Hebrew text was lost until 1896, when Mrs. Agnes Lewis discovered a fragment in Palestine. Subsequently other fragments came to light. The author gathers up ethical proverbs, precepts, and wise sayings concerning a great variety of matters in the conduct of life. See Apocrypha.

ECHELON (Fr. round of a ladder). Military term. Troops are said to be in echelon formation when the units are all facing in the same direction, are in parallel rows with intervals between their flanks, and the units to the rear are on the flank of those in front of them. Battleships are in echelon when advancing in V formation, the apex leading.

ECHIDNA OR PORCUPINE ANT-EATER. Genus of ant-eating monotremes of Australia and New Guinea. The back of the head and body is covered with short spines, like porcupine quills, and the head is provided with a slender beak. The female lays a single egg, which is incubated in a pouch on the underside of the body. Three species are distinguished, all having five claws on each foot. In a larger type found in New Guinea there are three claws to the foot. This species is placed in a separate genus, *Proechidna*.



Echidna. An egg-laying mammal of Australia

ECHO. In Greek mythology, a mountain nymph. At one time the companion of Hera, having displeased the goddess, she was punished by being rendered incapable of speaking except when spoken to. Subsequently Echo fell in love with the beautiful Narcissus, but, her love not being returned, she pined away and was changed into a stone which retained the echo or answering voice.

ECKINGTON. Town of Derbyshire. It stands on the Rother, 6½ m. S.E. of Sheffield on the L.N.E. Rly. Agricultural implements are manufactured, and there are coal mines in the neighbourhood. There is a late Norman church. Market day, Friday. Pop. 12,624.

ECLECTICISM (Gr. eklektikos, picking out). In philosophy, a method which, while not excluding independent thought, selects and works up into a whole what is acceptable in other philosophical systems. The most important Greek representative of this practice was Antiochus of Ascalon (1st century B.C.). Among modern eclectics Leibniz and Victor Cousin may be specially mentioned.

ECLIPSE (Gr. ekleipsis, failing). In astronomy, the passing of one celestial body between another and the observer. If the earth, the sun, and the moon moved in the same plane, there would be an eclipse each time the three were in a straight line. Since, however, the moon moves in an orbit inclined to the plane of the ecliptic (q.v.), there can only be an eclipse when the three bodies are in an approximately straight line at the moment the moon is crossing the plane of the ecliptic. The points where the moon crosses the ecliptic are called the nodes, and when new moon happens at one of these nodes there will be an eclipse of the sun. When full moon occurs at one of the nodes there will be an eclipse of the moon by the earth's shadow. Partial eclipses occur when the new moon is not quite at the node; annular or disk-like eclipses when the moon is too far from the earth to hide the sun entirely from the view of an observer on the earth.

ECLIPSE. English racehorse, regarded as the greatest that has ever lived. Foaled April 1, 1764, he ran in his first race May 3, 1769, and from then until Oct., 1770, ran in 18 races, never being beaten. After 1770 he was used for stud purposes. The horse's skeleton is in the Royal Veterinary College, Camden Town, London.

The Eclipse Stakes is a race for horses of three years and upwards run at Sandown Park over a distance of 1½ m. It was inaugurated in 1884 and formed the first of the £10,000 races. Danny Maher rode the winner of this event on five occasions.

ECLIPTIC. Track in the heavens along which the sun appears to perform its annual march; it is the motion of the earth about the sun which produces the appearance of the sun's itinerary. The plane of the ecliptic is the plane of the sun's apparent, and of the earth's real motion. The obliquity of the ecliptic is the angle the ecliptic makes with the celestial equator. The plane of the ecliptic is subject to variation, termed the secular variation of the obliquity of the ecliptic. See Earth; Sun.

ECLOGUE (Gr. eklogē, selection). Pastoral poem relating the lives and loves of shepherds. Properly almost identical with the idyll, the term is generally restricted to pastoral poems in dialogic form, such as the *Bucolics* of Virgil. Spenser set the fashion anew with his *Shepherd's Calendar*.

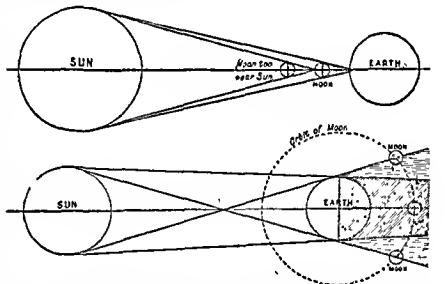
ECOLOGY. Science dealing with the relations of individual plants to their habitats. In this connexion are recognized vegetation units or plant communities, such as wood, moor, heath, implying particular kinds of soil as well as the plants associated with it, and plant associations, dealing with the characteristic vegetation of each unit. Ecology tries to explain why certain plants are successful in the struggle for existence, which plants are social in their habits, and so forth.

ECONOMICS (Gr. oikos, house; nomos, law). Originally the art of managing a household. To-day the word is used as a synonym for



Ecuador. Map of the South American republic which lies between Colombia and Peru. Its western shores are washed by the Pacific Ocean. See article below

political economy, i.e. the study of the production and distribution of wealth. Economics is sometimes regarded, however, as including certain matters outside the scope of the older science, such as physical welfare



Eclipse. Diagram showing the phases of an eclipse of the moon by the shadow of the earth. Above, eclipse of the sun by the moon. When the moon is too near the sun there is an annular eclipse

The London School of Economics and Political Science is a school of the university of London, and was founded in 1895. It has a very valuable library. The premises are in Houghton St., Aldwych, London, W.C.

ECUADOR. Republic of S. America, between Colombia on the N. and Peru on the S. It is so named because the equatorial line runs through it. The W. shores are washed by the Pacific Ocean. The republic is divided into 17 provs. and one territory, the Galapagos archipelago, in the Pacific, about 600 m. to the W. Quito is the capital, and Guayaquil the chief port, other towns including Cuenca and Riobamba. The Peruvian frontier is still a matter of dispute. Area, approximately 250,000 sq. m.; pop. about 2,000,000

The country may be divided broadly into the coastal area; mountainous district of the Andes; and the montana, a densely wooded region stretching into the interior, traversed by the upper waters of the tributaries of the Amazon. The Eastern and Western Cordillera run parallel to one another, and traverse the country from N. to S.

Cocoa is the staple product, a large proportion of the world's supply coming from Ecuador. Cotton is increasingly grown. Gold is produced, petroleum and sulphur are found, and the country is known to be rich in copper, iron, lead, and coal. The forests yield cinchona as well as many valuable dyewoods. The

weaving of Panama hats is an important industry. There are about 500 m. of rly. Communication in the low-lying districts is chiefly by river, the main artery being the Guayas. A weekly air service is in operation between the ports of Ecuador and Colombia. Quito is connected by telegraph with Guayaquil and with Colombia and Peru and by cable with other parts of the world. There are wireless stations in the chief towns. The population is of mixed origin, descended partly from Spanish settlers, partly from indigenous Indians, and partly from negro slaves. The official language and the speech in general use is Spanish. Ecuador became a separate republic in 1830. Before then it was part of the Inca empire and a possession of Spain.

The president is chosen by direct popular election for four years. The 32 senators and 48 deputies are elected on a limited franchise which is withheld from illiterates. In 1927 the country's finances were put in order. A new tariff was introduced, a central bank established, and the currency established at 5 sucres to the dollar, the gold standard being restored. See map, p. 542.

ECZEMA (Gr. ek, out; zein, to boil). Inflammatory disease of the skin. Certain persons exhibit a marked predisposition to eczema, the exact cause of which is unknown. The immediate exciting cause may be debilitating illness, gout, Bright's disease, diabetes, constipation, dyspepsia, overwork, anxiety, and exposure to damp and cold winds.

The essential characteristics are redness of the skin, formation of small blisters or vesicles, watery discharge, formation of crusts and scales, and usually extreme itching. Various types are recognized. In all cases attention should be paid to the general health. Local treatment with ointments, powders, lotions, etc., varies with the type of the condition and the stage it has reached. Pron. ek-ze-m-a.

EDAM. Town of the Netherlands, on the Zuider Zee, 12 m. N.E. of Amsterdam. The church of S. Nicholas dates from the 14th century and was restored 1602-26. Edam is noted for the round red-rinded cheese which bears its name. Pop. 7,962.

EDDA. Two collections of Icelandic literature, known respectively as the Elder, or poetical, of Saemund, and the Younger, or prose, of Snorri. The former were discovered by Brynjulf Sveinsson, an Icelandic bishop, in 1643. He attributed them to Saemund Sigfusson (1055-1132), but an earlier date is generally assigned by critics. The Prose Edda was compiled by Snorri Sturlason (1178-1241), and is generally ascribed to the 12th century.

EDDINGTON, SIR ARTHUR STANLEY (b. 1882). British astronomer. Born at Kendal, Dec. 28, 1882, he was senior wrangler 1904, and became fellow of Trinity College, Cambridge, in 1907. Eddington was chief assistant at the Royal Observatory, Greenwich, 1906-13, when he was appointed Plumian professor of astronomy at Cambridge, next year becoming director of the university observatory. He wrote *Stellar Movements and the Structure of the Universe*, 1914; *Space, Time and Gravitation*, 1920; *Internal Constitution of the Stars*, 1926; *Stars and Atoms*, 1927; *Science and the Unseen World*, 1929. He was knighted, 1930.



Sir A. S. Eddington,
British astronomer
Russell

EDDOES. Tuherous stems of several species of colocasia, caladium, etc., of the order Araceae. Though acrid in a raw state, they are used as food when cooked. See Cocco.

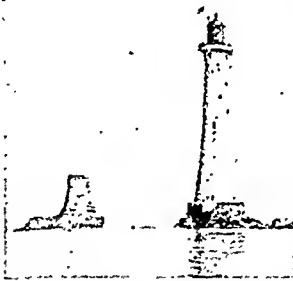
EDDY, MARY BAKER (1821-1910). Founder of the religion named Christian Science and the Church of Christ Scientist. She was born at Bow, New Hampshire.



Mary Baker Eddy,
Christian Scientist

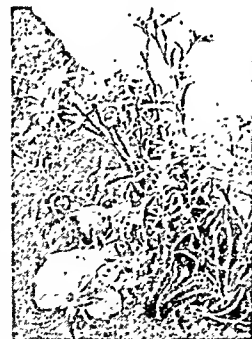
July 16, 1821. She published Science and Health with Key to the Scriptures, the only textbook of Christian Science. Her other writings include Miscellaneous Writings; Unity of Good; No and Yes; Rudimental Divine Science; Church Manual; Pulpit and Press; Messages to The Mother Church; The First Church of Christ; Scientist and Miscellany; Christ and Christmas; Christian Science versus Pantheism; and Poems. Mrs. Eddy died Dec. 3, 1910. See Christian Science

EDDYSTONE. Lighthouse on the Eddystone Rocks, a dangerous reef 14 m. S.W. of Plymouth. The first, a wooden structure by Winstanley, was destroyed by a hurricane in 1703, three years after its completion. The second was burned down in 1755. The third was dismantled, as the rock formation had become insecure. The present tower, by Sir James Douglass, completed in 1882, is 40 yards from the previous one. Built of granite, it is 168 ft. above low water, and is built in circular sections. The lantern shows a group flashing light of two flashes every thirty seconds and has a range of nearly 18 m. The upper sections of the old lighthouse were rebuilt on the Hoe at Plymouth.



Eddystone Lighthouse, built 1882.
Left, stump of the old lighthouse

EDEA. Town of Cameroons, W. Africa, capital of the district of the same name. On the Sanaga river, it is a station on the line running inland from Duala, being about 50 m. from that port. During the campaign in Cameroons a British and French force took the town, Oct. 26.



Edelweiss. Specimen of the
plant on a mountain side

1914, the Germans making futile efforts to retake it a little later.

EDELWEISS (Leontopodium alpinum). Perennial herb of the order Compositae. A native of the mountains of S. Europe and Himalaya, it is thickly coated with long woolly hairs, which give it a white appearance, accentuated in the bracts which surround the cluster of terminal yellowish flower-lance-shaped. It

EDEN. English river. Rising on the borders of Westmorland and Yorkshire, it flows past Carlisle to the Solway Firth, which it enters at Rockliff. Its length is 65 m.

The river of Fifeshire of the same name rises on the Kinross-shire border and flows past Cupar to the North Sea; total length, 30 m.

EDEN, GARDEN OF. In the earliest Biblical account (the Jahwistic) of Creation (Gen. 2, 8-25) Yahweh Elohim plants a garden eastward (from the Palestinian standpoint) in Eden (Gen. 2, 8) for man to dwell in. In the Septuagint the word for garden, Heb. gan, is represented by paradeisos, a loan-word (Hebraised pardēs) from the Zend pairi-daēza, "enclosure"; hence arises the term Paradise as a description of Eden and of the Christian Heaven. Sayce identifies the garden with the sacred garden of the Babylonian deity Ea at Eridu, the river which watered it (Gen. 2, 10) being the Persian Gulf and the four branches (vv. 11-14) being the Pallakopas, Choaspes, Tigris, and Euphrates.

EDENBRIDGE. Market town of Kent. It is on the Eden, 2½ m. S.S.E. of London, on the Southern Railway, and is an agricultural centre. Market day, Mon. Pop. 2,890.

EDENHALL. Village of Cumberland. It is on the Eden, 3 m. from Penrith. At Eden Hall, the seat of the Musgraves, there was an ancient enamelled drinking goblet known as the Luck of Eden Hall, which, according to tradition, was taken from the king of a fairy band feasting near S. Cuthbert's Well in the grounds, who, when departing exclaimed:

If e'er this cup shall break or fall,
Farewell the luck of Eden Hall.

After the sale of the estate in 1920 the cup was sold. The hall is now a girls' school.

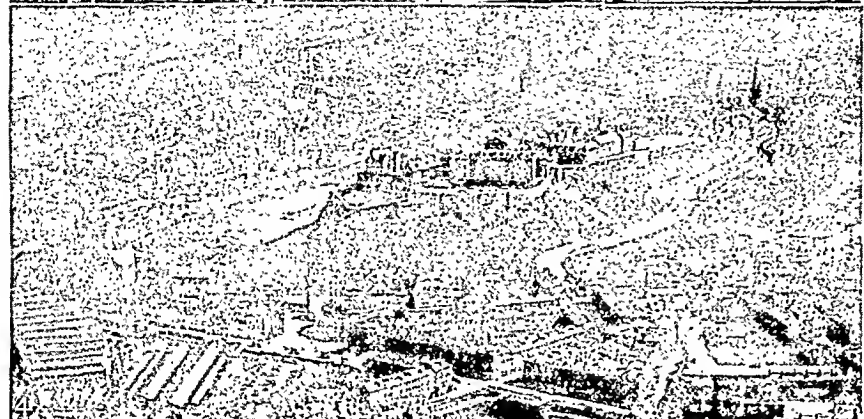
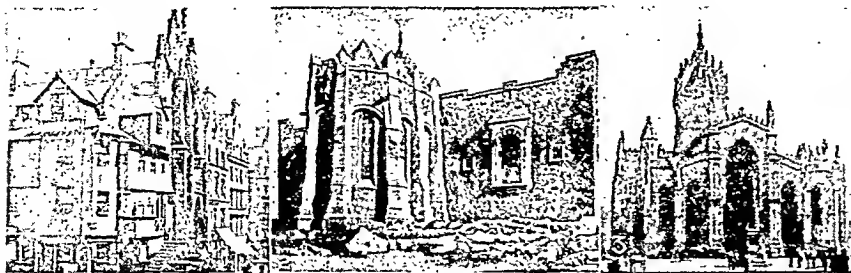
EDENTATA (Lat. edentatus, toothless). Order of mammals without front teeth, and in some cases without cheek teeth also. They comprise the sloths, anteaters, and armadillos. The pangolins and the aardvark are sometimes also included in the order. Where cheek teeth are present they are of very simple structure, have no enamel, are without roots, and continue to grow throughout life. All the genera are insectivorous except the sloths, which are vegetable feeders.

EDESSA. Ancient city of Mesopotamia. It was founded by Seleucus I., and after the downfall of the Seleucid empire was the capital of an independent kingdom. This lasted from 137 B.C. to A.D. 216. It then became a Roman military colony, under the name of Colonia Marcia Edessanorum. After the division of the Roman Empire into East and West, Edessa became a centre of Christianity. It is the modern Urfa (q.v.).

EDGAR OR EADGAR (944-75). King of the English. The younger son of King Edmund, he became king as the result of a rising against his brother Edwy. His coronation, which did not take place until May, 973, is important in the history of that ceremony. It was after this that the king sailed to Chester, and on the Dec. was rowed by six or eight vassal kings. At this time he assumed a certain vague overlordship, his authority extending to Ireland, and called himself imperator. He fought against the Welsh, but his reign rightly earned for him the title of the peaceful. Edgar died July 8, 975, and was buried at Glastonbury. Two of his sons, Edward, called the Martyr, and Ethelred the Unready, succeeded in turn to the throne.

Another Edgar was an English prince called Edgar Atheling. A grandson of Edmund Ironside, he was proclaimed king in the north after the death of Harold in Oct., 1066. However, he was never really recognized, so he made his peace with William the Conqueror and lived quietly until his death about 1130.

EDGE, SELWYN FRANCIS (b. 1868). British motorist. Born in Sydney, N.S.W., he was brought to England in infancy. Having taken up cycling, he became the best 100-mile cyclist of his time. One of the pioneers of the motor industry in Britain, he founded the Motor Power Company in 1899, and later joined



Edinburgh. 1. John Knox's House, Canongate. 2. National War Memorial in the Castle. 3. W. front of S. Giles's Cathedral. 4. Edinburgh from the air: to the right of the Castle is the spire of the Tolbooth Church
2. F. Caird Engrs: 4. Aircraft Manufacturing Co., Ltd.

other leading firms, including that of Napier, by which name the cars of S. F. Edge, Ltd., were known. He won the Gordon-Bennett International Paris-Vienna race in 1902.

EDGEHILL, BATTLE OF. First battle of the Civil War, fought between Charles I and the parliamentarians, Oct. 23, 1642. The hill is a ridge in Warwickshire, on the borders of Oxfordshire. The king was marching from Shrewsbury to London, and the parliamentarians, under Essex, moved across to intercept him. On both wings the royalist horse, under Prince Rupert and Wilmot respectively, was successful against the opposing cavalry, but in the centre the parliamentarians stood firm. See Civil War.



Edgehill. The ridge on which the battle was fought, Oct. 23, 1642

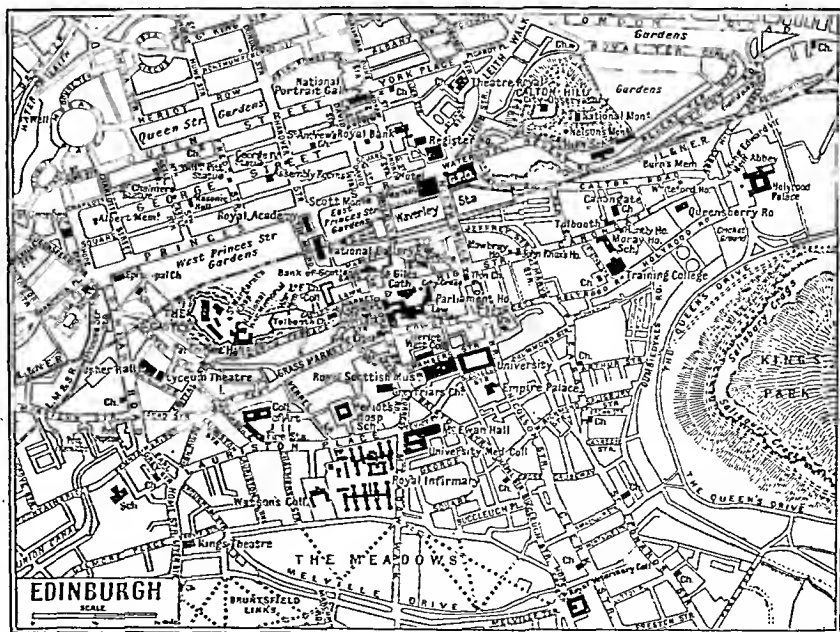
intercept him. On both wings the royalist horse, under Prince Rupert and Wilmot respectively, was successful against the opposing cavalry, but in the centre the parliamentarians stood firm. See Civil War.

EDGEWORTH, MARIA (1767-1849). British novelist. Born at Black Bourton, Oxfordshire, Jan. 1, 1767, she was one of the many children of Richard Lovell Edgeworth, and spent most of her life on her father's estate at Edgeworthstown. Visits to London and the Continent between 1803 and 1844 brought her into touch with the best literary and fashionable society of her time, and in 1823 she visited Scott at Abbotsford. Her fame rests on novels dealing with Irish life—*Castle Rackrent*, 1800; *The Absentee*, 1812 (in *Tales of Fashionable Life*, vols. v and vi); and *Ormond*, 1817. She died May 22, 1849.



Maria Edgeworth, British novelist

EDGWARE. District of Middlesex. It is S. m. from London, on the road to St. Albans. The parish church of S. Margaret, rebuilt 1765 and 1845, is said to have been part of a monastery. The Chandos Arms Inn has a fireplace from the mansion of Canons (q.v.). At Edgware was the forge of William Powell, whose work on the anvil is said to have suggested Handel's *Harmonious Blacksmith*. Piper's Green preserves the tradition that a former lord of the manor provided a minstrel for the amusement of his tenants. Edgware has stations on the L.N.E.R. and is also served by the extension of the Hampstead tube rly. There is an aerodrome here.



Edinburgh. Plan of the central part of the city. The valley spanned by the North Bridge separates the Old Town on the South from the New Town on the North

EDICT (Lat. edictum). Promulgation, on his entry upon office, by a Roman magistrate, especially a praetor, of the principles upon which he intended to administer the law during his term. The word was used, especially in France, for certain laws, e.g. the edict of Nantes.

EDINBURGH. Capital of Scotland and of the county of Midlothian. It stands on the S. side of the Firth of Forth, 396 m. from London, on the L.M.S. and L.N.E. Rlys. The most notable of its hills is Arthur's Seat (see illus. p. 135). In 1920 Edinburgh amalgamated with Leith and absorbed the suburban districts of Liberton, Colinton, Corstorphine and Cramond. An important banking and insurance centre, Edinburgh includes among its industries printing and publishing, whisky distilling, and brewing. The city is governed by a council presided over by the lord provost. Pop. 426,300.

The oldest part of Edinburgh is affectionately known as Auld Reekie. The castle contains S. Margaret's chapel and the Scottish war memorial, opened in 1927. Between the castle and Holyrood are the Lawnmarket, High Street, and Canongate. The Parliament House now contains the Law Courts. In 1925 the Advocates' Library became the National Library of Scotland.

Of the many churches the chief is that of S. Giles, a famous recent addition being the Chapel of the Order of the Thistle. Others are S. Mary's Cathedral, S. John's, S. George's, S. Cuthbert's, S. Andrew's, and the Tron Church. Greyfriars churchyard is an historic spot, as are the Grassmarket, the Cowgate, and the Tolbooth in the Canongate. Other notable features are the City or Mercat Cross, restored by Gladstone; John Knox's house, the White Horse Close in the Canongate, Riddle's Close, and the 17th century house restored by Lord Rosebery in the Lawnmarket. The Royal Observatory is on Blackford Hill. The finest thoroughfare of the modern city is Princes Street, overlooked from the E. by the Calton Hill. It is proposed to replace the disused Calton jail by a new Sheriff's Court and other public buildings.

Edinburgh is famed for its educational institutions, which include the university, the

Heriot-Watt College, George Watson's College, Fettes College, the Royal High School and Edinburgh Academy. The University, founded in 1583, is specially equipped for training in medicine and surgery. In 1924 new science laboratories at Liberton were opened.

The Edinburgh Review was projected by Sydney Smith, who edited the initial number, published at Edinburgh in Oct., 1802. It was an organ of the Whigs, and Macaulay was one of its contributors. The review ceased to exist in Sept., 1929.

EDINBURGH, ALFRED ERNEST ALBERT, DUKE OF (1844-1900) The second son of Queen Victoria, he was born at Windsor Castle, Aug. 6, 1844. He was educated for the navy, and in 1893 was made admiral of the fleet. He was created duke of Edinburgh in 1865, and in 1893 became reigning duke of Saxe-Coburg and Gotha. In 1874 he married Mario Alexandrovna, only daughter of Alexander II of Russia, who died Oct. 25, 1920. He died July 30, 1900, as duke of Saxe-Coburg and Albany (q.v.).



Alfred Ernest,
Duke of Edinburgh
Russell

and was succeeded by his nephew, Leopold Charles, duke of Albany (q.v.).

Edinburghshire. Name of the county more correctly known as Midlothian (q.v.).

EDISON, THOMAS ALVA (b. 1847). American physicist and inventor. He was born at Milan, Erie co., Ohio, Feb. 11, 1847 of mixed Dutch and Scottish descent. He learnt the elements of telegraph operating, and shortly after began to invent a remarkable series of improvements on the then crude methods of electrical transmission which revolutionised telegraphy throughout the world. The automatic repeater, the quad duplex and printing telegraph, and the sextuplex method of transmission followed in rapid succession.

He brought to perfection the phonograph, the forerunner of the modern gramophone, the kinoscope, out of which developed the cinematograph, and many other inventions which were practically fundamental. More than 1,000 patents have been granted to him for his inventions. See Cinematograph.

EDMONTON. Urban district of Middlesex, practically a suburb of London. It is 9 m. from the city and is served by the L.N.E. Rly., which has two stations here. The district has associations with



Thomas Alva Edison, American physicist and inventor, in his laboratory

served by the Canadian Pacific and Canadian National Rlys. In an important ranching and coal mining district the city has meat-packing plants, sawmills, iron foundries, etc. It is the seat of the provincial university. The Hudson's Bay Co. established a post here early in the 19th century. Pop. 65,163.

EDMUND OR EADMUND (841-70). Saint and king of East Anglia. Late legends describe him as the son of Alkmund, king of the Saxons, and state that he was born at Nuremberg and adopted by Offa, whom he succeeded as king of East Anglia in 855. Captured by the Danes on their invasion in 870 and refusing to give up Christianity, he was beheaded at Hoxne, Suffolk. His body was removed in the 9th century to Bury (now known as Bury St. Edmunds), where the famous shrine was erected. His festival is kept on Nov. 20.

A later Edmund, a son of Edward the Elder, was king of the English from 940 until he was murdered, May 26, 946.

EDMUND (c. 1175-1240). Saint and archbishop of Canterbury, known as Edmund Rich. Born at Abingdon, he was elected archbishop of Canterbury in 1233. He vainly protested against the foreign favourites of Henry III, the lack of discipline amongst the monks at Canterbury, and the provision of English benefices for Italian clergy. Finally in 1240 Edmund withdrew to France, where he died at Soissy. He was canonised in 1247, and his festival is kept in the Roman Church on Nov. 16. A college is dedicated to him at Ware, Hertfordshire.

EDMUND IRONSIDE (c. 981-1016). King of the English. A younger son of King Ethelred the Unready, he was ruling Mercia, evidently as an under-king, when Canute invaded the land, and raised an army for its defence. When Ethelred died Edmund was chosen king in London and Canute at Southampton, and the war between them was continued more fiercely than before. In Somerset the English king was victorious, and he was soon master of Wessex. This did not last

long, and after a defeat at Assandun, Edmund and Canute agreed to divide the kingdom between them. Just after this event he died in London, Nov. 30, 1016. He left two sons, Edmund and Edward.

EDOM. District to the S. of Palestine. It stretched from the Dead Sea to the Gulf of Akabah, covering about 100 m. by 20 m. The name Edom (red) is probably derived from the red sandstone of the district. During the Exodus the Edomites refused the Israelites passage, and hence arose a feud. The Edomites were polytheistic, and marriages between their women and the Hebrews were a frequent source of trouble. The Herod family was of Edomite origin.

EDUCATION, BOARD OF. Body established in 1899 to supervise public education in England and Wales. Its head, the president, is a party politician, usually a member of the Cabinet, and receives a salary of £2,000 a year. He is assisted by a parliamentary secretary and a permanent secretary, under whom are a large staff of inspectors and other officials, and also by a consultative committee. The chief departments of the Board are concerned with elementary education, secondary education, technical education, and training colleges.

In Scotland education is looked after by an education department under the general control of the secretary for Scotland. Since 1922 the Irish Free State has had an education department under a minister. In Northern Ireland there is also a minister of education.

EDUCATION ACTS. Series of Acts dealing with education in England and Wales from 1870 onwards. The principal of these were the Elementary Education Act of 1870, which instituted a state system of compulsory education; the Act of 1891, which reduced or abolished school-fees; the Act of 1902, by which an education rate was levied in respect of all schools, both state and voluntary; and the Act of 1918, which dealt comprehensively with the whole question of education, raising the school age to 14, and providing free and compulsory part-time instruction up to the age of 18 at continuation schools. See Child

EDWARD, LAKE, formerly known as Albert Edward Nyanza. Lake of East Central Africa, 150 m. W. of Lake Victoria (Victoria Nyanza). At an alt. of 3,000 ft., it is connected on the N.E. with Lake George. The latter was discovered by H. M. Stanley in 1875, who believed it to form part of the Albert Nyanza (Lake Albert); but, while tracing the source of the Semliki river in 1889, he discovered the lake he named Albert Edward Nyanza, and also the channel connecting it with Lake George. The length of Lake Edward is 44 m.

EDWARD, CALLED THE ELDER (d. 924). King of the English. The son of Alfred the Great, the witan chose him as Alfred's successor in Nov., 901. His succession was disputed by his cousin Ethelwald, who rebelled and was slain in battle in 905. By 918 Edward brought the Danes into subjection; in 919 he absorbed Mercia; and in 921 he subdued the Welsh. He ruled as far north as the Humber, and his overlordship was acknowledged by all the other kings. He died at Farndon, Northamptonshire, was buried at Winchester, and was succeeded by his son Athelstan.

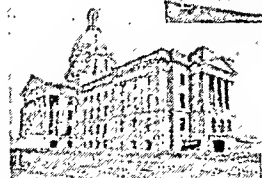
EDWARD, CALLED THE MARTYR (c. 963-978). King of the English. The son of Edgar, his right to the succession was disputed on Edgar's death in 975 by his stepmother Elfrida, who put forward her son Ethelred (the Unready). Edward was supported by Archbishop Dunstan, and was crowned. On March 18, 978, he was assassinated by Elfrida's orders, and was hastily buried at Wareham. In 980 his body was transferred to Shaftesbury, and his tomb became a place of pilgrimage. He was long revered as saint and martyr, his festival being kept on March 18.

EDWARD, CALLED THE CONFESSOR (c. 1005-66). King of the English. The son of Ethelred the Unready, he was born at Islip, Oxfordshire, but was taken to Normandy when Sweyn became king in 1013. When his half-brother, Hardekanute, died in 1042, Edward was chosen king, and placed on the throne largely by the help of Earl Godwin, whose daughter Edith he married in 1045. Edward's chief interest was religion, and he devoted a large part of his revenues to the erection of Westminster Abbey. He died Jan. 5, 1066. He was canonised in 1161, and his festival is kept on Oct. 13.



Edward the Confessor.
Obverse of his Great Seal
British Museum

EDWARD I (1239-1307). King of England. The eldest son of Henry III, he was born at Westminster, June 17, 1239, and succeeded to the throne in 1272. During his reign, Edward conquered Wales, and endeavoured to form a united kingdom embracing the whole island by asserting his sovereignty over Scotland, which regularly rebelled whenever the king was engaged elsewhere. He died July 7, 1307.



Edmonton. 1. Parliament buildings of the province of Alberta.
2. University of Alberta

Keats and Cowper, who made John Gilpin ride to the Bell Inn here, and with Charles and Mary Lamb, who are buried in the parish churchyard. It sends one

member to Parliament. Pop. 66,800.

EDMONTON. Capital of Alberta, Canada. It stands on the North Saskatchewan river. 793 m. W. of Winnipeg, and is

Edward I ranks as one of the greatest kings of England. He systematised the English laws, and gave the English parliamentary system its definite form by summoning to the Model parliament of 1295 not only the higher clergy and baronage, but knights and burghers.

EDWARD II (1284-1327). King of England. Son of Edward I, he was born at Carnarvon, April 25, 1284. In 1301 he was created prince of Wales at Lincoln, and in 1307 became king. He abandoned the war against Scotland, and married Isabella of France. The barons took up arms, with Edward's cousin, earl Thomas of Lancaster, at their head, and they forced the king to banish his favourite, Piers Gaveston. In 1314 the Scotch war was renewed and Edward suffered defeat at Bannockburn, but a combination of circumstances brought about the defeat and death of earl Thomas in 1322. Edward and his new favourites, the Despencers, were then supreme until 1326, when he was formally deposed, and on Sept. 21, 1327, he was murdered at Berkeley Castle. (See illus. p. 238.)



Edward II. Effigy in Gloucester Cathedral
From Stothard,
"Monumental Effigies"

EDWARD III (1312-77). King of England. Born Nov. 13, 1312, he was raised to the throne by the deposition in 1327 of his father, Edward II. The government was in the hands of his mother Isabella and Roger Mortimer till the young king overthrew them in 1330. Edward's ambitions soon turned to France, and in 1338 began the Hundred Years' War. In the course of it he secured the English supremacy of the narrow seas by the naval victory of Sluys, June 24, 1340, established the prestige of the English soldiery and the military supremacy of the English archers by the victory of Crécy, Aug. 26, 1346; and in 1347 captured Calais. Edward was confirmed in the independent sovereignty of Aquitaine by the treaty of Brétigny in 1360. He died June 21, 1377. His sons were Edward, the Black Prince, and the dukes of Clarence, Lancaster, and York. His successor was his grandson Richard II.

EDWARD IV (1442-83). King of England. The eldest son of Richard duke of York, he was born at Rouen, April 28, 1442. In Dec., 1460, he became the leader of the Yorkists. He crushed the Lancastrians at Mortimer's Cross, and in London was hailed as king. After a victory at Towton Edward was able to hold his own, but when Warwick and Clarence, the king's brother, joined his foes, his position was precarious. He prepared to meet them in the field, but the desertion of 6,000 men was fatal to his cause, and he left for the Netherlands. Returning with an army, he won battles at Barnet and Tewkesbury. These victories made secure his throne. He died April 9, 1483. See illus. p. 197.

EDWARD V (1470-83). King of England. He was born in the Sanctuary, Westminster, Nov. 3, 1470, a son of Edward IV and Elizabeth Woodville. When he succeeded to the throne, April 9, 1483, his uncle, the duke of Gloucester, was his guardian. Gloucester, however, imprisoned the boy king and his brother in the Tower, and had himself crowned as Richard III, July 6, 1483. According to Sir Thomas More, Edward and his brother were murdered very shortly after.

EDWARD VI (1537-53). King of England. He was born at Hampton Court, Oct. 12, 1537, the son of Henry VIII and his third wife, Jane Seymour, and succeeded to the throne

Jan. 28, 1547. His uncle, the duke of Somerset, was protector and the real ruler for the first half of the reign, and on Somerset's fall and execution his rival, the earl of Warwick, later duke of Northumberland, held the chief power. Edward died at Greenwich, July 6, 1553.

EDWARD VII (1841-1910). King of Great Britain and Ireland, and emperor of India. The second child and eldest son of Queen Victoria and Prince Albert of Saxe-Coburg, he was born at Buckingham Palace, Nov. 9, 1841.

Almost at once he was created prince of Wales. He studied science at Edinburgh, and went up successively to Christ Church, Oxford, and Trinity, Cambridge, but took no degrees. The wisest part of his education consisted of travel. In 1863 he married Princess Alexandra, daughter of Prince Christian of Glücksburg, who shortly afterwards became king of Denmark. With Queen Victoria a widow and in partial retirement, the prince and princess of Wales were the leaders of English society, a state of affairs which continued for 38 years. The prince was fascinated by foreign politics, and, although no student, had an inexhaustible interest in the men and matters of the day. He mixed with men of all shades of opinion, both at home and abroad, and his shrewd judgement was rarely at fault in estimating their characters and influence. In 1871 a serious illness interrupted the prince's many activities and proved, when he recovered, how popular he was. He travelled much, a visit paid in 1875 to India being notable. In 1884 he was a member of the commission that inquired into the housing of the working classes. Less acceptable to some was his connexion with the turf—three times his horses won the Derby—and his appearance as a witness in a lawsuit over an alleged case of cheating at cards. On Jan. 22, 1901, the prince became king and took the name of Edward VII. His coronation, fixed for June, 1902, was postponed owing to an attack of appendicitis, and he was crowned on Aug. 9. Socially his reign was a period of gaiety. Court functions became more numerous and splendid, and on such occasions the king, with his natural dignity and his regard for etiquette, was at his best. Annually he visited his favourite resorts abroad, where he kept in touch with the leaders of other nations. King Edward succumbed to an attack of bronchitis, May 6, 1910. He had five children who survived infancy: the duke of Clarence, who predeceased him, King George V, the princess royal, princess Victoria, and the queen of Norway. The equestrian statue



Edward VII in the uniform of a British Field-marshal
Lafayette

erected in Waterloo Place, London, in 1921, forms one part of the King Edward VII Memorial, another part being Shadwell Park.

EDWARD (b. 1894). Prince of Wales. The eldest son of King George V and Queen Mary, he was born at White Lodge, Richmond, June 23, 1894, and christened Edward Albert Christian George Andrew Patrick David. In 1907 he entered the Royal Naval College, Osborne, and in two years went on to Dartmouth. He was created prince of Wales, June 23, 1910, and his investiture at Carnarvon was notable because he was the first of nineteen princes of Wales to be invested in Wales itself. He was invested Knight of the Order of the Garter, June 10, 1911, and in 1912, after a visit to Paris, he entered Magdalen College, Oxford.



Edward, Prince of Wales, heir to the British throne
Foulsham & Danfield

Towards the end of 1914 the prince went to join the army in France. He served also in Egypt in 1916, and visited the Italian front. After the armistice he undertook many public duties, and by his geniality and courtesy to all classes and his interest in their sports and other activities made himself extraordinarily popular. He visited Canada and the U.S.A. in 1919, Australia and New Zealand in 1920, and India, 1921-22. He toured Africa in 1925, and again visited Canada, where he had a ranch, in 1927. In 1928 he went on a hunting tour in Africa, but returned hurriedly owing to the king's illness. In Jan.-April, 1930, he was in Africa on a hunting tour.

EDWARD (1330-76), known as the Black Prince. Eldest son of Edward III of England, he was born at Woodstock, June 15, 1330; in 1333 was made earl of Chester, four years later duke of Cornwall, and in 1343 prince of Wales. In 1345 he accompanied his father on the French campaign and distinguished himself at the battle of Crécy.

Later the prince won glory at Poitiers. In 1362 his father gave him Gascony and Aquitaine, and his time was mainly passed there and in Spain, which he invaded. He died at Westminster, July 8, 1376, leaving a son who became Richard II.

EDWARDES, GEORGE (1852-1915). British theatrical manager. He was born Oct. 8, 1852, of Irish parents, and started his career as business manager at the Gaiety Theatre, Dublin. In 1875 he became business manager for D'Oyly Carte at the Opéra Comique, London, and went with him to the Savoy. In 1886 he became manager of The Gaiety, London, which he directed for nearly thirty years, producing a long series of successful musical plays. He died Oct. 4, 1915.

EDWARD MEDAL. Medal instituted in 1907 by Edward VII to reward heroic acts in civil life, especially in mines and quarries. It consists of two classes, the Edward medal, and the Edward medal in silver. Bars are awarded for further conspicuous acts of bravery. The medal bears a portrait of King Edward. The ribbon is dark blue with yellow edge.



Alfred G. Edwards,
Archbishop of Wales
Russell



Edward VI: a portrait at Windsor
Holtbein

who predeceased him, King George V, the princess royal, princess Victoria, and the queen of Norway. The equestrian statue

EDWARDS, ALFRED GEORGE (b. 1848). British prelate, the first Anglican archbishop of Wales. Born Nov. 2, 1848, he was ordained

and became in 1875 headmaster of Llandoverly College. In 1885 he was made vicar and rural dean of Carnarthen, and in 1889 was consecrated bishop of S. Asaph. In April, 1920, Dr. Edwards was elected the first archbishop of the new province of Wales.

EDWARDS, JOHN PASSMORE (1823-1911). British journalist and philanthropist. Born at Blackwater, Cornwall, on March 24, 1823, he was proprietor and director of the London evening journal *The Echo*, 1876-96, and sat as Liberal M.P. for Salisbury, 1880-85. Active in political and social reform, he is chiefly remembered for his benefactions to hospitals, libraries, art galleries, etc. He died April 22, 1911.

EDWARDS, JONATHAN (1703-58). American divine and metaphysician. He was born Oct. 5, 1703, at East Windsor, Connecticut, and in 1727 became minister at Northampton, Massachusetts. From 1750-58 he resided at Stockbridge as a missionary to the River Indians, and a few weeks before his death, March 22, 1758, he was appointed president of Princeton College.

EDWIN or **EADWINE** (c. 585-633). King of Northumbria. The son of Ella, king of Deira, he was driven from Deira after his father's death by the king of Bernicia. When the latter was slain in 617 Edwin annexed Bernicia and became king of Northumbria. He was slain in battle Oct. 12, 633. Edinburgh, which he fortified, is named after him.

EEL (Anguillae). Group of fishes with elongated snake-like bodies and no visible scales. They are found in both sea and fresh waters in most parts of the tropical and temperate regions of the world. The common European eel (*A. vulgaris*) is a familiar example of the class. In autumn the mature eels migrate down the rivers to the sea, and those in ponds will often go overland for considerable distances at night to reach the rivers. Eels spawn in the sea during winter, the eggs hatching out as little fish known as *Leptocephali* or glass fishes—flat, ribbon-like creatures, curiously deep in body, scaleless, and transparent. These gradually shrink both in length and depth, and become round in body. In this state they make their way up the rivers in such countless millions that the water is often black with them. See *Conger Eel*.

ELECTRIC EEL (*Gymnotus electricus*). This is a large fish found in the rivers of Brazil and Guiana. Though resembling an eel in general appearance, it is widely removed from it in internal structure. It attains a length of 6 ft., and is notable for the powerful electric shock that it can give. The electricity is generated by four organs lying in pairs under the skin.

EEL GRASS (*Valisneria spiralis*). Perennial aquatic herb of the order Hydrocharitaceae. The short stem is immersed in the mud of rivers and lakes, and from it arises a

tuft of long, thin grass-like leaves. The female flower has a long spiral stalk which enables it to lie upon the surface of the water. The male flowers break away from their attachment and float to the surface, where they pollinate the females. This accomplished, the female, by the contraction of its stalk, is withdrawn to the bottom, where it develops into a berry.

EEL PIE ISLAND. Islet in the Thames. It is opposite York House, Twickenham, also called Twickenham Eyot. The inn on the islet occupies the place of Eel Pie House, which was pulled down in 1830.

EEL POUT or **BURBOT** (*Lota vulgaris*). Fresh-water fish. Common in European and American rivers, it is found in Great Britain chiefly in the Cam and the Ouse. It is about a yard long, and somewhat eel-like in shape.

EFFENDI. Turkish title of respect. It is applied in the East to government officials, men of learning, and others. It is a corruption of the Greek *authentēs* (mod. pron. *attendēs*), a lord.

EFFIGY (Lat. *effigies*, image, likeness). Likeness or impression of a person, especially the head or impression on a coin or medal. Monumental effigies are found on tombs in Christian churches in England and France, especially on tombs of the 13th-17th centuries. From these effigies monumental brasses later developed. See *Brass*.

EFFLORESCENCE. Term applied in chemistry to the changes which some crystals undergo when exposed to air. The surface of the crystals becomes covered with a fine powder, fancifully known as flowers. The change is due to the giving up of water owing to the higher vapour pressure of the crystal compared with that of the surrounding atmosphere. The term efflorescence is also used in botany for the process of flowering.

EGAN, PIERCE (1772-1849). British sporting author. He spent his life reporting races, prize-fights, cock-fights, cricket matches, trials, and executions. He achieved great popularity as the author of *Life in London: or the Day and Night Scenes of Jerry Hawthorn, Esq., and his elegant friend, Corinthian Tom*, accompanied by Bob Logic, the Oxonian, in their Rambles and Spree through the Metropolis, issued in monthly parts from 1821 and illustrated by J. R. and G. Cruikshank. Egan died in London, Aug. 3, 1849.

EGBERT (d. 839). King of Wessex. The son of Ealhmund, a king of Kent, he became king of the West Saxons in 802. He subdued West Wales or Cornwall, defeated the king of Mercia at Ellandune, annexed Kent, and in 829 became overlord of all the English kings. He was defeated by Scandinavian pirates in 836, but in 838 routed a formidable army of Northmen and West Welsh at Hingston Down, in Cornwall. He died in 839 and was succeeded by his son Ethelwulf.

EGEDE, HANS (1686-1758). Scandinavian missionary in Greenland. Born in Norway, he was a Lutheran minister at Vaagen from 1706-17. Four years later he went with his wife and family to Greenland, where he worked among the Eskimos for fifteen years and converted many to Christianity. He died Nov. 5, 1758. He wrote accounts of his work, and *A Description of Greenland* (1729-41), Eng. trans. 1745. After him is named Egedes Land, that portion of E. Greenland N.W. of Denmark Strait.

EGER, OR CHEB. Town of Bohemia, Czechoslovakia. It stands on the right bank of the Ohre (Eger), 92 m. W. of Prague, beneath the Fichtelgebirge. The ruined castle stands on a rock above the town. The old Gothic church of S. Nicholas was restored in the 19th century. The museum was formerly the burgo-master's house, in which Wallenstein was murdered.

Other objects of interest are the old town hall, the Schillerhaus, where the poet lived for a time, the merchants' hall, and the market place. It is an important railway junction. Pop. 27,524.

The city in Hungary called Eger or Erlau is 70 m. N.E. of Budapest. Its chief industry is the making of red wine. The cathedral, in the Italian style, was erected in the 19th century; the church of the Brothers of Mercy and the minaret of an old mosque are also noteworthy. Other buildings include the town hall and the observatory. Pop. 28,753.

EGERIA. In classical legend, a nymph beloved of Numa Pompilius, king of Rome, who set great store by her advice and prophecies. On the death of Numa her grief was so great that she dissolved in tears, and was turned into a fountain by Diana. The name is now given to a lady who stimulates and inspires a man's intellectual activity. Pron. *Ee-je-ri-a*.

EGG. Reproductive cell formed in the body of the female animal, which, when fertilised by union with the spermatozoon of the male, produces a new individual. Except in the lowest forms of life, when propagation takes place by fission or budding, every animal begins its life history as an egg. In the viviparous animals, as in nearly all mammals, the development of the egg takes place in the body of the mother; in the oviparous, e.g. insects, fishes, reptiles, birds, it is extruded, and development proceeds apart from union with the mother. See *Biology*.

EGG, AUGUSTUS LEOPOLD (1816-63). British artist. Born in London, May 2, 1816, he exhibited for the first time in 1838, became an A.R.A. in 1848, and R.A. in 1860. A subject painter, his best work includes Queen Elizabeth Discovers She is No Longer Young, 1848; Peter the Great Sees Catherine for the First Time, 1850; and The Night Before Naseby, 1859. He died March 26, 1863.

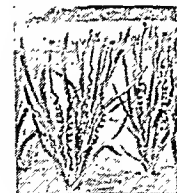
EGGAR MOTH. Group of fairly large moths. There are four British eggar moths, belonging to three distinct genera. Three of them are reddish-brown in colour and the other is grey; the expanse of the wings varies from 1 in. to 3 ins. See *Moth*.

EGG PLANT (*Solanum melongena*). Herb of the order Solanaceae. The leaves are oval, lobed, and woolly beneath; the flowers are similar to those of the tomato, white, yellow, or purple. The fruit, a berry as large as a goose-egg, is white or purple. The herb is a native of N. Africa. It is edible, and largely grown for food.

EGHAM. Urban dist. of Surrey. It is on the Thames, 21 m. W.S.W. of London on the Southern Rly. Here are the Royal Holloway College for women, and Holloway Sanatorium, a private asylum. Pop. 15,000.



Eel. Above, the common eel. Below, the electric eel, a S. American fish.



Eel-grass. Plants of the aquatic herb.



Eggar Moth. Example of small eggar moth, *Eriogaster lanestris*.



Egg Plant. Specimen of the herb, showing leaves, flower, and berries.

EGGLANTINE. Name applied by the earlier poets to the sweet brier (*Rosa eglanteria*). In Milton it probably refers to the honeysuckle (*Lonicera periclymenum*), still called eglantine in parts of Yorkshire.

EGLINTON, EARL OF. Scottish title held by the family of Montgomerie since 1508. Sir Alexander Montgomerie was made a lord of the Scottish parliament about 1445, and his grandson Hugh, the 3rd lord, was made earl of Eglinton in 1508. When the 5th earl died the family in the male line became extinct. The titles and estate then passed to Alexander Seton, a grandson of the 3rd earl, who took the name of Montgomerie.

Archibald, the 13th earl (1812-61), a Tory politician, was the organizer of the famous Eglinton Tournament, held at Eglinton Castle, his Ayrshire seat, Aug. 28, 1839. In 1859 he was made earl of Winton, a title held by his ancestors, the Setons. The earl's eldest son is known as Lord Montgomerie.

EGMONT. Cone of an extinct volcano, North Island, New Zealand. It rises from the Taranaki plain to a height of 8,260 ft. It is perpetually covered with snow, and is a landmark for sailors.



Egmont, N. Zealand. Snow-capped cone of an extinct volcano

eval (1683-1748), was one of the founders of the colony of Georgia. The title is taken from Egmont, a little place in Co. Cork.

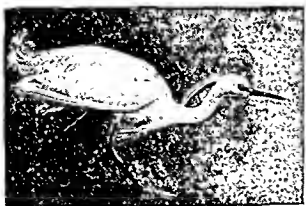
EGMONT, LANORAL, COUNT OF (1522-68). Flemish statesman. He was born at La Hamaide Castle, Hainault, Nov. 18, 1522, and in 1541 was with Charles V on his expedition to Algiers, and in subsequent campaigns against France. In 1545 he married a sister of the elector palatine and later was appointed governor of Flanders. In spite of his proved loyalty to the Spanish government he fell under suspicion, and was beheaded at Brussels, June 5, 1568. His life forms the subject of Goethe's tragedy (1788).

EGREMONT. Town of Cheshire, a residential suburb of Liverpool and Birkenhead. On the S. side of the Mersey, 2 m. N.W. of Birkenhead, it has, with Seacombe, a station on the L.M.S. and L.N.E. Rlys. A promenade connects it with New Brighton, and steamers go regularly to Liverpool. Pop. 15,847.

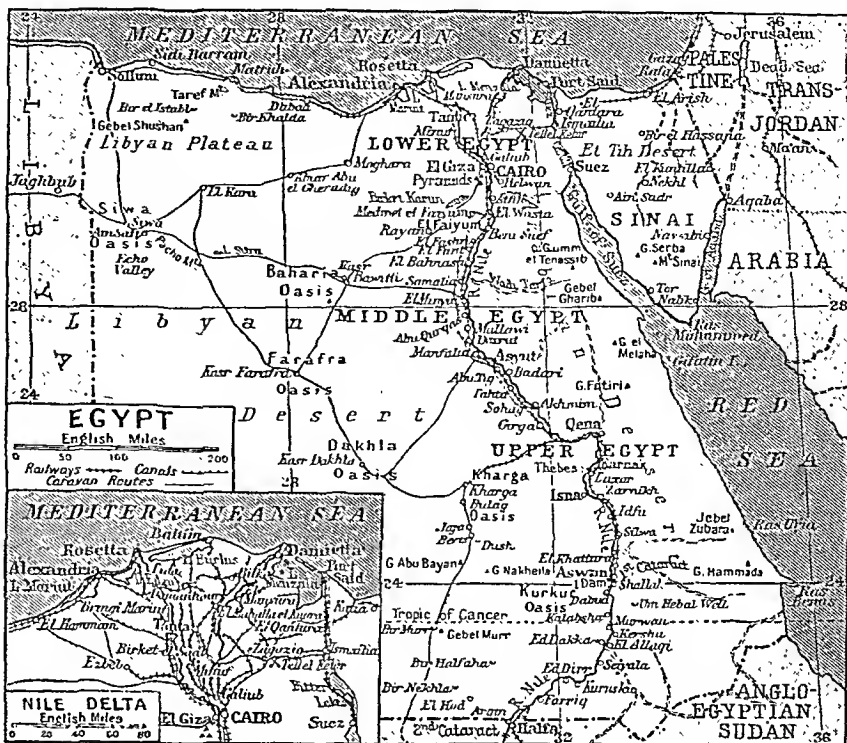
EGREMONT. Urban dist. and market town of Cumberland. It stands on the Eden, 5 m. S.E. of Whitehaven, on the L.M.S. Rly. There are ruins of a 12th century castle.

The title of earl of Egremont was borne by the family of Wyndham from 1750 to 1845, when it became extinct. Charles, the 2nd earl (1710-63), was secretary of state 1761-63. George, the 3rd earl, made his seat at Petworth in Sussex notable for hospitality. Market day, Sat. Pop. 7,500.

EGRET. Name applied to several species of small white herons, of which the little egret is one of the best-known examples. It occurs very rarely in Great Britain, but is common in S. Europe and in many parts of Asia and Africa. The French name, aigrette, is used in England for the tufted head plume of the bird. It is also the name given by the French to the smaller white heron itself.



Egret, a small white heron. The species shown is called the little egret



Egypt. Map of the country from the Mediterranean to the Second Cataract; inset, the Nile Delta

EGYPT. Country of N.E. Africa. It is bounded N. by the Mediterranean, S. by the Anglo-Egyptian Sudan, E. by the Red Sea and Palestine, W. by Libya. The total area, including the Sinai peninsula and various islands in the Red Sea and Gulf of Suez, is about 383,000 sq. m., of which the cultivated and settled region covers about 13,600 sq. m. Important towns include the capital, Cairo, Alexandria, Port Said, and Suez. Pop. 14,168,000.

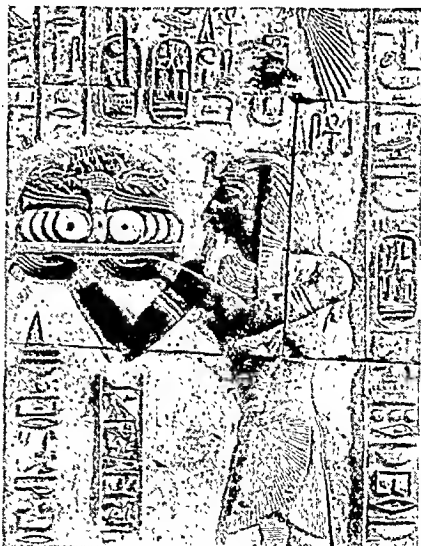
The main physical features are the Nile and the desert. With improved irrigation and drainage the cultivable area is constantly increasing. Reservoir works include a dam at Assuan (q.v.), and barrages at Asyut, Isna (Esneh), and Zifta. The fertile regions are mostly around the delta, the Nile valley and the oases. The staple product is cotton, upon the success of which crop the prosperity of the country largely depends. Other agricultural products include rice, maize, wheat, barley, millet, sugar cane, and lentils.

Besides being a distributing centre for the Levant, Egypt holds a commanding position on the trade route from Europe to the East, the Suez Canal providing a direct sea route between the Mediterranean and the Red Sea. The rly. system forms the N. section of the Cape to Cairo scheme; the main line follows the Nile to Shellal, S. of Assuan. The majority of the people are fellahen (agriculturists). The Beduins are herdsmen and the Nubians mostly peasants.

ANCIENT HISTORY. Probably for some centuries before the 1st dynasty of Egypt a fresh race had been permeating the country. At last a body of about a tenth of the number of the male population entered Egypt as conquerors. Of a higher civilization, they brought with them the elements of writing, and a great artistic skill, as well as more organization. They held Upper Egypt at first, centring at Hierakonpolis, and later at Abydos. Thence

they conquered to Fayum, where they centred. Memphis became the capital under Menes and his successors of the 1st dynasty.

The 1st dynasty (about 5800-5300 B.C.), following the two prehistoric civilizations, was the highest point of the Third civilization.



Egypt. Relief in the Temple of Seti I (1300 B.C.) at Abydos, showing the king making an offering
Photo: Sir W. M. Flinders Petrie

Much of the old arts continued, but there was an immense change. Writing became usual; a large official class had arisen; jewelry shows skilful work; building in wood and in brick was much increased; ivory carving was excellent; the use of copper was much extended; and glazing became a decorative art for building.

The IVth dynasty (about 4800 to 4500 B.C.) established the Fourth civilization. The Egyptians here reached the highest mastery of art. Never has the immensity or accuracy of the great pyramid of Khufu (Cheops) been

equalled; never has there been a greater expression of character and dignity than in the portrait sculpture; never has any people created a greater mass of artistic detail for their tombs. The personal character shown in the portraiture is most attractive: firmness with kindness, dignity unspoiled by pride; vigour, insight, determination.

The XIIth dynasty (about 3600-3400 B.C.) established the Fifth civilization. By the middle of the XIIth dynasty the princes of Thebes began to spread their power. The XIIth dynasty reunited all the country, and pushed up into Nubia. The most magnificent king of this age was Amenemhat III, who reclaimed a large part of the Fayum, till then a swamp. The Syrians were beginning to press into the country, and in the decadent XIIIth and XIVth dynasties some even rose to be kings. These were the forerunners of the Hyksos conquest about 2600 B.C.

The XVIIth-XXth dynasties (1587-1102 B.C.) established the Sixth civilization. The XVIIth dynasty was a Nubian family which headed the southern Egyptians against the Hyksos, who were expelled from Egypt by Aahmes, the founder of the XVIIIth dynasty. This revival centred at Thebes, which became the largest city of that time. The most important aspect was the foreign intercourse, by conquest in Syria and by trade with Babylon, Crete, and Greece.

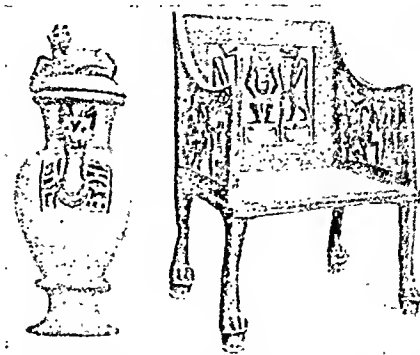
By about 1530 B.C. Tehutmes I had conquered all Syria out to the Euphrates near Aleppo. This was retained until the wars of Tehutmes III, about 1460, and almost as much until the crumbling of the foreign hold under Akhenaten about 1370 B.C. In the

XIXth dynasty Seti I recovered Syria, about 1320 B.C.; and Rameses II kept the greater part of it till about 1250. After that, Egypt barely held a little of the S. of Palestine. When Egypt became weakened, there were coalitions of Algerian and western peoples against it in 1229 B.C. in the reign of Merneptah, and in 1197 under Rameses III. This was followed by a coalition of Syrians and western peoples in 1194, who were overthrown. The frequent wars in Syria led to the semitising of Egyptian language and art.

In the XXIst dynasty (1102-952 B.C.) the land was amicably divided between a succession of priest-kings at Thebes and the kings at Tanis in the Delta. The main interest lies in the attempts to save the mummies of the kings of the XVIIth-XXth dynasties from robbers. The priest-kings made a great cache at Deir el Bahri, which was left unopened because it was known that no gold remained with the bodies.

The XXIInd and XXIIIrd dynasties (952-721 B.C.) revived the power of Egypt somewhat. They were due to the energy of a Mesopotamian adventurer, Sheshenq or Shishak, and his family, who settled at Bubastis. The Ethiopian invasion about 727 B.C. found Egypt split up among eighteen or more little states. The Ethiopian kings who ruled till 664 B.C. were vigorous and able men, and they had a good system of appointing the crown-prince as viceroy of Egypt.

The XXVIth-XXXth dynasties (664-342 B.C.), founded the Seventh civilization. They were under Ethiopian influence and then largely controlled by Greek action, and under Persian rule. Necho in 609 raided Syria and held it more or less for four years, when



Egyptian crafts and a scene of industry. Left and centre, alabaster vase and carved chair from the tomb of Inana and Tuaa, 15th cent. B.C. Right, retainers of Mehenkwtetre at work in the slaughter house. From Theodore Davis, 'Tomb of Iqhnaf', and Metropolitan Museum, New York



Babylon defeated him, and he retired to Egypt. The Persians held the country from 525 to 401 B.C., and then the native Egyptians in the Delta revived for a couple of generations, forming the XXIXth and XXXth dynasties, 399-342 B.C. Ten years under the degenerate Persians ushered in the golden age of Alexander's conquest.

The transition from Alexander and his heir to the rule of the old general Ptolemy Soter (the Saviour) was very gradual. The earlier

of the family were able men, wary, strong and enlightened, backed by powerful queens of their own family. Egypt had not been so peaceful and prosperous for some centuries as it was from 300 to 200 B.C. Even under the effete rule of the later Ptolemies

the country was remarkable for the extent of its learning and wealth.

The Roman Age lasted from 30 B.C. to A.D. 640. The end of Egyptian independence was the death-stroke to the country, which became the milch-cow of the emperor of Rome, the private property of the Crown. It was steadily drained of all wealth, taxed in corn to feed Rome, besides being taxed in money. In 640 the Roman government collapsed before a few thousand wild Arab horsemen. The Arab rule decayed, and the Mamluk dynasties, for some centuries before the

Turkish conquest in 1517, were a ceaseless turmoil of fighting and plundering. When Turkish power waned, only the strong hand of Mehemet Ali restored a stable government.

MODERN HISTORY. When, in 1876, the Khedive suspended payment of his treasury bills, Europe intervened.

A series of events led to Great Britain taking control, and under Lords Cromer and Kitchener the financial and political conditions improved. In 1914 Great Britain declared the Turkish suzerainty at an end, and a British protectorate was declared. In Feb., 1922, the British government declared Egypt an independent state, and in the following March the sultan Ahmed Fuad Pasha was proclaimed king as Fuad I. In 1923 a new constitution, providing for a reformed electoral system, including cabinet responsibility to Parliament, had come into force. After the death of the nationalist leader Zaghlul in 1927, Nahas Pasha became premier, but his ministry was dismissed and Mahmud Pasha became premier.

In July, 1928, King Fuad suspended the constitution for three years, but Mahmud remained in office until Jan., 1930, when Nahas Pasha became premier. In May he attended a conference in London in connexion with Egypt's



Egypt. Model of a Nile boat from the tomb of Mehenkwtetre, steward of the royal palace of Menthotep (about 2000 B.C.) Metropolitan Museum, New York



Handmaiden of Mehenkwtetre. Met. Mus., N. York



Egyptian art. Left, painting showing a Theban nobleman out with his wife, daughter and hunting cat after marsh birds. Centre, wooden statue of a fifth dynasty official. Right, Ra-Hotep's wife in painted stone. British Museum and Cairo Museum



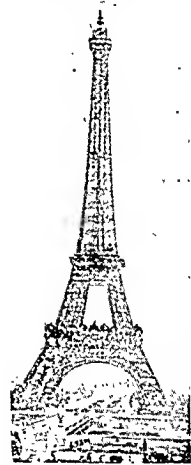
claim to the Sudan, but in May this ended without result. See Abu-Simbel: Cairo; Colossus; Dendera; Karnak; Nile; Pyramids; Rameses; Sphinx; Thebes; Tutankhamen, etc.; consult also A History of the Ancient Egyptians, J. H. Breasted, 1920; Cambridge Ancient History, Vol. I, 1924.

EGYPTOLOGY. Study of the antiquities of Egypt. It is concerned not only with the material remains, but also with religion, history, language, art, and social life. Archaeologists accompanied Napoleon on his expedition to Egypt in 1798, and soon after this the first experts in Egyptology appeared, of whom Champollion and Lepsius were notable. In 1858 Egypt set up, under Mariette, a special department of Egyptology.

The modern scientific treatment of Egyptian antiquities dates from about 1880, and is associated specially with Gaston Maspero and Flinders Petrie. An Egypt Exploration Society was started in London in 1882. The offices are at 13, Tavistock Square, London, W.C.

EHRLICH, PAUL (1854-1915). German physiologist. Born at Strehlen, Silesia, March 14, 1854, his researches brought him world-wide renown, and in 1908 he shared with Metchnikoff the Nobel prize for physiology and medicine. The founder of chemotherapy, Ehrlich laboured to discover a safe cure for syphilis, being latterly assisted by a Japanese doctor named Hata. A cure was found in 1910 and was termed 606, this being the number of the successful experiment. Ehrlich also invented new bacteriological stains, was one of the founders of serum therapy, and did good work on cancer and on diphtheria antitoxin. He died Aug. 20, 1915.

EIDER DUCK (Somateria). Genus of wild duck. It is famed for the soft down which it uses for lining its nest. Eiders have short beaks; the males have black and white plumage with green markings on the head, while the females have mottled brown plumage. The common eider (S. mollissima) is resident in Great Britain throughout the year. All the eiders are divers, and feed upon shell-fish and small crustaceans. They keep to the rocky shores and nest on the ground.



Eiffel Tower, Paris.
It is 984 ft. high

EIFFEL, ALEXANDRE GUSTAVE (1832-1923). French engineer. Born at Dijon, Dec. 15, 1832, he executed his first notable work, the bridge over the Garonne at Bordeaux, in 1858. His outstanding engineering achievements include the great Eiffel Tower, Paris, 1887-89; the movable dome of the Nice Observatory; and the framework for Bartholdi's colossal statue of Liberty in New York harbour. He was one of the first engineers to employ compressed-air caissons in bridge building, and invented movable section bridges. He died Dec. 28, 1923.

The Eiffel Tower was designed for the Paris Exhibition of 1889. It is 984 ft. high, and is built of iron throughout. Electric lifts run to the top. The tower is an important wireless telegraphy station and meteorological centre.

EIGHT. In rowing, a name applied collectively to the members of a racing crew, when such consists of eight men, in addition to the cox.

Piece of eight is the name given to the old Spanish silver coin, the piastre, so called because it was divided into eight silver reals. It circulated in Spain and Spanish America during the 17th and 18th centuries. Its value was about four shillings.

EIKON BASILIKE (Gr. royal likeness). Book purporting to be written by Charles I, and published immediately after his execution. Its sub-title is The Pourtraicture of His Sacred Majesty in His Solitudes and Sufferings. It professes to give the king's views of the events of his reign and a number of his prayers. Historians take sides for Charles and for John Gauden, bishop of Worcester, who claimed to have written it.

EILDON HILLS. Range of hills in Roxburghshire, S. of Melrose. They rise into three peaks, the highest 1,385 ft. According to tradition, the single hill was split into three by the wizard Michael Scott.

EINSTEIN, ALBERT (b. 1879). German physicist. He was born at Ulm, in Germany, March 14, 1879, of Jewish parentage. In

1901 Einstein was naturalised as a Swiss, and accepted a post in the patent office at Berne. It was in 1905 that Einstein formulated his own theory of relativity in its narrower or "special" form. In 1909 he was appointed professor at the university of Zürich, and in 1914 he went to Berlin as a member of the Academy of Science. In 1915 he caused a sensation in the

scientific world by his explanation of gravitational attraction, accompanied by an explanation of the anomalous motion of the planet Mercury. He then made a remarkable prediction as to the bending of light rays from the stars which passed close to the sun: the verifying of this prediction by the British solar eclipse expeditions in 1919 made Einstein world-famous. See Relativity.

EISNER, KURT (1867-1919). Name adopted by Salomon Kosnowsky, a German socialist writer and politician, born in Berlin, May 14, 1867. Joining the socialists, he became associate editor of their organ, Vorwärts. On the outbreak of the revolution he took the position of prime minister and minister of foreign affairs, and later that of first president of the Bavarian republic. He unavailingly sought to separate Bavaria from the other German states and to make separate peace arrangements with the Allies. He was assassinated Feb. 21, 1919.

EISTEDDFOD (Welsh, session). Welsh national bardic festival. According to tradition, under the name of the Gorsedd or Druidic congress, it was celebrated before the Roman

invasion of Britain, and was the repository of the laws, science, and poetry of the country. Authentic records go no farther back than the 12th century. The Eisteddfod flourished under the Tudors.

In the Cromwellian period it fell into abeyance, but a notable revival was witnessed in the 19th century. It is now held annually, in the north or south of the principality alternately. Noteworthy features of the occasion are the crowning of the chief bard and musical competitions. See Bard.

EJECTOR. Appliance for operating a vacuum brake by exhausting air from the brake cylinders. It

consists of a pipe within an outer casing, with an annular space between the two. When steam is admitted to the pipe, in the act of escaping at the outer end it draws the air from the annular space, connected by piping to the brake cylinders.

EKATERINBURG. City of the Ukraine. It stands on the river Isset, 175 m. from Perm, and is an important station on the Trans-

Siberian Rly. It is the centre of a rich mining district in the Urals and metals are assayed and smelted here. The city, which was founded by Peter the Great and named after his wife Catherine, has two cathedrals. Here in July, 1918, the tsar Nicholas II and his family were murdered. Pop. 60,000. See illus. above.

ELAGABALUS or **HELOGABALUS.** Roman emperor A.D. 218-222. The son of Sextus Varius Marcellus and Julia Soaemias, he was

made priest of Elagabalus, the Syrian sun-god, and assumed his name. By pretending that he was the natural son of Caracalla, his grandmother, Julia Maesa, persuaded the legions in Syria to proclaim him emperor. Abandoning the reins of government to his mother and grandmother, he devoted the first year of his reign at Rome to the introduction of the worship of the sun-god. His short reign was ended by assassination.

ELAM. Biblical name for a low land and mountain region in S.W. Persia, N. of the Persian Gulf. It comprised the lowlands E. of the Tigris, with the highlands N. and E. Wars were frequent between the Assyrians and the Elamites. Susa, the Biblical Shushan, in Persia, became the capital. Its population, at one time dominating Babylonia, afterwards became subject, allied, or independent. See Babylonia; Susa.

ELAN. River of Wales. It rises on the E. boundary of Cardiganshire, and flows through Radnorshire to Brecknockshire, where it turns N.E. to form the boundary of these counties and enters the Wye. The Elan, with its tributary the Claerwen, is the chief source of the water supply of Birmingham.

ELAND. Genus of antelopes, found only in Africa. They are the largest of all the



Ekaterinburg. House in which the Russian royal family were murdered



Albert Einstein.
German physicist:



Eider Duck. Male, black and white; female, mottled brown



Kurt Eisner.
German socialist



Elagabalus.
Roman emperor:
Buried in the
Capitol, Rome



Eland. Large antelope peculiar to Africa. Both sexes bear horns

antelopes, a fine bull standing nearly 6 ft. high. In colour, they vary from light fawn to grey, and the bulls usually have a thick tuft of dark hair on the forehead. Both sexes bear horns, about 2 ft. in length, and more or less twisted. They are found in most parts of E. Africa, but appear to be extinct in the South.

ELANDSLAAGTE. Village in Natal, 16 m. N.E. of Ladysmith, 3,614 ft. above sea level. It is known for an engagement, Oct. 21, 1899, in the S. African War. The Boer artillery was weaker than the British, and with a few casualties their position was taken.

ELASTICITY. Property of matter in virtue of which it resists change in shape or bulk, and tends, after distortion, to recover its original shape or bulk when allowed to do so. Fluids have no fixed shape, and therefore no power to resist change of shape; they have no "elasticity of form"; but they resist compression and have "elasticity of bulk." Solids possess both kinds of elasticity. An external force producing distortion in a body is known as a stress and the distortion itself is called a strain. The mathematical theory of elasticity deals with the various kinds of strain which a body may suffer, and the stresses corresponding thereto.

ELATER BEETLE (Gr. elatēr, driver). Group of beetles, also called click beetles. The destructive wireworm is the larva of one of these beetles; and the firefly of the W. Indies belongs to the same group. See Beetle; Click Beetle.



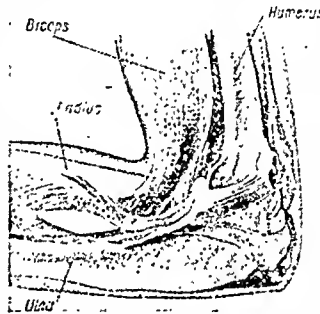
Elater beetle, the larvae of which are garden pests

ELBERFELD. Town of Prussia. In the Rhine Province, it stands on the Wupper, 16 m. N.E. of Düsseldorf, and with Barmen, which it adjoins, may be described as the Manchester of Germany. Textiles of all kinds, chemicals, hardware, paper, and beer are made. There is an overhead electric rly. suspended above the Wupper. The public buildings include the Rathaus, law courts, almshouse, and museum. Here originated the so-called Elberfeld system of poor relief which, reorganized in 1852 by Daniel von Heydt, spread to other parts of Germany. Pop. 167,577. See Barmen.

ELBING. Town and seaport of Prussia. On the Elbing, about 5 m. from its mouth in the Frisches Haff, it is 50 m. by rly. E.S.E. of Danzig, and is connected with the Vistula by a canal. S. Mary's Church dates from the 13th century, and Corpus Christi is nearly as old. It has an old school. The chief industries are shipbuilding, iron-working, and the manufacture of machinery. Until 1918 much work for the German navy was done here. The town grew up round a castle built by the Teutonic Knights. It became a member of the Hansatic League, was included in Poland in 1772, and at the partition of Poland became part of Prussia. Pop. 67,878.

ELBOW. Joint formed by articulation of the lower end of the humerus, or upper arm bone, with the radius and ulna, the two bones of the forearm. The tip of the elbow is formed by a process of bone called the olecranon; the bony prominences on the inside and outside of the elbow are the internal and external condyles of the humerus.

Injuries to the elbow include dislocation, sometimes complicated by fracture; and sprain, an accident not infrequent in young children, in which the head of the radius slips down, and one of the ligaments becomes ripped between the radius and humerus. It is easily replaced by bending the limb and then extending it. Diseases of the joint include tuberculosis, more frequent in children than in adults, arthritis, and synovitis.



Elbow: a hinge joint. Relation of bones to biceps and other muscles

ELBURZ or **ELBRUS.** Mountain of the Caucasus. A little to the N. of the main chain, it consists of two extinct volcanic peaks, 18,526 ft. and 18,460 ft. respectively. Elburz was first ascended in 1829. Tradition says it was the first resting-place of the Ark.

The Elburz mountain range, skirting the S. shore of the Caspian, extends for a length of 600 m., and to a width in places of 200 m., through N.W. Persia. Naphtha and petrol are found. The highest peak, the volcano, Mt. Demavend, is estimated to be 18,000 ft. high. See Caucasus.

ELDER (*Sambucus*). Hardy shrubby trees, natives of Britain, of the order Caprifoliaceae. Their height is about 10 ft.; the flowers are white and variegated. *Sambucus nigra* is the common elder, the berries of which are used for the manufacture of home-made wine. A liquid distilled from the flowers, elder-flower water, is largely used for flavouring confectionery.

ELDER. Word used in a civil and an ecclesiastical sense for an overseer. Of frequent occurrence in the Bible, in the O.T. it is applied to the heads or representatives of tribes and families, especially of the Israelites. In the N.T. it is used to define officers of the Church who originally may have been identical with the bishops. Certain office-bearers in the Presbyterian and other churches are called elders.

Elder Brethren of the Trinity House is the title given to members of the corporation of Trinity House, Tower Hill, E.C., sometimes known as Trinity Masters. They consist of members of the royal family, statesmen, retired naval officers, and captains in the mercantile marine. See Trinity House.

ELDON, JOHN SCOTT, 1st EARL OF (1751-1838). British lawyer. Born at Newcastle-upon-Tyne, June 4, 1751, he was called to the bar in 1776 and in 1782 he became a K.C. In that year also Scott entered parliament as M.P. for Weobley.

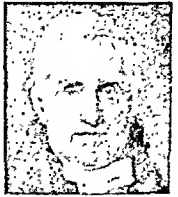
In 1788 Pitt made him solicitor-general, in 1793 he was promoted attorney-general, and in 1799 he was made chief justice of the court of common pleas and a peer. In 1801 he became lord chancellor, leaving office on Pitt's death in 1806. In 1807 Eldon returned to the post of chancellor, which he was destined to fill for 20 years. He was made an earl in 1821, and died Jan. 13, 1838. The title passed to his grandson John (1805-54), and is still held by his descendants, the earl's eldest son being known as Viscount Encombe.

Eldon's elder brother, William Scott (1745-1836), was also a distinguished lawyer; in 1821 he was made Baron Stowell.

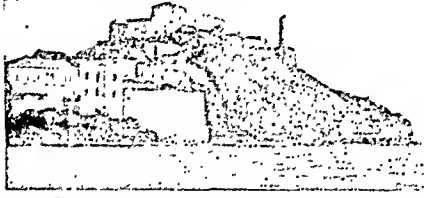
EL DORADO (Span. The Gilded One). Name successively applied to a gilded man, a golden city known as Manoa or Omca, and a region abounding in gold and precious stones, reputed to exist in S. America. Many fruitless expeditions were organized in search of this legendary city, Manoa, the earliest being led by a German governor of Guiana, Ambrose Dalfinger, in 1529. The name El Dorado came to be applied to any place reputed to abound in easily acquired wealth.

ELEANOR. Name of three queens of England. Eleanor of Aquitaine (1122-1204), queen of Henry II of England, was the daughter of William, duke of Aquitaine. Her first husband was Louis VII of France, to whom she was married in 1137, but in 1152 the marriage was dissolved. In the same year she married Henry of Anjou, and by him was the mother of the turbulent princes who disturbed his reign. She died April 1, 1204.

Eleanor of Provence (d. 1291), queen of Henry III of England, was the daughter of the count of Provence. In 1236 she was married to Henry at Canterbury. She died June 25, 1291. Her elder son was Edward I.



1st. Earl of Eldon
British lawyer
After Lawrence



Elba. Fortress of Porto Ferrajo, the capital. Above the harbour is the palace of Napoleon I

ELBASAN. Town of Albania. On the Skumbi, about 65 m. W. of Monastir, it is one of the few important towns of the country, and is the seat of a Greek bishop. It has hot sulphur springs. Pop. 13,000.

ELBE (anc. Albis; Czech, Labe). River of Central Europe. It rises in a number of streams which unite in the Giant Mts. (Riesengebirge), and flows S. and W. to Melnik, the head of navigation, 21 m. N. of Prague. It penetrates the Mittelgebirge and the Erzgebirge, waters Saxony, and falls into the North Sea, near Cuxhaven. Its length is 725 m., and its drainage area about 57,000 sq. m. Besides the Moldau (Vltava), the chief of its many tributaries are the Havel, Saale, Eger (Obře), and Mulde.

The Elbe is linked up by canals with the Oder, Spree, and Trave. Hamburg, Magdeburg, Dresden, Torgau, and Wittenberg are among the important cities on its banks. There is an enormous traffic along the Elbe, principally by barges assisted by a towing chain. The river has been internationalised from its confluence with the Moldau.



Elder. A large specimen of the tree in bloom

Eleanor of Castile (d. 1290), queen of Edward I of England, was the daughter of Ferdinand III, king of Castile, and was married to Edward in Oct., 1254. She died at Harby on Nov. 28, 1290, and was buried at Westminster. The king erected crosses at the places at which her body rested on the journey—Lincoln, Grantham, Stamford, Geddington, Northampton, Stony Stratford, Woburn, Dunstable, St. Albans, Waltham, Westcheap, and Charing.

ELECTION. In politics, and to some extent in business, the choosing of representatives. The methods of election vary, but, generally speaking, a bare majority of votes is sufficient to secure election. In Great Britain the present system includes voting by ballot, a careful enumeration of the votes cast, and, if necessary, a scrutiny and recount.

Elections are divided into general and bye. A general election results from the retirement of all the members, as on the dissolution of parliament; and a bye-election through the death or resignation of a member. In elections for many local bodies, e.g. town councils in England, it is customary for one-third of the members to retire every year, so there is never a general election. County councils, however, have a general election every third year.

At elections of company directors a show of hands is usually sufficient. In elections of this kind the shareholders have votes in proportion to their interest in the company. At elections of members to clubs and societies, a small number of members can keep out a candidate by voting against him; this is called blackballing. See Company Law; Proportional Representation; Vote.

ELECTOR. In general, a person who has the right of voting at elections. In a special sense, however, the name was applied to the German princes who in the Holy Roman Empire voted at the election of the king. At first all the princes took part, or were entitled to take part, but by the Golden Bull issued by Charles IV in 1356, the number was fixed at seven, later increased to nine. In 1806, with the dissolution of the Empire, the electors ceased to exist.

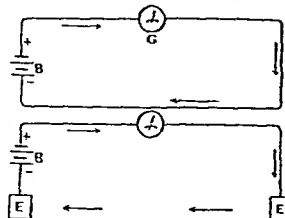
ELECTRA. In Greek mythology, daughter of Agamemnon and Clytemnestra. She incited her brother Orestes to murder his mother, Clytemnestra, in revenge for the latter's murder of his father on his return from Troy. The tragic life of Electra forms the subject of tragedies by Sophocles and Euripides. See Agamemnon; Orestes.

ELECTRIC FISH. Genus of fishes possessing the power of administering an electric shock. There are three known fishes which possess such a power, these being, in the order of their electrical strength, the electric eel (*Gymnotus*), the African catfish (*Malapterurus electricus*), and the torpedo, or electrical ray fish. The latter is the most numerous of these fish. The best known is the Torpedo marmorata of the southern shores of Europe and of the Mediterranean; large specimens may weigh as much as 80 lb. The electric force resides in the powerful tail. See Eel, Electric.

ELECTRICITY. All materials can acquire electricity by friction. In some substances—dielectrics—the charge is confined to the portion of the surface rubbed; in others—conductors—it tends to be diffused over the whole surface. When a glass rod is rubbed with silk the glass becomes positively electrified, and the silk acquires a negative charge. When a stick of resin is rubbed with fur or wool the resin is negatively electrified, and the rubber develops a positive charge.

Bodies of like charge repel, and those of unlike charge attract, each other. William Gilbert (1540–1603) made the first detailed study of these properties.

According to the theory of electricity in general acceptance, the electron is the "atom" of electricity—i.e. the smallest particle which



Electricity. Simple electric circuits. B, battery; G, galvanometer; E, E', earth plates

can exist by itself or be transferred from one atom of matter to another. The electron is negative. The atom of matter is regarded as a nucleus consisting of positively charged particles—about which in different orbits circulate a number of electrons. Normally the negative and positive charges of the atom neutralise one another, but an excess or a deficiency of electrons brings about a negative or a positive electrification respectively. The flow of current in a conductor is a transfer of electrons from atom to atom, moving from the negative to the positive poles. In a dielectric (e.g. the plates of a condenser), the electrons are strained in the direction of the current flow, but do not move from one atom to another. The current from one plate of a condenser to another is not a conduction current, but a displacement current. Currents of another sort, termed convection currents, are caused when electricity passes through a gas—as in the electric arc, or in the thermionic valve—or through a liquid (e.g. the electrolyte in a battery).

The discovery of the Leyden jar by Cunaeus in 1745 led to a knowledge of inductance and capacity. At the beginning of the 19th century came Volta's discovery that two plates of dissimilar metals immersed

in a solution of a salt or an acid remain at different potentials even when connected by a conductor, and that there is a current flow through the circuit thus constituted. Batteries of various kinds were devised by Daniell, Grove, and others; and Davy, Carlisle, and Nicholson further studied electro-chemical decomposition. Faraday, in 1833, enunciated his laws of electrolysis. The science of electro-magnetism originated with Oersted's discovery in 1819 that a magnetic field existed round a wire joining the terminals of a voltaic cell. Between 1825 and 1830 Ohm published his work on the connection between current strength in a conductor and electro-motive force, and introduced the concept of "resistance."

Faraday discovered electro-magnetic induction—i.e. the creation of electric currents in a conductor by the variation of a surrounding magnetic field, and later the phenomena of self-induction. Clerk-Maxwell followed up these researches, and published in 1873 his famous work on electricity and magnetism. Electro-magnetic waves were produced in 1888 by Hertz, who traced their propagation through space. Hertz also noticed the phenomena now termed photo-electricity, in which the conductivity of substances is affected by exposing them to illumination.

In the 20th century we may note the work of Sir J. J. Thomson on electric discharge through gases, and that of Curie, Rutherford,

and Soddy on radio-active materials. By analysing the X-ray spectra of elements it has been possible to determine the atomic weights and the order in periodic classification. Missing elements have been discovered, and substances once considered elementary have been separated into true elements. Reference should be made to the articles on atom, cell, coil, condenser, current, dielectric, induction, ion, magnetism, potential, radio-activity, resistance, wireless. The various electrical units are dealt with under their names—e.g. ampere, ohm, volt, watt, etc.

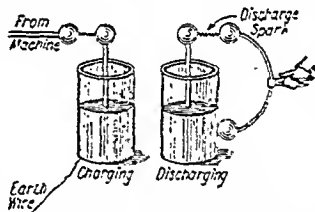
ATMOSPHERIC ELECTRICITY. In 1752 Franklin made his famous investigations into atmospheric electricity. He identified lightning with the electric spark, and also discovered that between the earth's surface and the air there is a difference of potential which increases with the altitude. Normally the electricity of the air is positive, and that of the surface of the earth is negative. It may change instantly from positive to negative with a lightning flash, and, less quickly, with a sudden rain shower. See Magnetism.

ELECTRIC LIGHTING. In 1810 Davy found that a luminous electric arc could be produced between the points of two carbon rods separated by a short distance, if the rods were connected to a powerful battery. The carbon arc-lamp was developed by Foucault, Wright, and Staite (1845–8), and provision was made for the automatic adjustment of the rods as the carbon burned away. It was not, however, until the invention of the dynamo as a source of electric current that the arc lamp became a commercial proposition.

Incandescent electric lamps with a filament of carbon were devised by Edison in 1879, and by Swan in 1880. The filament was enclosed in an exhausted glass bulb, and was made to glow by the passage of an electric current. Early in the 20th century filaments of metal—tantalum and, later, tungsten—were used, and the bulb was filled with an inert gas. With the metallic filament there is a much smaller current consumption and the life of the lamp is considerably longer.

ELECTRIC POWER. Electricity is not in itself a source of power, but is a product of mechanical or chemical energy. The dynamo takes in power from some other agent, and gives it out again in the form of mechanical energy, chemical action, heat or light; the conversion always means some loss of energy. The advantage of electricity lies in the facility with which it may be transmitted over long distances and then reconverted into any form of industrial energy required. This property has led to the utilisation all over the world of elevated bodies of water as sources of mechanical energy. Water from these sources is led down to some convenient point, and there drives hydraulic motors which, in turn, drive electricity-generating machines. A medium for the return of the electric current to the source of generation is required—the circuit must be complete. This medium may be provided by a separate wire, by the rails of a tramway or railway, or by the earth.

Transmission and distribution, in the case of factories where the electricity is generated on the premises, present no difficulties. The current is usually continuous. Local transmission and distribution represents a more complex and difficult problem. The work is in the hands either of a municipal authority or of a public company. Voltages as low as 100 are in use in the stations of Great Britain, but the newer installations will usually be arranged



Electricity. Method of charging and discharging a simple form of a Leyden jar

for voltages between 250 and 550. Hence the current put into the conductors for transmission may have to be "stepped down" at convenient points. Direct or continuous current cannot be stepped down directly without the use of rotating machinery (mechanical transformers). Alternating current, on the other hand, may be stepped down by the use of static transformers, which are automatic. Local transmission and distribution are effected generally by underground conductors in the power systems in Great Britain.

In large systems where extended areas are to be served the transmission and distributing network may become very complex. To meet such cases, alternating current at high tension is employed. At sub-stations the current may be stepped down by motor generators to 400 volts continuous current, which is supplied to users of power at that tension, and, by means of the three-wire system, to users of light at 200 volts. For long distance transmission alternating current is almost invariably employed, because of the facility with which it can be lowered by the aid of stationary transformers. Overhead conductors are mainly used, supported on steel or concrete towers or pylons.

In 1926 the Electricity Supply Act provided for the supply of power throughout Great Britain. The Electricity Commission divided the country into districts, and prepared a scheme of development for each. A body, the Central Electricity Board, was established to carry out these schemes. The districts are central Scotland; south-eastern England, including London; central England, including Birmingham and district; north-western England and N. Wales; north-east of England; Yorkshire; S. Wales; and south-western England. It is estimated that the new scheme will reduce the cost to 1.25d. a unit.

ELECTRO-CHEMISTRY. This is the splitting up of bodies into their elements or into other compounds, and the formation of new bodies, by the aid of electricity. On the practical or industrial side electro-chemistry has given us the arts of electro-plating and of electro-deposition generally, embracing the electrical refining and smelting of metals; many metals could not otherwise be produced on an industrial scale. Many organic products, too, are manufactured by its aid.

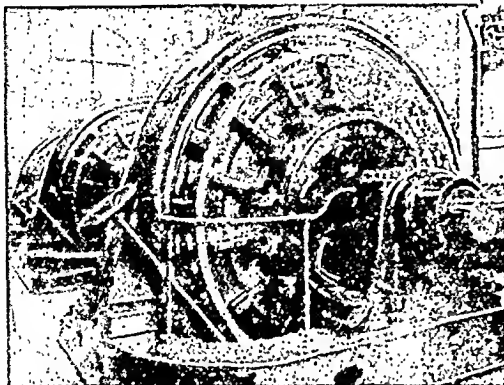
ELECTROCUTION. American term for death from electrical shock. Electrocution of criminals was first adopted by the state of New York in 1890. The method has since been adopted by other states of America. The condemned man is seated in a special insulated chair and a current passed through his body.

Electrode. Term applied to the terminals of an electric cell. See Anode; Kathode.

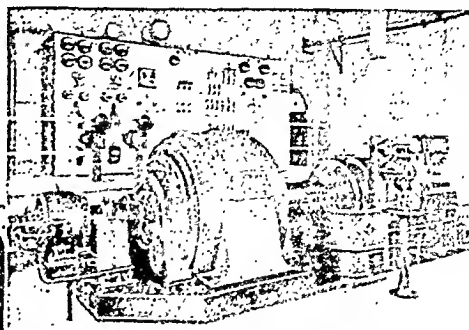
ELECTRODYNAMICS. Term used for the study of the laws of electricity in motion. Electrokinetics, a later term, has the same meaning. See Electrostatics.

ELECTROLYSIS. The decomposition of liquids by electric current. The liquid which undergoes such action is described as an electrolyte. In the case of water it may be entirely decomposed into its two elements, oxygen and hydrogen, the gases being liberated at opposite

sides or ends of the apparatus—a cell—in which the operation is carried out. In the case of solutions—such, e.g. as sulphate of copper in acidulated water—the decomposition may be only partial, while under suitable conditions, though decomposition goes on, the state of saturation of the solution will be maintained constant. The phenomenon is profoundly interest-



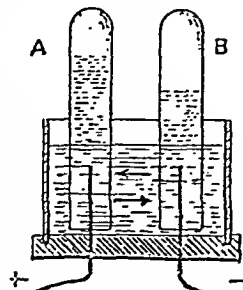
Electric Power. Transformer used in power sub-station. Above, 400-kilowatt turbo-generator, with switch-board



ing from a purely scientific point of view, and has received industrial applications of the first importance. Electro-metallurgy depends largely upon it, and electro-chemistry wholly. See Cell; Electricity; Electro-Chemistry.

ELECTRO-METALLURGY. This is the application of electricity to the extraction of metals from their ores and to metal refining. It also includes electro-plating, the use of the electric furnace, and electric welding. Electro-metallurgy comprises three different types of processes; first, those in which the action is purely electrolytic; secondly, those in which electrolytic action and heating are combined, and thirdly, those in which the effect desired is brought about solely by the heat developed by the electric current. The first class of these processes is well represented by the electrolytic refining of copper.

The operation is carried out in large wooden vats. The bath in which the plates are suspended is a solution of copper sulphate in water acidulated with sulphuric acid, the whole forming an electrolytic cell. The electric current from a dynamo enters the cell at the anode (A), which is the plate of crude copper to be refined, passes across the bath, up a plate of pure copper forming the kathode (B), and out of the cell. The current decomposes the solution, throwing out the copper, which is deposited in a practically pure condition on the kathode. At the same time the plate of crude copper begins to be broken down; the copper goes into solution, taking the place of that removed from the solution and deposited on the kathode; any iron and zinc present in the crude metal will also be dissolved; but the gold, silver, and frequently other metals present, while set free by the action, will not be dissolved, but will settle to the bottom of the vat in the form of slime.

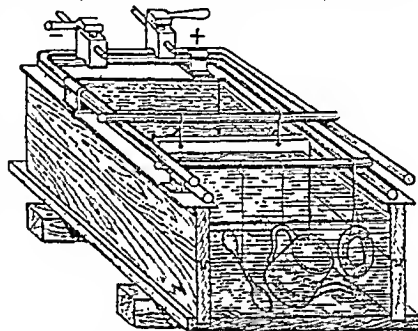


Electrolysis. Electrolytic decomposition of water. A and B, test tubes collecting the oxygen and hydrogen set free

ELECTROMOTIVE FORCE (E.M.F.) Force or pressure which causes electricity to flow in a conductor. It may be produced by chemical action, as in the voltaic cell; by mechanical, as when the armature of a dynamo is turned and cuts the magnetic lines of force; or by heat, as when two unlike metals in contact are heated at the junction. The unit of E.M.F. is the volt (q.v.).

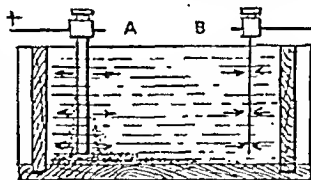
ELECTRON. Name given by Johnstone Stoney in 1891 to the "atom" of electricity, that is to say the smallest quantity that can exist by itself or can be transferred from one atom of matter to another. See Electricity.

ELECTRO-PLATING. The deposition of a metal on another substance, usually another metal, by electro-chemical action, either for



Electro-plating. Bath showing how articles are electro-plated with silver

the purpose of protecting the latter metal from corrosion, as when iron is electro-plated with copper, or for the purpose of giving to a comparatively cheap metal the appearance and some of the properties of one more costly, as when a teapot of Britannia metal is plated with silver. In silver-plating the bath contains a solution of silver. The anode plate is of silver, which is dissolved to take the place of the silver in the solution as the latter is gradually deposited on the article which is being plated. See



Electro-Metallurgy. Copper-refining vat. A, anode; B, kathode. See text

Electro-metallurgy.

ELECTROSTATICS. Term applied to that branch of the science of electricity which is concerned with electricity at rest or with electric charges, and is particularly occupied with the measurement of such charges. The science deals alike with the most elementary facts of electricity, such as the phenomena exhibited by a rubbed glass rod, and with the profound problems associated with the electrical relations of atomic particles. See Electrodynamics.

ELECTRUM. Term at various times applied to different materials. In ancient days it was given to amber, in the Middle Ages to common brass, in modern times to an alloy of copper, nickel, and zinc, much used for the manufacture of drawing and other instruments; also to an alloy of copper, zinc, and tin, and to native minerals containing gold and silver. An alloy of gold and silver known by this term, of a pale yellow colour, was used by the Greeks and Romans for ornaments and coins. The earliest coins known were made of it; while rods having 651 parts gold and 334 silver in 1,000 were used as money in Asia Minor.

LIST OF ELEMENTS, WITH SIGNS, ATOMIC WEIGHTS, AND ATOMIC NUMBERS

Name	Sign	Atomic weight	Atomic No.	Name	Sign	Atomic weight	Atomic No.	Name	Sign	Atomic weight	Atomic No.	Name	Sign	Atomic weight	Atomic No.
Aluminium	Al	26.97	13	Europium	Eu	152	63	Mercury	Hg	200.61	80	Silicon	Si	28.06	14
Antimony	Sb	121.77	51	Fluorine	F	19	9	Molybdenum	Mo	96	42	Silver	Ag	107.88	47
Argon	A	39.91	18	Gadolinium	Gd	157.26	64	Neodymium	Nd	144.27	60	Sodium	Na	23	11
Arsenic	As	74.96	33	Gallium	Ga	69.72	31	Neon	Ne	20.2	10	Strontium	Sr	87.63	38
Barium	Ba	137.37	56	Germanium	Ge	72.6	32	Nickel	Ni	58.69	28	Sulphur	S	32.064	16
Beryllium	Be	9.02	4	Gold	Au	197.2	79	Nitrogen	N	14.008	7	Tantalum	Ta	181.5	73
Bismuth	Bi	209	83	Hafnium	Hf	180	72	Osmium	Os	190.8	76	Tellurium	Te	127.5	52
Boron	B	10.82	5	Helium	He	4	2	Oxygen	O	16	8	Terbium	Tb	159.2	65
Bromine	Br	79.92	35	Holmium	Ho	163.4	67	Palladium	Pd	106.7	46	Thallium	Tl	204.39	81
Cadmium	Cd	112.41	48	Hydrogen	H	1.008	1	Phosphorus	P	31.027	15	Thorium	Th	232.15	90
Cæsium	Cs	132.81	55	Indium	In	114.8	49	Platinum	Pt	195.23	78	Thulium	Tm	169.4	69
Calcium	Ca	40.07	20	Iodine	I	126.93	53	Potassium	K	39.1	19	Tin	Sn	118.7	50
Carbon	C	12	6	Iridium	Ir	193.1	77	Praseodymium	Pr	140.92	59	Titanium	Ti	48.1	22
Cerium	Ce	140.25	58	Iron	Fe	55.84	26	Radium	Ra	225.95	88	Tungsten	W	184	74
Chlorine	Cl	35.46	17	Krypton	Kr	82.92	36	Radon	Rn	222	86	Uranium	U	238.17	92
Chromium	Cr	52.01	24	Lanthanum	La	138.9	57	Rhodium	Rh	102.91	45	Vanadium	V	50.96	23
Cobalt	Co	58.94	27	Lead	Pb	207.2	82	Rubidium	Rb	85.44	37	Xenon	X	130.2	54
Columbium	Cb	93.1	41	Lithium	Li	6.94	3	Ruthenium	Ru	101.7	44	Ytterbium	Yb	173.6	70
Copper	Cu	63.57	29	Lutecium	Lu	175	71	Samarium	Sa	150.43	62	Yttrium	Yt	88.9	39
Dysprosium	Dy	162.52	66	Magnesium	Mg	24.32	12	Scandium	Sc	45.1	21	Zinc	Zn	65.38	30
Erbium	Er	167.7	68	Manganese	Mn	54.93	25	Selenium	Se	79.2	34	Zirconium	Zr	91	40

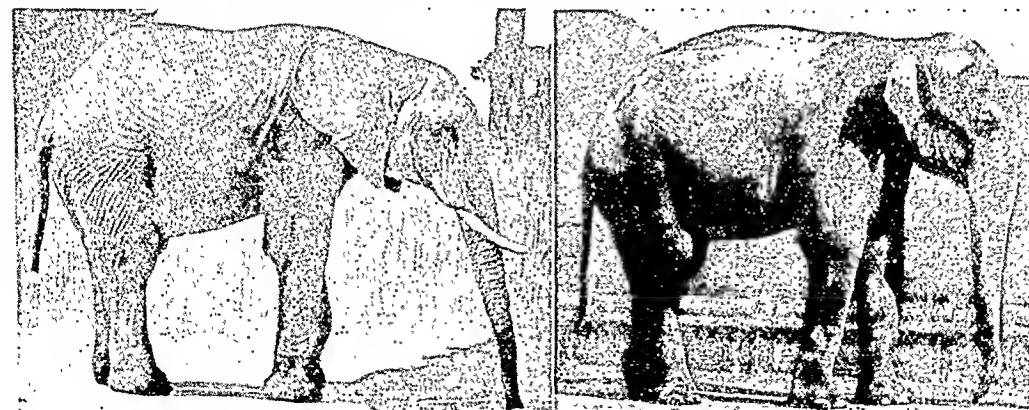
ELEMENT (Lat. clementum, first principle). In chemistry, a simple substance which as yet has not been decomposed further by any ultimate analysis. See Atom; Chemistry.

ELEMI. Resinous exudation from a plant, probably Canarium commune. The resin is imported from Manila and is of a pale yellow colour. It has an odour suggesting fennel. Elemi was formerly used in medicine.

ELEPHANT (Gr.-Lat. elephas). Family of large, hoofed mammals. Only two species now survive, the African and the Asiatic. The nose is developed into a long flexible trunk. The ponderous body is encased in thick wrinkled skin, the legs are massive, and the knee joints are much lower down than in most hoofed animals. The head is enormous, the skull consisting of a mass of bone honey-combed by cells. Elephants are vegetarian in diet, feeding on the leaves and twigs of trees and on grass. The trunk is a delicate sense organ for smell and touch.

The Indian elephant is distinguished by its massive bulbous head, comparatively small ears, and the presence of four nails on the hind feet. It is rarely much more than 9 ft. high at the shoulder. The African elephant has a smaller and narrower head, very large fanlike ears, and only three nails on the hind feet. It attains a greater height, has longer legs, and a less heavy appearance than the Indian species. The trunk has two finger-like processes instead of one. Economically the African elephant is valued for its ivory, the Indian elephant as a draught animal.

ELEPHANT AND CASTLE. Design found in early MSS. and in medieval times.



Elephant. Left, African elephant, valuable by reason of its ivory tusks. Right, Asiatic elephant, a good draught animal
Photo of Asiatic elephant by Gambier D'Aton, F.Z.S.

Elephants carrying armed men into battle were used in the East from immemorial days. The Cutlers' Company, who did a large trade in ivory, adopted the animal so castled as their crest.

Elephant and Castle is the name of a London tavern in the met. bor. of Southwark, $1\frac{1}{2}$ m. from Ludgate Hill, and is applied also to the district of which it is the centre.

ELEPHANTA OR GHARAPURI. Island in Bombay Harbour, India. From 4 m. to $4\frac{1}{2}$ m. in circumference, it consists of two hills. It was so called by the Portuguese from a large stone elephant. The island is famous for its caves or rock temples.

ELEPHANT APPLE (*Feronia elephantum*). Large evergreen tree of the order Rutaceae. A native of Coromandel, it has glossy leaflets and white flowers. The fruit is as large as an apple, with a hard, woody rind containing seeds embedded in pulpy flesh. The pulp is eatable. The wood is hard and heavy but not durable. The tree exudes a gum from wounds which forms a constituent of what is known as Indian gum-arabic.

ELEPHANTIASIS OR BARBADOS LEG. Disease characterised by chronic inflammation of the fibrous connective tissue, resulting eventually in excessive swelling of the leg, scrotum, arm or breast, and less frequently other parts. The condition is due to obstruction of the lymph circulation, most often caused by infection by a parasitic worm, the filaria. Treatment is not very satisfactory. It is stated that the best results are obtained by keeping the patient in bed and injecting fibrolysin daily for three to six months.

The disease is now most often seen in India, Ceylon, China, Japan, the Philippine Islands, Fiji, Samoa, many parts of Africa, the S. United States, Central America, the West Indies, Brazil, and Peru. Its distribution is influenced by that of mosquitoes.

ELEPHANTINE. Island in the Nile at Assuan, Upper Egypt. Marking the S. limit of ancient Nile navigation, it contained the Old Kingdom frontier station, Abu, or elephant town, an entrepôt of the Sudanese ivory trade. On the W. Nile bank opposite are rock-hewn tombs of Old and Middle Kingdom governors. Under Thothmes III, Ramesses II, and other kings, its governor controlled the Assuan granite quarries. An interesting object is the nilometer, dating from the Ptolemaic period.

ELEPHANT'S-FOOT, HOTTENTOT BREAD, OR TORTOISE PLANT (*Testudinaria elephantipes*). Perennial climbing herb of the order Dioscoreaceae. It is a native of S. Africa. The huge rootstock (as much as 4 ft. across) is covered with a corky bark, ultimately cracked into angular protuberances. It contains a store of starch, eaten by the Bushmen of South Africa. The slender stems climb to a height of from 30 ft. to 40 ft., and bear small heart-shaped leaves and sprays of tiny greenish yellow flowers.

ELEUSINE. Genus of grasses of the natural order Gramineae. Natives of warm regions, they are distinguished by the flower spikes being arranged finger fashion at the top of the stem. One variety, *E. coracana*, is grown in Japan and on the Coromandel coast, where its large seeds are used as corn.

ELEUSIS. Ancient city of Attica. Said to have been founded by Triptolemus, it stands on the Bay of Levensia, 12 m. N.W. of Athens, with which it is still connected by the old causeway called the Sacred road. It was the chief seat of the worship of Demeter, in whose temple the Eleusinia were performed. These



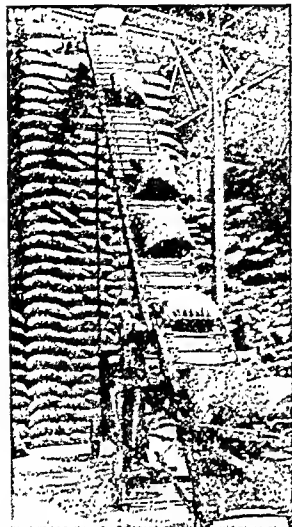
Elephant's-foot. Leaves and flowers of the S. African climber



Eleusine, showing the finger-like flowers

were rites symbolical of the death of Nature in autumn and its rebirth in spring. The city was destroyed by the Goths. It is now represented by the village Levsina, near Athens, chiefly inhabited by Albanians.

ELEVATOR (Lat. *elevare*, to lift up). American name for a grain silo or store. It contains a number of



Elevator. Interior of a grain elevator: sacks of grain being stacked

deep vertical hins, circular, hexagonal, or square in plan, and constructed of steel plates or reinforced concrete; and is equipped with elevating, cleaning, distributing, and discharging apparatus. A lift for goods or passengers is sometimes called an elevator. See Escalator.

In aeronautics, the flap, or hinged controlling surface, which raises or depresses the nose of the aircraft is an elevator. It is usually mounted at the rear of the machine, and is operated by the fore and aft movement of the control lever. See Aeroplane.

ELF. Small being common to the folklore of most countries of northern Europe. If left undisturbed elves maintain peace with men and delight in doing them service; but if interfered with retaliate with mischief. They are generally gifted with wisdom and sometimes with divination. A common characteristic of the elf was his power of becoming invisible, frequently by means of cloak or cap.

Flint arrow-heads were called elf-arrows or elf-bolts from an idea that they were weapons of these little people. They are worn as amulets (Ancient Etruria, Italy), and reproduced for sale (Meccen). In Ireland water poured over them is given to cattle.

ELGAR, SIR EDWARD (b. 1857). British composer. Born at Broadheath, Worcester-shire, June 2, 1857, he was largely self-taught as a musician. His first success was the production of *King Olaf* at Hanley in 1893. In 1899 his *Enigma* orchestral variations and his *Sea Pictures* added much to his reputation, which was firmly established by the performance of *The Dream of Gerontius* (Birmingham, 1900). His other important works are *The Apostles*, *The Kingdom*, two orchestral symphonies, and *Falstaff*. In 1904 Elgar was knighted, in 1911 was given the Order of Merit, and in 1924 was made master of the King's Musick.



Sir Edward Elgar, British composer
Lambert

ELGIN. Burgh and co. town of Moray (Elginshire). It is 80 m. by rly. N.W. of Aberdeen on the L.M.S. and L.N.E. Rlys.; Lossiemouth, its port, is 5 m. to the N. The cathedral, founded in 1224, burnt down in 1270, rebuilt, and again destroyed by fire in 1390 by the Wolf of Badenoch, and again restored, was wrecked by the fall of the central tower, 1711. Remains exist of the bishop's palace, a royal

castle, and monasteries of Black friars and Grey friars: the Grey friars' chapel was restored by the third marquess of Bute. Woollen manufacture, ironfounding, and tanning are industries. Market day, Fri. Pop. 7,776.

Elginshire is the old name of the county now called Moray (q.v.).

ELGIN, EARL OF. Scottish title held by the family of Bruce since 1633. Sir Edward Bruce, master of the rolls under James I, was made a baron in 1601, and his son Thomas was made earl of Elgin and later an English baron. In 1746 the earldom of Elgin passed to Charles Bruce, 9th earl of Kincardine, whose successors have borne the double title. Thomas Bruce, 7th earl of Elgin and 11th earl of Kincardine, a general in the army and ambassador at Brussels, Berlin, and Constantinople, is remembered as the collector of the Elgin Marbles. The family seat is Broomhall, Fife, and the earl's son is known as Lord Bruce.



Elgin Marbles. Youths bearing wine for libations to Athena; from the north frieze of the Parthenon
British Museum

The Elgin Marbles consisted largely of sculptures by Pheidias and other great artists from the Parthenon and the temple of Nike Apteros, in Athens. Despite enormous difficulties, including the wreck of the ship conveying the precious cargo to England, they were brought to London in 1806. They were for £35,000, less than half of the sum (£74,000) Lord Elgin had paid to preserve them from total destruction, and are now in the galleries of the British Museum.

ELGIN, JAMES BRUCE, 8TH EARL OF (1811-63). British diplomatist. Born in London July 20, 1811, son of the 7th earl, whom he succeeded in 1841, he was governor of Jamaica from 1842-46, and governor-general of Canada from 1846-54. In 1857 he went as a special commissioner to China, and in 1860 secured the ratification of the treaty of Tientsin. In 1862 and 1863 he was viceroy of India, where he died Nov. 20, 1863.

His son, Victor Alexander Bruce, the 9th earl (1849-1917) was treasurer of the household and first commissioner of works in Gladstone's government of 1886. From 1894-99 he was viceroy of India, and colonial secretary, 1905-08. He died Jan. 18, 1917, when his eldest son (b. 1881) became 10th earl of Elgin.

ELI. Judge and priest of Israel in the later period of the Judges. Through Samuel, who was in his service as a boy attendant, God indicated his anger at the misdeeds of Eli's sons. When the news came that the ark of the Covenant had been taken by the Philistines, Eli fell back and broke his neck.

ELIA. Name taken by Charles Lamb. It was that of a clerk in the South Sea House, and was first assumed by Lamb when in 1820 he began to contribute essays to *The London Magazine*. See Lamb, Charles.

ELIBANK, BARON. Scottish title horn since 1643 by the family of Murray, and now merged in that of Viscount Elihank. Patrick Murray was made a baron by Charles I in 1643. In 1871 Montolieu Fox Oliphant (1840-1927) became 10th baron, and in 1911 he was made a viscount of the United Kingdom. His eldest son, Alexander (1870-1920), was made Lord Murray of Elihank in 1912. Of Viscount Elihank's younger sons, Gideon, who succeeded him as 2nd Viscount in 1927, had a long record of service under the colonial office, and Arthur was M.P. for Kincardineshire, 1908-23.

ELIE. Burgh and watering place of Fifeshire. It is on the N. side of the Firth of Forth, 10 m. S. of St. Andrews and 45 m. by rly. N.E. of Edinburgh on the L.N.E. Rly. It includes Earlsferry. Pop. 1,507.

ELIJAH. Hebrew prophet. A native of Gilead (1 Kings 17, 1), he lived in the days of Ahab. He appears to have led a kind of hermit life in the mountains. On Mount Carmel he challenged the priests of Baal to a test of the rival religions by calling down fire from heaven. When the end came, Elijah passed in a chariot of fire into the heavens. Jewish tradition long held that he would reappear before the coming of the Messiah, and the chair of Elijah is still set ready at the Passover meal.

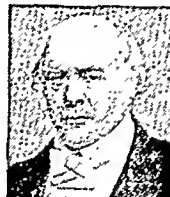
ELIOT, GEORGE. Pen-name of the English novelist Mary Ann or Marian Evans. Born Nov. 22, 1819, at Arbury Farm, near Nuneaton.

she was the daughter of a carpenter turned estate agent. Her mother's death, and the marriage of her elder sister, Christiana, threw on her shoulders, at 16 years old, the responsibility of her father's household. Here she was surrounded by the narrowest influences of evangelical revivalism, deeply confirmed by her aunt Elizabeth, the original of Dinah Morris in *Adam Bede*. She became wise in all that pertained to country life in Warwickshire, which is the background of her best work. A move to Coventry, in 1841, first brought her into a wider and more literary atmosphere. She turned her mind to such tasks as a translation of Strauss's *The Life of Jesus*, and gave up orthodox faith for ever. On her father's death in 1849 she moved to London, and was soon appointed assistant editor of *The Westminster Review*, where she wrote on ethics. Through this she made the acquaintance of G. H. Lewes, with whom she lived until his death.

It was Lewes who first discovered, almost by accident, Miss Evans's genius for fiction. He encouraged her somewhat diffident aspirations, and himself carried out all the negotiations with editors and publishers, which resulted in the anonymous appearance of three stories in *Blackwood's Magazine*, published in 1858 as *Scenes of Clerical Life*. They were followed by *Adam Bede*, 1859, *The Mill on the Floss*, 1860; and *Silas Marner*, 1861. Henceforth she lived happily and strenuously among the thinkers of the day, a professional woman of letters. Her later output embraced *Romola*, 1863, a painstaking reconstruction of the past in 16th century Italy; *Felix Holt*, the Radical, 1866, a political treatise; *Middlemarch*, 1871-72, a problem novel with three loosely-knit plots;



George Eliot, English novelist
After F. D'Albert Durade



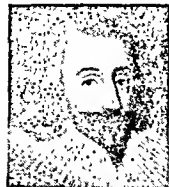
8th Earl of Elgin, British diplomatist



9th Earl of Elgin, British statesman
Elliott & Fry

Daniel Deronda, 1876, a study of an alien race: besides The Spanish Gypsy and The Legend of Jubal in verse. After Leves' death, in 1878, she married in 1880 John W. Cross, afterwards her biographer, but died on December 22 of the same year

ELIOT, SIR JOHN (1592-1632). English statesman. Born at Port Eliot, Cornwall, he was knighted in 1618. First elected M.P. in 1614, he attacked Buckingham in 1626, and was a principal promoter of the Petition of Right in 1627. On March 2, 1629, Eliot read a protest against unauthorised taxation, whilst the Speaker was forcibly held down in his chair, and two days later he was sent to the Tower, where he remained until his death, Nov. 27, 1632. Consult Life, J. Forster, 1864.



Sir John Eliot, English statesman
From a painting in the possession of the Earl of St. Germans

Another John Eliot (1604-90) was a missionary to the Red Indians. His headquarters was at Roxbury, near Boston, where he died May 20, 1690.

ELISHA. Son of Shaphat, and companion of the prophet Elijah, whose successor he became. At the translation of Elijah, he received his mantle as a sign of office. He flourished in the reigns of Jehoram, Jehu, Jehoahaz, and Joash, and had considerable influence in public affairs. His many miracles were mainly of a beneficent character.

ELIXIR (Arab. el iksir, the philosopher's stone). In pharmacy the term is used for preparations containing alcohol, flavouring agents, sometimes active ingredients as senna. It is a tincture of various substances held together by alcohol.

In alchemy, the elixir of life (elixir vitae) was believed to be a substance which would prolong indefinitely the life of anyone who consumed it. See Alchemy.

ELIZABETH (1207-31). Hungarian saint. Daughter of Andro II of Hungary, she was born at Presburg, and early showed her love of the ascetic life. Married in 1221 to Louis, ruler of Thuringia, she was driven from the court on his death in 1227. Renouncing the world, she lived at Marburg and subjected herself to the severest penances. She died on Nov. 19, 1231, and was canonised in 1235.

ELIZABETH (1533-1603). Queen of England. The daughter of Henry VIII and Anne Boleyn, she was born at Greenwich, Sept. 17, 1533. According to the Roman Catholics she was illegitimate, as Catherine of Aragon, being still alive, was Henry's legal wife. In 1536 her mother was executed, and until her accession to the throne the princess lived a hard, loveless life. In an atmosphere of suspicion she learned that duplicity was essential to self-preservation. She did, however, receive an education which gave a chance for her intellectual gifts to display themselves. In Mary's reign she was charged with complicity in Wyatt's rebellion, but proof of her guilt was not forthcoming.

In Nov., 1558, Elizabeth became queen. She herself was the ruler of the country, although she chose her counsellors with profound insight. Public opinion demanded that she should

marry, and for 25 years she played with marriage proposals, the most notable of her suitors being Philip II of Spain: the Austrian archduke Charles; Henry of Anjou, afterwards Henry III of France; and finally his brother, Francis. Fears were at one time entertained that she might marry her undesirable favourite, Robert Dudley, whom she made earl of Leicester. It was not till she reached the age of 50 that the theory of her probable marriage was finally abandoned.

The main events of Elizabeth's reign were the settlement of the religious difficulty by the establishment of a national church system which, although displeasing to extremists on both sides, has stood the stern test of time; and the defeat of the Armada in 1588, by which Spain was crushed and England secured the mastery of the seas. Linked with the struggle with Spain and the tortuous policy pursued by the queen towards France and other foreign powers was the question of the succession to the throne, which became more pressing as Elizabeth grew older and the chances of a direct heir grew less. Mary queen of Scots, a prisoner for 19 years, was the centre of a series of plots, which only ended with her execution in 1587.

The concluding years of the queen's reign were marked by her romantic attachment to Essex and his tragic death; and by signs that parliament was prepared to claim a larger share in affairs of state. Elizabeth died at Richmond, March 24, 1603, having to the end refused to name anyone as her successor, although tacitly recognizing that James of Scotland would become king.

ELIZABETH (1837-98). Empress of Austria. Born Dec. 24, 1837, the daughter of Maximilian I, king of Bavaria, she married Francis Joseph of Austria, April 24, 1854. In 1877 she was crowned queen of Hungary. In 1889 her only son, Rudolf, died in tragic circumstances. The empress was mortally stabbed by an Italian anarchist at Geneva, Sept. 10, 1898.



Elizabeth, Queen of the Belgians

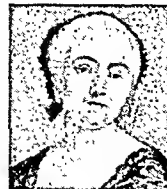
ELIZABETH (b. 1876). Queen of the Belgians. Born July 25, 1876, she was the younger daughter of Charles Theodore, a member of a younger branch of the family that until 1918 ruled over Bavaria. On Oct. 2, 1900, she was married at Munich to Albert, who in 1909 became king of the Belgians. See Albert.

ELIZABETH (1843-1916). Queen of Rumania. Born at Neuviad, Dec. 29, 1843, the daughter of Prince Hermann of Wied, in 1869 she married King (then Prince) Carol of Rumania. She endeared herself to her adopted country by her ministrations to the wounded in the war with Turkey (1877-78), and founded the order of Elizabeth to reward distinguished Red Cross work. She died March 2, 1916. A woman of cultivated tastes, a fine musician, and no mean painter, the queen wrote under the pen-name of Carmen Sylva and published poems and stories in Rumanian, German, French, and English.



Queen Elizabeth
From the painting by F. Zuccaro

ELIZABETH (1709-62). Empress of Russia. Daughter of Peter the Great, she was born Dec. 18, 1709. On Dec. 6, 1741, she dethroned the child emperor, Ivan VI, and mounted his throne. Throughout the Seven Years' War she worked steadfastly for Russian interests, implacable in her opposition to Frederick II of Prussia. To the latter's great relief she died on Jan. 5, 1762. Elizabeth founded the university of Moscow, 1755, and the Academy of Arts at St. Petersburg.



Elizabeth, Empress of Russia

ELIZABETH, PHILIPPINE MARIE HELENE (1764-94). French princess, usually known as Madame Elizabeth. Born at Versailles, May 3, 1764, she was a granddaughter of Louis XV. Accused of aiding her brother, Louis XVI, and the royalist troops in 1792, she was guillotined, May 10, 1794.

ELIZABETH (b. 1926). English princess. The daughter of the duke and duchess of York, she was born in London, April 21, 1926, and baptized as Elizabeth Alexandra Mary. The fact that her uncle, the Prince of Wales, was unmarried made the princess a person of importance, as, owing to the laws governing the succession, she stood third in the line of succession. See York, Duke of.

ELIZABETHVILLE. Town of the Belgian Congo, headquarters of the Katanga prov. It is 2,305 m. from Cape Town and 292 m. from Bukama, on the Luabala portion of the Congo river. There are rich copper deposits in the neighbourhood. There is a postal air service between Elizabethville and Boma.

ELIZABETPOL or GANJA. Town of the Socialist Soviet Republic of Azerbaijan. It is 90 m. by rly. S.E. of Tiflis. There are many Armenian churches. Fruit, vegetables, and tobacco are grown. Pop. 57,394.



Elizabeth, British princess
Marcus Adams

ELK (Alces uachilis). Largest member of the deer family, known in America as the moose. The European elk is found in Scandinavia, E. Prussia, Poland, and parts of Russia; but is now much diminished in numbers. The adult is usually about 6½ ft. high, and may weigh as much as 1,000 lb. It is long in the leg, of heavy build, short in the neck, with long ears, and has a very long head with overhanging muzzle. The antlers of the male are palmated and very broad. It inhabits dense forests, where it feeds mainly on the leaves and young branches of the willow and birch, as well as on lichens and moss. See Moose; also illus. above.



Elizabeth, Queen of Rumania
(Carmen Sylva)

EL KANTARA. Town of Egypt, on the Suez Canal. Here on Jan. 26, 1915, in their first invasion of Egypt, an advance guard of Turks came into touch with a British patrol. On Feb. 3 they launched subsidiary attacks against the canal at El Kantara and other points to cover their main attack at Scrappeum, 32 m. farther S. This battle for the canal ended in the defeat of the Turks. See Egypt; Palestine.

ELL (Lat. ulna, Ger. ellenbogen, Eng. elbow). Medieval European measure of length. It varies from the English ell, borrowed from France, which equals 45 ins., to the Scottish of 37 ins., and the Flemish of 27 ins.

ELLAND. Urban district of Yorkshire (W.R.). It is on the Calder, 3 m. S.E. of Halifax, and has a station on the L.M.S. Rly. It has textile manufactures. Pop. 10,554.

ELLENBOROUGH, EDWARD LAW, BARON (1750-1818). British lawyer. Born at Great Salkeld, Cumberland, Nov. 16, 1750, he was called to the bar in 1780 and eight years later was leading counsel for Warren Hastings (q.v.). In 1802 he was appointed lord chief justice and created a peer. He died Dec. 13, 1818.



1st Earl of Ellenborough.
British administrator

His eldest son, Edward Law, 1st earl of Ellenborough (1790-1871), entered Parliament in 1813. Made lord privy seal in 1828, he was transferred the same year to the presidency of the board of control, and in 1841 became governor-general of India. He annexed Sind in 1842 and subdued Gwalior in 1844, in which year he was created an earl. He was made first lord of the Admiralty in 1846, and president of the board of control in 1858. He died Dec. 22, 1871.



Ellen's Isle, in Loch Katrine, immortalized in Scott's poem *The Lady of the Lake*

Ellen's Isle or **EILEAN MOLACH**. Islet in Loch Katrine, Scotland. It is largely the scene of Scott's *Lady of the Lake*.

ELLESMERE. Urban dist. and market town of Shropshire. It is 11 m. S.W. of Whitelure, on the G.W. Rly., and on the mere and canal of the same name. S. Mary's Church is a fine Gothic structure. Market days, Tues. and Sat. Pop. 1,850.

Earl of Ellesmere is a British title borne since 1846 by the family of Egerton. Francis Leveson-Gower, a younger son of the 1st duke of Sutherland, assumed the name of Egerton in 1833, when he inherited the estates of the Egertons, dukes of Bridgewater. He was created earl of Ellesmere in 1846, and from him the present earl is descended. The earl's chief seat is Worsley Hall, Manchester, but he has property in Shropshire, where is Ellesmere. His eldest son is called Viscount Brackley. See Bridgewater, Duke of.

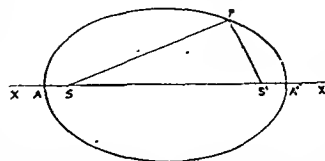
Ellesmere Island is a large island of British N. America, in the Arctic region, N. of Devon Island, separated from Greenland by Smith Sound, Kennedy Channel, and Robeson Channel. It is a desolate tract of ice and snow.

ELLESMERE PORT AND WHITBY. Urb. dist. of Cheshire. It is 7 m. N. of Chester, at the junction of the Manchester Ship and Ellesmere Canals. An embankment separates the Mersey from the Manchester Ship Canal. The Ellesmere and Chester Canal, connecting the Dee and the Mersey, connects Chester with Ellesmere port. There are large docks and dyeworks. Pop. 16,500.

ELLICE ISLANDS. Group of coral islands in the Pacific Ocean. The chief industries are connected with phosphates and copra. With other islands they were annexed by Great Britain in 1915 as the Gilbert and Ellice Islands Colony, and are under the jurisdiction of the high commissioner for the W. Pacific. Area, 14 sq. m.; pop. 3,582.

ELLIOTT, MAXINE (b. 1873). American actress. Born in Rockland, Maine, Feb. 5, 1873, she began acting in *The Middleman*, with E. S. Willard (New York, Nov. 10, 1890), and was soon taking leading parts. Her first appearance in London was as Silvia in *The Two Gentlemen of Verona*, Daly's, July 2, 1895; from then onwards she acted in England frequently, a notable success being *Zuleika* in *Joseph and His Brethren* (His Majesty's, 1913). Her sister, Gertrude, also an actress, was the wife of Sir J. Forbes-Robertson (q.v.).

ELLIPSE (Gr. elleipsis). Conic section often called an oval. It is a plane curve such that the sum of the distances from any point of two foci on it is a constant.

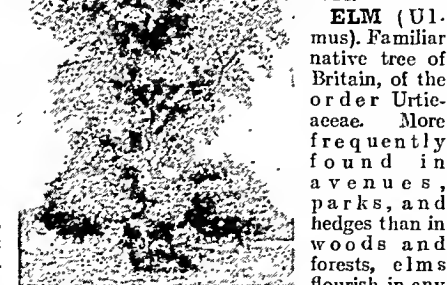


Ellipse. SS' , foci on the axis XX' . AA' principal diameter. P is any point on the ellipse, and has the property that $SP + S'P$ is constant

ELLIS ISLAND. Island off New York harbour. In 1891 it was bought from New York State by the U.S. government for use as a centre for dealing with alien immigration into the U.S.A.

ELLORA. Ruined town of India, in Hyderabad state. Situated 13 m. N.W. of Aurangabad, it is famous for its rock temples dating from the 5th to the 9th or 10th century, the finest being the Kailas temple, built in the 8th century. The caves cover the face of a hill for 1½ m. and belong to three groups—Buddhist, Brahminical, and Jain.

ELLWOOD, THOMAS (1639-1714). English author and Quaker. He was born at Crowell, Oxfordshire, and became a Quaker in 1659. He became companion and reader to Milton after the latter lost his sight, and suggested to him the idea of *Paradise Regained*. He wrote various polemical treatises, but his most important work is his autobiography, which was finished by Joseph Wyeth and first published in 1714. He died March 1, 1714.



Elm tree in full foliage. It is a comparatively shallow rooting tree
F. R. Hinkins

80 ft. or thereabouts require a rich alluvial loam. The most familiar species are wych elm (*U. montana*) and the bell elm (*U. campestris*). The timber of elms has a tendency to decay inwardly, involving danger of the limbs dropping off suddenly, without any warning, especially in high winds.

ELMAN, MISCHA (b. 1891). Russian violinist. Born at Talnoy, Russia, Jan. 20, 1891, he received his musical education at Odessa and St. Petersburg. He made his début there in

1904, afterwards appearing in Berlin, Dresden, and elsewhere. His first appearance in London took place March 21, 1905; in New York in 1908. From the first he was recognized as one of the world's greatest violinists.

EL PASO. City of Texas, U.S.A. A health resort and port of entry, it stands 3,760 ft. above sea level on the Rio Grande, which separates the state from Mexico. It is the terminus of the National of Mexico and several other rlys. Among its buildings are the federal building, the city hall, and a Carnegie library. Its educational institutions include a school of mines and metallurgy. Elephant Butte dam was completed in 1916. The chief industry is the smelting of copper and lead ores. Pop. 113,500.

ELPHINSTONE, MOUNTSTUART (1779-1859). British administrator. Born Oct. 6, 1779, the fourth son of the 11th Baron Elphinstone, he entered the Bengal civil service in 1796. He was for some years at Poona, and from 1819-27 was governor of Bombay. He compiled the famous legal code known by his name, and virtually founded the system of state education in India. Elphinstone College, in Bombay, was endowed by the natives as a memorial to him. He died Nov. 20, 1859.

ELPHINSTONE, WILLIAM (1431-1514). Scottish prelate, founder of Aberdeen University. He was educated at Glasgow University, of which he became rector in 1474, was made bishop of Ross in 1481, and nominated to the see of Aberdeen in 1483. In 1488 he was appointed lord chancellor, and lord privy seal in 1492. In 1494 he established King's College, the original foundation of Aberdeen University, securing grants from James IV for its maintenance. He introduced the printing press into Scotland, 1507. He died at Edinburgh, Oct. 25, 1514.

ELSLINORE (Dan. Helsingör). Seaport of Denmark, on the island of Zealand. It stands on The Sound, and has ferry communication with Helsingborg on the Swedish coast, and connexion by rly. with Copenhagen. Ship-building is carried on. The place is the scene of Shakespeare's *Hamlet*. Pop. 17,100.

Elstow (formerly Helenstow). Village of Bedfordshire. It is 1 m. S. of Bedford. Bunyan (q.v.) was born at Harrowden, 1 m. away.

ELSTREE. Town of Hertfordshire. It has a station on the L.M.S. Rly., 7 m. S. of St. Albans. The church of S. Nicolas was rebuilt in the 19th century. Boreham Wood, near Elstree, is a centre of the film industry, several large studios having been built there. Pop. 2,238.

ELSWICK. District of Northumberland. It forms part of Newcastle-upon-Tyne, and has a station on the L.N.E.R. Here are the Elswick Works of Sir W. G. Armstrong, Whitworth & Co., Ltd.

EL TEB, BATTLE OF. Fought by the British, Feb. 29, 1884, against the Arabs. El Teb is a post in the Anglo-Egyptian Sudan on the road from Trinkitat on the Red Sea to Tokar. In 1883 Osman Digna was besieging Tokar, and Valentine Baker, with a force of 4,000 men, was sent to relieve it. He was defeated, and Tokar surrendered. A British force of 4,400 men was then landed at



Mountstuart Elphinstone, British administrator
From a portrait in the British Museum

Suakin On Feb 29 this defeated the Arabs in their camp at El Teb.

ELTHAM. District of Kent, in the met. bor. of Woolwich, 7 m S.E. of London Bridge. It has stations at Motttingham, Well Hall, and Eltham Park on the Southern Ry. Open spaces include Eltham Park and Avery Hill. Eltham Palace was built towards the end of the 13th century. Its extant portions, the banqueting hall and part of the old kitchens, are fine examples of domestic architecture of the reign of Edward IV. The 15th century bridge across the moat remains. Pop. 28,308.

There is a township of North Island, New Zealand, called Eltham, on the main line from Wellington to New Plymouth, from which it is distant 36 m.

The title Earl of Eltham is borne by the eldest son of the marquess of Cambridge (q.v.).

ELVEY, SIR GEORGE JOB (1816-93). British organist and composer. Born at Canterbury, March 27, 1816, in 1835 he was made organist of S. George's Chapel, Windsor, retaining this post until 1882. He was knighted in 1871, and died Dec. 9, 1893. Elvey's compositions are chiefly in connexion with church music.



John Elwes,
British miser.

ELWES, JOHN (1714-89). British miser. Born April 7, 1714, son of Robert Meggott, on succeeding to the estate of his uncle, Sir Hervey Elwes of Stoke College, Suffolk, he assumed his name. He was M.P. for Berkshire 1774-87. After a life of the utmost penury and niggardliness, during which he let the estate go to ruin for want of repairs, he died Nov. 26, 1789. He left a fortune of over £500,000.

ELY. City, urban dist. and market town of Cambridgeshire. On the Ouse, in the Isle of Ely, it is 16 m. N.N.E. of Cambridge on the L.N.E.R. The present cathedral was begun in 1083. It embraces every style from Early Norman to Late Perpendicular. The W. portion of the nave and W. tower were added in 1180; the Galilee or W. porch was completed about the beginning of the 13th century; the choir was erected between 1235-52; the Decorated octagon tower and lantern, finished in 1328, took the place of the central tower, which collapsed six years earlier; the lady chapel (now the parish church) dates from 1321-49. Within the precincts are the Tudor bishop's palace, the King's School (1541), a theological college, and a park. Ely became a bishopric in 1109. Market day, Thurs. Pop. 7,690.

ELYOT, SIR THOMAS (c. 1490-1546). English diplomatist and scholar. A native of Wiltshire, he was knighted by Henry VIII and sent on several embassies. His most famous work is *The Book named The Governor*, 1531, the first on the subject of education written and printed in the English language. He also compiled a Latin-English dictionary, 1538. He died at Carleton, Cambridgeshire, March 20, 1546.



Sir Thomas Elyot,
English diplomatist
After Holbein

ELYSEE. Palace in Paris, the official residence of the president of the French Republic. In the Faubourg St. Honoré, a garden separates it from the Champs Elysées. It was built in 1718 for the comte d'Evreux, but passed later into royal hands. After 1870 it became the official residence of the president. See Paris.

ELYSIUM OR THE ELYSIAN FIELDS. In classical mythology, the abode of the souls of the good after death. Some legends make Elysium a part of the underworld, others make it an island in the Atlantic Ocean. Elysium is represented as a place of perpetual sunshine with flowery meadows and pleasant streams.

ELZEVR. Name of a family of printers which is given also to some famous books printed by them, e.g. pocket editions of the Greek Testament, Latin and Italian classics, and French memoirs. The firm, founded in Leiden in 1583 by Louis Elzevir, was carried on after 1655 at Amsterdam by members of the family until 1681, and ended in 1712. The publications of the firm, dated from 1626 to 1680 are generally the most valuable.

EMBALMING (Fr. em, in, baume; Gr. balsamon, balm). Art of preserving dead bodies. Among the ancient Egyptians, and possibly the Peruvians, embalming originated in the idea of the resurrection of the body. Herodotus describes three Egyptian methods, all involving the use of aromatic and antiseptic preparations. Usually the internal organs were separately embalmed and placed in jars. The Egyptians also embalmed cats, crocodiles, hawks, and other sacred animals and birds.

The ancient Persians apparently embalmed with wax, the Assyrians with honey, and the Guanehes, the aborigines of the Canary Islands, in the Egyptian manner. Embalming has long been practised in Europe and is fairly common in the U.S.A.

EMBANKMENT. Mound of loose material artificially formed, or a bank supported by artificial means. Embankments may be classed as (a) embankments formed simply by tipping material and allowing the sides to assume the natural angle of repose of the material of which they consist, as in railway embankments; (b) reservoir embankments for containing and resisting the pressure of water; these are lined with concrete or stone, and rendered watertight by a vertical wall of clay puddle in the centre of the bank;

(c) embankments of earth or similar material retained, supported, and protected by walls.

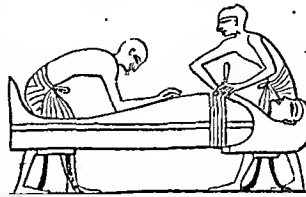
EMBASSY. Term used for an ambassador and his staff collectively. It is also used for the building which serves as their headquarters. By international courtesy the building is regarded as standing on the soil of the country to which the ambassador belongs. See Ambassador; Diplomacy.

EMBER DAY. In the Anglican and Roman Catholic Churches, fasts of the four seasons. They are the Wednesday, Friday, and Saturday after the 1st Sunday in Lent, Whitsunday, Sept. 14 (Holy Cross Day), and Dec. 13 (feast of S. Lucy). The weeks in which these days occur are called Ember Weeks.

EMBEZZLEMENT. In English law, the wrongful appropriation to his own use, by a clerk or servant, of money received by him from his master. It must be distinguished from larceny. In the latter case the servant steals property which has been in his master's possession; in embezzlement he intercepts it.

EMBLEM (Gr. emblēma, an insertion). Originally meaning an ornament inserted on a mosaic or vase, the term is now generally used for an object or representation symbolic by reason of its connexion with another object, person, or event. It is also used for the marks used by printers to distinguish the work of their press.

In art the emblem has played an important part, especially in the representation of Christian saints, etc. Among the commonest are the keys of S. Peter, the lamb of S. John Baptist, and the dragon of S. George. Emblems are also given to various virtues and religious conceptions.

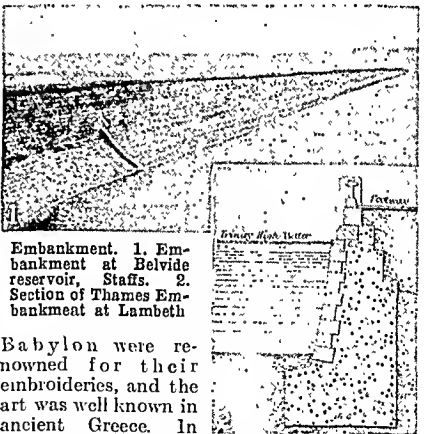


Embalming. Egyptian embalmers at work, from a relief

EMBOLISM (Gr. embolos, stopper, plug). Obstruction of a blood vessel by material which has been carried along in the bloodstream. The commonest cause of embolism is detachment of a blood-clot or portion of a blood-clot which has formed in a vein.

Embolism of a coronary artery may cause sudden death; embolism of the brain may lead to paralysis; embolism affecting the main blood supply to a limb leads to sudden pain, swelling, and pulselessness, followed by gangrene in some cases or by recovery where other vessels enlarge and replace the blocked circulation.

EMBROIDERY. Art of decoration by means of needle and thread. Its practice is of the highest antiquity. Phrygia and ancient



Embankment. 1. Embankment at Belvide reservoir, Staffs. 2. Section of Thames Embankment at Lambeth

Babylon were renowned for their embroideries, and the art was well known in ancient Greece. In Christian times embroidery became the handmaid of the Church, and so the most ancient examples are ecclesiastical vestments. The oldest existing vestments are those at Arles, dating from the 6th century. One example of medieval embroidery that stands alone is the Bayeux Tapestry (q.v.).

In the 13th century English embroideries were without equal, but in the 15th century the art deteriorated. In Elizabethan times the elaborate embroidery on ecclesiastical vestments was extended to secular dresses and furniture. Magnificent bed-curtains ornamented with trees and large leaves full of elaborate detail were made in the Jacobean period, while under the Hanoverian kings the highly ornate court dresses afforded excellent opportunity for the art of the needle. Later it sank to a low ebb in slavish imitations of

paintings, but the revelation of Japanese art, and the study of Eastern examples have restored embroidery to a very high level.

There are many kinds of embroidery, such as cut-work, appliqué, couching, quilting, etc., while the principal stitches are chain, feather, satin, cushion, comb, cross, tent, lace, long-and-short, back, herringbone, buttonhole, and many Eastern stitches.

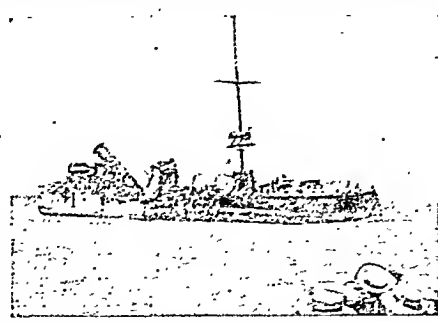
EMBRYOLOGY (Gr. *embryon*, embryo; *logos*, science). Science of the individual life-cycle, especially of the early stages during which a germ grows into a body. Generally the individual life of plant or animal begins in the intimate union of two germ-cells or gametes, a more passive egg-cell or ovum and a more active sperm-cell or spermatozoon. What follows refers chiefly to animal development. In most animals the egg-cells are formed by the multiplication of primitive germ-cells within the ovary. The egg-cell usually accumulates yolk-material. The yolk is furnished by the blood or other nutritive fluid of the parent or by special yolk glands. Around the egg are eventually formed sheaths or envelopes of various kinds. Most ova are minute spheres, and the majority are microscopically minute. The egg-cell or oosphere of a flowering plant lies within an "embryo-sac," within the ovule, within the ovary. When it is fertilised, by a nucleus from the pollen-tube, it divides and re-divides to form an embryo. In flowerless plants the male element is usually a motile antherozoid.

The intimate union of the mature ovum and spermatozoon is called fertilisation. The head of the spermatozoon, penetrating the ovum, swells up; it moves towards the reduced ovum-nucleus and the two coalesce. On the heels of fertilisation comes segmentation, the egg-cell dividing into many daughter-cells. The result may be a solid ball of cells (morula), a hollow ball (blastula), or a disk (blastoderm). In many developing eggs which are not enumerated with much yolk material a blastula becomes indented to form a two-layered sac of cells (the gastrula). The outer layer is called the ectoderm or epiblast, the inner layer, the endoderm or hypoblast. In sponges and Coelenterates there are only two fundamental layers; in higher forms an intermediate layer, the mesoderm or mesoblast, is established.

As development proceeds new kinds of material become evident; all sorts of different cells—nervous, muscular, glandular, connective, and so on—appear; tissues and organs arise. But while this differentiation is in progress the developing body is also integrated. The germ has somehow had enregistered within it the many developments manifested in the past by the race to which it belongs. Development is the actualisation of this inheritance, and it comes about in such a way that there is in the individual a condensed recapitulation of the evolution which has been the work of ages. See *Biology*; *Cell*.

EMDEN. Seaport and town of Prussia, in the province of Hanover. Near the mouth of the Ems, 50 m. W.N.W. of Oldenburg, it is the terminus of the Dortmund-Ems canal. The port and its harbours are on a ship canal, which connects with the Ems, 2½ m. away, and other canals. The chief churches are the Great Church, Gasthaus Church, and New Church. The 16th century Renaissance town hall contains a collection of firearms. Pop. 27,807.

EMDEN. German light cruiser. A sister ship to the Dresden, she displaced 3,600 tons and had ten 4.1-in. guns. She was launched in



Emden. The German light cruiser when she had been driven ashore on one of the Cocos Islands in 1914

1908. Early in the Great War the Emden did much damage to British commerce. The Australian cruiser Sydney learning that the Emden was at Cocos Island, drove her ashore at North Keeling Island and destroyed her, Nov. 9, 1914. See *Cocos*; *Dresden*.

EMERALD. Green variety of mineral beryl. It crystallises in hexagonal system, and forms long six-sided prisms; it is valued as a gem-stone on account of its colour. Emeralds of antiquity came from Egypt; its mines, reopened in the 19th century, yield handsome stones, generally small in size and pale in hue. The finest crystals come from South America, chiefly Colombia, and from the Urals; a few are found in Austria, Australia, and the U.S.A. Other stones are known as emeralds, e.g. corundums, tourmalines, garnets, spodumenes, and peridots. See *Beryl*.

EMERSON, RALPH WALDO (1803–82). American poet, essayist, and philosopher. He was born at Boston, Mass., May 25, 1803, the son of a Unitarian minister. After graduating at Harvard in 1821, he spent three years in teaching, and then, having entered the Unitarian ministry, was appointed joint minister of the Second Church in Boston, 1829, a position he resigned in 1832.

The first volume of his famous essays was published in 1841, and a second series followed three years later. In 1847 the first collection of his poems was published. He twice visited England, and formed friendships with Carlyle and other writers. On the second occasion, in 1847, he delivered a series of lectures on Representative Men—Plato, Swedenborg, Montaigne, Shakespeare, Napoleon, and Goethe. The volume containing these addresses was published in 1850. In 1856 the fruits of his observation during his stay in England were embodied in a rarely discriminating volume, *English Traits*. Writing and lecturing, he came to take a high position as the chief leader of American thought of his generation. He died at Concord, where his house still stands, Apr. 27, 1882, and is buried there in the famous cemetery of Sleepy Hollow.

EMERY. Dark, granular variety of mineral corundum. In association with schistose

rocks it occurs in Saxony, and in Naxos and other Greek islands. In the U.S.A. it is largely worked at Peekskill, New York. Owing to its extreme hardness, it is used for abrasive purposes, the commercial emery being a mechanical mixture of corundum, magnetite or hematite, and sometimes spinel.

EMERY, WINIFRED (1862–1924). Stage name of Isobel Winifred Maud Emery Maude, British actress. Born at Manchester, Aug. 1, 1862, and belonging to a well-known theatrical family, in 1888 she married Cyril F. Maude (q.v.). Her first appearance on the stage was in Liverpool, 1870, as Geraldine in *The Green Bushes*. Her début as an adult was at *The Imperial*, Westminster, April 14, 1879, in *Man is Not Perfect*. A versatile actress, she appeared with Wilson Barrett, Comyns Carr, Forbes-Robertson, and Beerbohm Tree, and accompanied Henry Irving to the U.S.A. in 1884 and 1887–88. She died July 15, 1924.

EMETIC (Gr. *emetikos*). Drug which causes vomiting. Emetics are occasionally used to relieve dyspepsia by evacuating the stomach of its contents, and also in conditions of difficulty of breathing caused by bronchitis, especially in children, when the act of vomiting stimulates the respiratory mechanism.

The great use of emetics is to remove poison from the stomach. This form of treatment may be adopted with safety in almost all cases except poisoning from strong mineral acids and carbolic acid, which are apt to corrode the stomach wall and render violent movement of the organ undesirable. The simplest emetics are a tablespoonful of mustard, or one or two of salt, in a tumbler of warm water.

EMETINE. Chief alkaloid found in the roots of ipecacuanha (*Cephaelis Ipecacuanha*). Emetine is a violent emetic, but in medicinal doses is a valuable remedy for certain forms of dysentery.

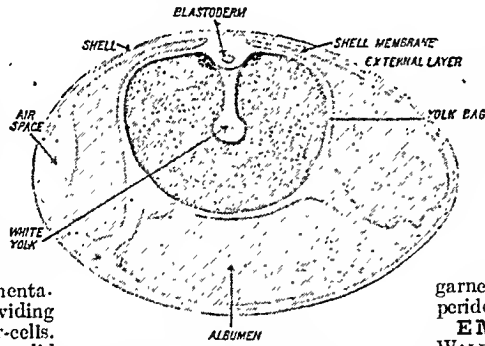
EMIGRATION (Latin *e*, from; *migrare*, to change one's residence). Systematic migration of the surplus population of one land to another for the purpose of settlement. The modern emigration movement began after the discovery of America, developing contemporaneously with the era of the merchant adventurers.

Zeal for the Catholic Church led Spain to attempt to establish on a large scale Catholic nations in S. America. The departure of the Pilgrim Fathers from Plymouth in 1620 for New England laid the foundations of the U.S.A. of to-day. A second great impelling force has been poverty. The most marked example of this was the steady exodus of the Irish people to America during the Irish famines in the 19th century. The third cause is love of adventure and ambition.

The abundant industrial openings and the high wages of the U.S.A. made it for many years the Mecca of the European emigrant. Soon, however, this and other countries began to object to many of the emigrants as belonging to a class lower in the scale of civilization than they themselves. In the British Empire, Canada and Australia adopted a policy of refusing to receive settlers unless up to a certain standard of wealth and education. In 1921 the United States adopted a system by which only a certain number of emigrants, fixed on the number already in the country, were allowed from each nation. In 1928 the number of emigrants from Britain to other countries totalled 397,247.

One of the most significant movements of recent years has been the large Japanese emigration all over the Pacific coast and islands due to the rapid growth of Japanese population. This has given rise to serious difficulties with the white nations of the Pacific.

The emigration of British subjects to the dominions and foreign countries is super-



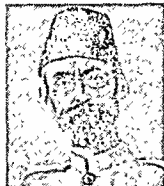
Embryology. Hen's egg shown in section



R. W. Emerson, American essayist

intended by the Oversea Settlement Office, a department of the British Colonial Office. The address of the office is Caxton House, Tothill Street, London, S.W.1. See Alien; Colonisation; Immigration.

EMIN PASHA (1840-92). German administrator. Born at Oppeln, Silesia, March 28, 1840, of Jewish parents, his real name was Edward Schnitzer. After studying medicine at Breslau and Berlin, he took up an appointment on the staff of Hakki Pasha, in Turkey, and adopted a Turkish name. In 1876 he went to Egypt, and in 1878 was appointed by Gordon governor-general of the Equatorial province. When the Sudan was abandoned



Emin Pasha, German administrator

in 1883, Emin was left in the heart of the country, whence he was rescued by Stanley in 1889. He met his death at the hands of Manyama Arabs in Oct., 1892. His success in abolishing the slave trade and his observations of the flora, fauna, and meteorology of the country gained him an enduring reputation.

EMIR. Arabic word meaning commander, also spelt ameer or amir. It is used for chiefs and other rulers of certain Mahomedan peoples, the form emir being mainly confined to those in Africa.

EMMAUS. Ancient town of Palestine. It is now represented by the village of Amwas, on the road between Jaffa and Jerusalem. It is not to be confused with the Emmaus of the N.T., near which Christ appeared to His disciples after the Resurrection, the site of which is unknown.

EMMET, ROBERT (1778-1803). Irish nationalist. Youngest son of the physician to the viceroy, and brother of the United Irishman, Thomas Addis Emmet, he was born in Dublin. Between 1800-2, Emmet travelled on the Continent, and was fired with the idea of securing French aid in a rising against England. He collected arms at various depots in Dublin and drew up a plan of campaign for a rising on July 23, 1803. This, however, was frustrated, and Emmet fled into the Wicklow Mts. On Aug. 25 he was arrested near Harold's Cross, was found guilty of treason, and hanged, Sept. 20, 1803.



Robert Emmet, Irish nationalist
After Petrie

EMPEDOCLES (c. 495-435 B.C.). Greek philosopher of Agrigento in Sicily. He was the first to teach that all material substances are compounded from the four so-called elements, fire, air, earth, and water. According to legend, Empedocles threw himself into the burning crater of Etna in order that the completeness of his disappearance might engender the belief that he had been translated alive to heaven. This legend is the subject of Matthew Arnold's *Empedocles on Etna* (1852). Pron. Emped-o-kleez.

EMPEROR (Lat. *imperare*, to command). Title applied to sovereigns of the highest class. It was first used in this sense by Julius Caesar, who, among other titles, called himself imperator. His nephew Augustus established the empire, and the title was borne by his successors both in Rome and in Constantinople: it was taken by Charlemagne when, in 800, he founded the medieval empire. In the 19th century it was assumed by several rulers who regarded themselves as more powerful than ordinary kings. Chief among these was Napoleon, who in 1804 assumed it.

While the English translated the word imperator as emperor and the French as empereur, the Germans had rendered it as Kaiser, a tribute to Caesar, and this was the title taken by Francis II when he became emperor of Austria in 1804. The British sovereign is called emperor of India, a translation of Kaiser-i-Hind, the title taken by Queen Victoria in 1876. See Empire.

EMPEROR MOTH (*Saturnia pavonia*). Large night-flying moth, fairly common in many parts of Great Britain. The wings are mottled brown and tawny, with a conspicuous eye in the middle of each. The caterpillar feeds on the willow, bramble, heather, and various other plants. See Moth.



Emperor Moth. Female of the species *Saturnia pavonia*
John J. Ward

EMPHYSEMA (Gr. *inflation*). Condition in which the alveoli or air-cells of the lungs are over-distended with air and their walls atrophied. It is due mainly to long-continued increase of pressure of the air within the lungs, and is most often seen in players on wind instruments, glass-blowers, and sufferers from chronic bronchitis.

Emphysema produces enlargement of the chest, which becomes barrel-shaped. The incomplete oxygenation of the blood may lead to cyanosis or blueness of the face. The disease may persist for many years, but gradually becomes worse. Medical treatment is not of much avail. If possible sufferers should spend the winter in a warm climate.

EMPIRE. Word derived from the Roman word *imperium* and meaning rule. It was used to describe the lands ruled by an emperor, the most powerful of temporal rulers, who claimed to be superior to kings. The Roman empire founded by Augustus was succeeded by the medieval empire known as the Holy Roman Empire, and by the Byzantium empire at Constantinople. In the 19th century there arose the Austrian, French, and German empires, and in the New World those of Brazil and Mexico.

The great states that existed before the Christian era are, for convenience, called empires, and we are familiar with a cycle of empires—those of Assyria, Persia, Macedonia preceding that of Rome. At present the tendency is to describe a federation of states as an empire, the great use of the word in this sense being for the British Empire.

HOLY ROMAN EMPIRE. Called frequently the Empire, this came into being when Charlemagne was crowned at Rome in 800, and at first it consisted of his dominions. Under his successors it was divided into three parts, and in the 10th century fell into decay. The tradition, however, remained, and in 962 it was restored by the duke of Saxony, Otto I, who was crowned at Rome and who claimed authority over much of Europe. In the 11th century the Empire became involved in that tremendous struggle with the Papacy for the lordship of Christendom in which the dominating figures were Hildebrand (Gregory VII) and Frederick I.

By this time the Empire had become a great mass of principalities, large and small, lay and ecclesiastical, of which one of the German princes was the official head. In 1273 Rudolph of Hapsburg laid the foundations of the greatness of that famous house, and from 1437 until 1806 a Hapsburg was, with one exception, at the head of the Holy Empire. After the Thirty Years' War (1648) the independence of the greater German princes

was an established fact, strengthened in 1785 when Frederick the Great of Prussia formed the *Fürstentum* to maintain their constitutional rights. In 1806 Francis, who had just taken the title of emperor of Austria, dropped the older title and the Holy Roman Empire ended. See British Empire; Byzantium; Charlemagne; Elector; Papacy; Rome; etc.

EMPIRE DAY. British imperial celebration held annually on May 24, the anniversary of Queen Victoria's birthday. The first official celebration was held in 1904. The movement was started in 1902 by the earl of Meath (q.v.).

EMPIRE STYLE. In decoration and furniture, a development of the Directoire style, an outcome of the admiration felt by the leaders of the French Revolution for Greek and Roman culture. The style was, therefore, severely classical in outline and decoration. The rectilinear outline was adopted, legs of tables and chairs were straight or tapered, round and fluted or reeded. Classic moldings, capitals and pediments, with a few republican symbols and animal masks, were the principal decorative commonplaces. Imperial symbols, such as the eagle, bee, and crowned N, replaced the republican designs. Medallion portraits and figures were used, together with heavy gilded mountings of classic design. Much of the furniture was painted white, or gilded.

EMPLOYERS' LIABILITY. Legal term for the liability of an employer for injuries to his employees. The Employers' Liability Act of 1880 gives right of action for damages to persons engaged in manual labour other than domestic servants on account of (1) defect in machinery through master's or fellow-servant's negligence; (2) negligence of responsible official; (3) wrongful act done in obedience to by-laws of firm or its authority; (4) negligence on the railway. It is closely linked with the system of Workmen's Compensation (q.v.).

EMPLOYMENT EXCHANGE. British organization for bringing employer and employee into touch. They were established in the United Kingdom under the Unemployed Workmen's Act, 1905, and managed by local authorities. Under the Labour Exchanges Act of 1909 exchanges were opened Feb., 1910, the control of which was placed in the hands of the board of trade, with general advisory committees in principal centres. In 1916 the name was altered to Employment Exchange, and they are controlled by the ministry of labour. See Labour; Unemployment; Wages.

EMPHYSEMA (Gr. *suppuration*). Collection of pus in the pleural cavity—that is, between the layers of membrane lining the chest wall and the lung. The condition may be due to infection from within, following simple pleurisy or septic pneumonia; less frequently to infections from without, as a result of fracture of a rib or a penetrating wound of the chest.

In mild cases it may be sufficient to draw off the pus by aspiration, but generally it is necessary to secure thorough drainage of the pleural cavity by making an opening between the ribs or removing a portion of a rib so that a large drainage tube can be inserted.

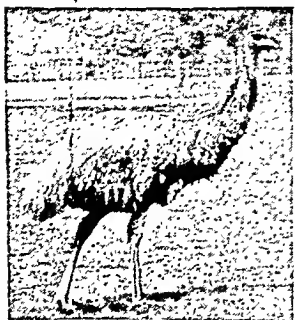
EMS. Town and watering place of Prussia. It stands on both sides of the Lahn, 11 m from Cöln. The town is known for its waters and beautiful scenery. Pop. 7,000.

The river Ems rises in the Teutoburger Wald and flows through Westphalia and Hanover to the North Sea. Its length is about 210 m.

The Ems telegram was sent in July, 1870, by the emperor William I to Bismarck, giving an account of his interview with the French ambassador. Bismarck altered its wording and published it, thus making war inevitable, for France treated the altered sentence as a "casus belli" and proceeded to mobilise. See Franco-Prussian War.

EMSWORTH. Seaport of Hampshire. It is at the mouth of the Ems, with a station on the Southern Rly., 76 m. from London and 9 from Portsmouth. Pop. 2,200.

EMU (*Dromaeus novae-hollandiae*). Large bird belonging to the division Ratitae. It is found only in Australia and certain neighbouring islands



Emu, second largest bird known. It is peculiar to Australia. Gambler Bolton, F.Z.S.

and is only exceeded in size by the ostrich, which it resembles in build. The wings of the emu are more rudimentary, and the bird depends entirely on its swiftness as a runner to escape its foes. The slender feathers are brown, mottled with grey. Emus feed chiefly upon small fruits. Although not web-footed, they swim well, and take to the water readily. The male, which is smaller in size than the female, incubates the eggs.

EMULSIN (Lat. emulsus, milked out) or **SYNAPTASE**. Unorganized ferment (enzyme) present in almonds and mustard seeds. The action of emulsin on the amygdalin also present in almonds produces essential oil of almonds in the process of manufacturing the expressed oil.

ENAMEL. Transparent or opaque glassy substance applied to metal or other surfaces in the form of a paste and then fired to fix it. The material—ground very fine, mixed with gum, water, or oil of spike to render it adhesive, and reduced to a pasty consistence—is brushed on to the object, which, when duly decorated, is placed in a furnace.

In the fine arts enamel is principally used in connexion with pottery and porcelain wares, jewelry, watches, snuff-boxes, plaques, and articles for the toilet table. The enamel may be applied by the enclosed method or cloisonnée (q.v.), the engraved or incised method or champlevé, and the surface method, in which the whole surface is covered with enamel on which the design is painted and fired.

ENCAENIA (Gr. en, in; kainos, new). Feast of dedication or renewing. Among the Jews it is applied particularly to the anniversary festival of the dedication of the temple at Jerusalem. At Oxford University, Commemoration, the festival at the end of the academic year, when founders and benefactors are commemorated, is also known as Encaenia.

ENKAUSTIC (Gr. enkaustikos, burnt in). Species of painting with colours and wax, said to have been invented by Polygnotus (5th century B.C.) and much practised by the ancient Egyptians and Greeks. It is surmised that coloured powder was mixed with white wax and kneaded into small cakes. When required metal disks with cuplike indentations were heated and a cake was laid on the palette, a different colour in each depression, and gradually melted. The process was rapid, for the wax, laid on with a brush, cooled quickly and the work had then to be touched again with hot irons, which fused the tints.

ENCKE, JOHANN FRANZ (1791-1865). German astronomer. Born in Hamburg, Sept. 23, 1791, he studied in Göttingen, and in 1817 became director of the Seeburg Observatory near Göttingen. In 1825 he succeeded to the post of astronomer of the Academy of Science, and director of the Berlin Observatory, then

in course of erection. In 1863 he retired to Spandau, where he died, Aug. 26, 1865.

Encke worked out, from the observations of the transits of Venus of 1761 and 1769, the first authentic value of the sun's parallax; determined the path of Pons' Comet; and undertook the observation of another comet, since known as Encke's Comet. He discovered that it revolved about the sun in a period of 3½ years, this being a considerably shorter period than that of any other known comet.

ENCLOSURE. Word used specially for common land which is enclosed, i.e. converted by private persons to their own use. This began in England with the decay of the manorial system, when the lords of the manor frequently enclosed common land. The law about it during the Middle Ages was contained in the statute of Merton of 1235, which allowed the lords to enclose land, provided that they left sufficient common unenclosed to meet the rights of the commoners.

About 1700 there was a change. Enclosures continued, but they were done by special Acts of Parliament, each dealing with a special enclosure, and these distributed the land between the lord of the manor and the various persons who had rights in it. In 1845 the matter was put in the hands of enclosure commissioners. See Commons; Manor.

ENCOUNTER BAY. Inlet of the coast of S. Australia, between Port Elliot on the N. and Jaffa Cape on the S. It is 90 m. across. Off the N.W. corner lies Kangaroo Island.

ENCYCLICAL (Gr. enkyklios, circular). Eccles. term for a letter from a Church authority, not addressed to any particular individual or community. The term is now used for a communication of the Pope to the bishops generally on some ecclesiastical topic.



John Eadecott, Colonial governor

ENDECOTT, JOHN (1589-1665). English administrator. Born at Dorchester, Dorset, he sailed to N. America in 1628 and became manager of the Naumkeag (now Salem) plantation. Being superseded by John Winthrop, he employed himself in fighting the Indians. In 1641 he was made deputy governor of Massachusetts, and three years later became governor, a post he held with intervals until his death at Boston, March 15, 1665.

ENDERBY LAND. Desolate tract of Antarctica. It extends S. from the Antarctic Circle. It was discovered in 1831 by John Biscoe, who named it after his employers, Enderby Brothers. See Antarctica.

Endive (Lat. intibus). Plant of the same genus as chicory (q.v.).

Endor. Village of Palestine, now known as Endur, about 6 m. from Nazareth. It was the home of the witch whom Saul consulted.

ENDOSPERM (Gr. endon, within; sperma, seed). Tissue found in the spores of ferns and their allies and in the seeds of many flowering plants. If a longitudinal section is made of a ripe pine-seed, for example, the embryo will be found in a central cavity, surrounded by a mass of cellular tissue. This is the endosperm, which is gradually absorbed as food by the developing embryo or seedling.

ENDURANCE. Sir Ernest Shackleton's ship in his second Antarctic expedition. She left England in 1914 just after the Great War had begun, and was crushed in the ice, Oct., 1915. See Antarctic Exploration.

ENDYMION. In Greek mythology, a youthful shepherd of great beauty, of whom the moon-goddess Selene became enamoured, as he lay asleep on Mt. Latmos in Caria.

Keats' *Endymion*, a poetic romance in four books of rhymed couplets, opens with the line, "A thing of beauty is a joy for ever."

ENEMA (Gr. injection). Fluid preparation for injecting into the rectum. Enemata are used for washing out the rectum in cases of severe or chronic constipation, for introducing into the bowel substances such as quassia for the purposes of destroying thread-worms; and for providing nourishment when acute disease of the stomach prevents feeding in the ordinary way, enemata for this purpose being small in volume and consisting usually of peptonised milk, raw eggs, and meat extracts.

ENERGY (Gr. energia). Capacity to do work. A weight raised above the earth has the power of doing work as it returns to the earth's surface. A body in motion possesses the power of doing work while losing its motion. The energy of a body is measured by the work it can do while changing to some standard state: or conversely, the work which has to be done on the body to bring it from some standard state to the state in which it is. In the two examples chosen, the work the weight can do before it reaches the ground, or the work the body can do before it comes to rest, can be measured. The weight raised above the ground owes its energy to its position. It has potential energy. The energy of the body is due to its motion. It has kinetic energy. Energy is measured in foot-pounds or in ergs.

ENFIELD. Urban dist. and market town of Middlesex. It is 10½ m. N. of London, on the L.N.E.R. The New River intersects the town. The palace built by Edward VI for his sister, Elizabeth, became a grammar school, then a post office, and then a club. In 1928 it was decided to pull it down. The parish church of S. Andrew has a beautiful 15th century brass. The Ridgeway is a residential district. The chase was disforested in the 18th century. At Enfield Lock is the Royal Small Arms Factory, where the Enfield rifles were made. Market day, Sat. Pop. 60,738.

Enfield is mentioned in Domesday Book. Edward VI and Queen Elizabeth lived here, and the chase was a favorite hunting ground of James I. It has associations with Keats, Captain Marryat, and Charles Lamb, who lived at Chase Side.

ENFRANCHISEMENT (old Fr. enfranchir; en and franc, free). In English law, a term meaning the turning of an estate of copyhold into a freehold. This can be done by mutual consent, or at the instance of the lord of the manor or the tenants thereof. If they cannot agree on the terms, these are settled by the Ministry of Agriculture. See Franchise.

ENGADINE. Upper portion of the Inn valley, Switzerland, in the canton of Grisons. It stretches 60 m. between two chains of the Rhaetian Alps, and is 1 m. to 1½ m. broad. From Martinsbruck, on the border of Tirol, it



Endymion. Greek statue of the sleeping shepherd, in the British Museum

runs S.W. up to the Maloja Pass. The Upper Engadine is more frequented than the Lower Engadine, which, however, has mineral springs at Sohlis. The strong, bracing air of the valley renders it a popular health resort.

ENGELBERG. Village of Switzerland. It stands at the N. foot of the Titlis, 14 m. by electric rly. S. of Lucerne. It is a favourite summer and winter tourist resort. The abbey church is interesting. The Benedictine abbey, founded 1120, was rebuilt in 1729: its farm is noted for cheeses Pop 2,520.

ENGELS, FRIEDRICH (1820-95). German writer. Born in Barmen, Sept. 28, 1820, he became associated in early life with Karl



Friedrich Engels, German Socialist

Marx (q.v.), whose political ideas he shared. In 1848 he took part in the rising in Baden, afterwards taking refuge in England, where until 1869 he was in business in Manchester. From then until his death he lived mainly in London, engaged in literary work. There is an English translation of his book *The Condition of the Working*

Classes in England. Engels died in London, Aug. 5, 1895.

ENGINE (Lat. ingenium, skill). Generic name now given to a class of machines for the conversion of one form of energy to another. Formerly a term used for a large variety of mechanical appliances, as beer engine, water engine, etc., its present-day usage is confined chiefly to the names of steam engine, gas engines, and oil or internal combustion engines. In the sense of a mechanical contrivance the term engine was used for a warlike appliance. The conversion of heat energy into mechanical energy by means of the steam engine turned inventors' thoughts to the use of other substances besides water, and there appeared the hot-air engine, and in later years the gas engine, oil engine, etc. The invention of the internal combustion engine has had an enormous effect upon the progress of the world. See Air; Internal Combustion Engine; Motor Car; Oil Engine; Steam Engine.

ENGINEERING. Little is known as to the earliest development of engineering knowledge. It must have been of a comparatively high order to render possible the construction of the monumental works of Egypt and the East. The aqueducts and bridges of the Romans, and the remains of metal pumps of the period, show an understanding of the principles of civil, mechanical, and hydraulic engineering. In England the term engineer as defining an occupation appears to have dated from the 13th century, when it was applied to those who did military artificers' work. About the 12th century an association was formed in France with the main object of building bridges. The association built a large number of important works throughout Europe.

Civil engineering in its modern sense dates from the beginning of the 17th century. At that time the rivers of N. Italy were in a bad state of order, with the result that many disastrous inundations took place. To remedy this a class of practitioners was called into existence capable of dealing with hydraulic works and with their necessary mechanical arrangements, and the scope of their work was gradually extended to cover also the design and construction of roads, bridges, docks, workshops, and machinery. The new profession adopted the title of civil engineer.

The development of the steam engine led to an enormous and rapid expansion in the branch of civil engineering devoted to motive-power machinery, mechanical appliances, and manufacturing processes, and from this period dates the professional term mechanical engineer. Still later, the development of the electric dynamo and of electric power and lighting rendered this sub-branch sufficiently

important to justify the title of electrical engineer. Recent developments have necessitated further intensive specialisation, and aero engineering, agricultural engineering, chemical engineering, and metallurgical engineering are now to all intents and purposes separate professions. In general the term civil engineering is now confined to the design and construction of such works as roads, bridges, railways, docks, harbours, canals, and dams.

The professional training of an engineer includes a three years' course in the engineering school of some university or technical institute. The first two years are common to all branches of engineering. The third is usually devoted to a more advanced treatment of some special branch, and this theoretical training is followed by an appropriate course of practical work.

The Society of Engineers is an organization which exists to further the interests of the profession. Its headquarters are at 17, Victoria St., London, S.W.1. The professional societies of the three main branches of engineers are the Institution of Civil Engineers, Great George St., S.W.1, the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2; and the Institution of Mechanical Engineers, Storey's Gate, S.W.1. Two important weekly illustrated journals are devoted to engineering: *The Engineer*, and *Engineering*. The Amalgamated Engineering Union, formed in 1920 by the uniting of the Amalgamated Society of Engineers and nine other engineering unions, is one of the largest trade unions in the country.

ENGINEER OFFICER. Commissioned officer of the British navy. He is a technical specialist, responsible for the running of all main and subsidiary machinery in a warship and the control of the engineering workshops and repairs aboard. Since 1903 engineer officers have been trained as executive officers and are competent to take executive duties and rise to the highest ranks in the navy. An engineer officer is distinguished by wearing strips of purple cloth between the bands of gold lace denoting his particular rank.

ENGINEERS, ROYAL. Technical corps of the British army, popularly termed the Sappers. The origin of the corps is of considerable antiquity. In its modern form it originated in the company of military artificers raised by Sir William Green at Gibraltar in 1772, which, during the long siege, distinguished itself in the construction of galleries on the north face of the Rock and by the repair of breaches made by the enemy's fire.



Royal Engineers badge

In peace time the corps is organized as field, signal, bridging, survey, fortress, railway, printing, and postal companies and troops. During the Great War special companies were added whose duty it was to investigate and direct the use of poison gas and the measures adopted to counteract it. Meteorological companies were responsible for information regarding the weather which was essential for aviation. During the long periods of trench warfare the Engineers were chiefly employed in tunnelling and mining. Their work also included the improvement of the communications, organizing and manning searchlight stations, and the duties previously outlined. There is a School of Military Engineering at Chatham.

ENGLAND. Southern and larger portion of the island of Great Britain, excluding Wales, of which Scotland is the northern portion. Except on the Scottish and Welsh borders it is bounded by the sea. It includes also the Isle of Wight, the Scilly Isles, and a few small islets. Its area is 50,874 sq. m., and its population at the census of 1921 was just under 36,000,000. In 1928 the registrar-general estimated it at just over 37,000,000.

Land above the 1,000 ft. level is confined almost entirely to the northern portion, W. of the second meridian; in the rest, the 500 ft. level is exceeded only in a few small areas. The carboniferous area is rich in coal and iron; while each of the three coasts is well provided with the estuaries which harbour the shipping whereon the wealth of the country depends, most notable being those of the Thames and the Humber on the east coast, and the Severn and the Mersey on the west.

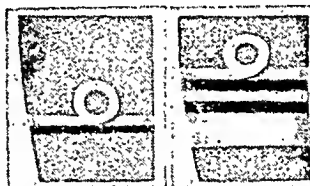
The centres of population are the great cities, London, the greatest of marts, the manufacturing and mining towns of the north, the great ports, and some others which have what might be called specialised attractions.

Of the 40 historic counties into which the whole land is divided, Yorkshire is larger than the next two, Devon and Lincolnshire, together, while Rutland is the smallest; but Lancashire, sixth in size, exceeds Yorkshire in population. Out of the 40, however, ten more administrative counties have been carved; of the whole 50 London has the second smallest area and the second largest population.

HISTORY. The history of England begins with the invasion of the Celtic island of Britain by the Scandinavian and Teutonic tribes collectively called the English, about the middle of the 5th century, when the Roman legions had been withdrawn. In the course of some 150 years the English conquered the east and centre, pinning the Celtic Britons into the higher lands of the west. How far the Celts survived the conquest and mingled with the conquerors is matter of high argument. More than another 200 years passed before the conquerors recognized one supreme king. Then came the Danish invasions, their incomplete defeat by Alfred the Great, the consolidation of the kingdom under Alfred's successors, the episode of a Danish dynasty, and the Norman conquest.

The English customs survived the conquest, but were modified by the class domination of foreign conquerors in place of English magnates and their interpretation of the law in terms of the French feudal system. After the reign of Stephen order was restored by Henry II, the founder of the Plantagenet dynasty and feudatory lord of half France. For 300 years more the foreign policy of the kings was dominated by their ambitions as feudatories in France. Three-fourths of the French possessions were lost by Henry's son John, so that the Norman baronage came to look upon themselves as English and sometimes as champions of the laws of England, emphatically signified in the Great Charter.

Montfort's struggle against Henry III's attempts to override the law turned Henry's son Edward I into the great champion of the law, who, without intending it, created the parliamentary system which placed the control of the purse permanently in the hands of the House of Commons at the close of the 13th century. The ambitions of Edward III began, and those of Henry V renewed, the Hundred Years' War (1338-1453) with France, which ended with the entire loss of the French possessions, Calais excepted.



Engineer Officer. Cuff badges of officers in British navy. Left, sub-lieutenant; right, vice-admiral

Meanwhile, the enormous expense of the wars steadily developed the power of the Commons, which was also furthered by the usurpation of the crown by Henry of Lancaster in 1399, which in turn led up to the dynastic struggle between the rival houses of York and Lancaster known as the Wars of the Roses. In that struggle the old baronage broke

The victory of Parliament became more and more pronounced until near the end of the reign of Charles II, when it bore all the appearance of sudden and complete collapse; but James II, in the mistaken belief that the appearance was the reality, threw away all that his brother's astuteness had won back; the intervention of his nephew and son-in-law William of

Orange was invited, James fled the country, and William and Mary became king and queen, under a statutory declaration of the rights of Parliament and the limitations to the powers of the crown which developed into the fundamental law of the British constitution.

The accession of William involved England in an almost continuous battle against the aggressive policy of Louis XIV which continued through the reign of his successor Anne, completed the establishment of British naval supremacy, and was marked by the brilliant military achievements of Marlborough. But before that war was over, or the constitutional victory of the revolution of 1688 was confirmed by the Hanoverian succession (1714), the history of England was merged in that of Great Britain by the incorporating Union between England and Scotland in 1707.

ENGLEFIELD.

Parish and village of Berkshire $\frac{1}{2}$ m. W.S.W. of Reading.

Englefield Green is a residential district in Surrey, $\frac{1}{2}$ m. N.W.

of Egham to the S. of Cooper's Hill. The cottage on the green was for some years the home of George IV's Perdita (Mrs. Robinson).

ENGLISH CHANNEL (Fr. La Manche, the sleeve). Stretch of water separating the S. shore of England from the N. coast of France. It communicates with the North Sea on the E. and the Atlantic Ocean on the W. Its extreme length is 280 m. Its width varies from 21 m. between Dover and Cape Griz Nez, to 145 m. between Lyme Regis and St. Malo. Its average depth is 30 fathoms.

The term channel ferry is used for a system of transport service across the English Channel, whereby trains are run direct from the rly. tracks on to a boat which conveys them across the channel. During the Great War there were four such ferries for military purposes: Richborough to Calais, Richborough to Dunkirk, Southampton to Dieppe, and Southampton to Cherbourg. In 1924 a train ferry service was inaugurated between Harwich and Zeebrugge. The term "swimming the channel" refers to the feat accomplished a number of times in the straits of Dover (q.v.). See Channel Tunnel.

ENGLISH LITERATURE. This covers what has been written in the English language in all its variations of date and locality, excluding what is specifically American. Till nearly the close of the 14th century all that survives is chronicles compiled in monasteries, with some ballads and songs in the tongue which is the foundation of the composite language which is English. At that stage English literature begins with Langland's *Piers Plowman* and Wyclif's version of parts of the Bible—written in two widely differing dialects; of which that chosen by Wyclif can now be recognized and read as English. At the same moment appeared the consummate literary artist, Geoffrey Chaucer, the first great English poet, whose fame rests chiefly upon *The Canterbury Tales*.

Chaucer, however, had no distinguished successors till the sudden literary outburst of the 16th century, towards the close of which the main literary impulse took the form of the drama, which achieved greatness with Marlowe, the greatest, with Ben Jonson in another kind, of those who encircled the supreme genius, William Shakespeare. To the dramatists of Elizabeth's closing years and of James I's reign must be added the poets' poet Spenser and the first masters of English prose (whereof the grandest monument is the authorised version of the Bible), headed by Francis Bacon and Richard Hooker. In the next period the only name of first-rate literary rank is that of John Milton, though the stream of minor poets flowed continuously from that time to our own day.

The next stage was the development of English prose and of a type of poetry whose prevailing characteristics are its intellectual quality and regulated exactitude of form rather than emotional appeal and wide ranging harmonies and melodies, with Dryden and after him Pope as its high priests. Dryden did much towards forming a characteristically English prose style. Contemporaries of Pope in the Augustan age were the essayists, pamphleteers and masters of prose fiction, Addison, Swift, and Daniel Defoe, whose reign was succeeded by the literary autocracy of the most English of Englishmen, Samuel Johnson, in whose circle, or more or less connected with it, were the great orator and political thinker, Edmund Burke, the historian Gibbon, Goldsmith, and Sheridan. For a moment Burns blazed on an amazed world, while Blake was working in a mystic dreamland of his own.

Then came the romantic revival of the 19th century, with the great poets, Wordsworth, Coleridge, Shelley, Keats, Scott, and Byron, though, as with Dryden and Pope, there are critics who challenge the right of the two last to the title. Scott, however, created the modern novel, the dominant type of imaginative literature throughout the Victorian era, the era of Dickens, Thackeray, and George Eliot. The most representative poet of that age was Tennyson, though many have found in his contemporary Browning a genius more profound and more stimulating; its leading prophets were Carlyle and Ruskin.

The former was one of the greatest forces which helped to mould the Victorian age.

Of the 20th century, it can only be said that the general subversion of established conceptions wrought by the Great War applies no less to literary than to other values; so that the judgements of yesterday are reversed by those of to-day, many of which are likely to be in turn reversed by those of to-morrow. The masters of English prose and poetry are treated under their respective headings, e.g. Burns, Defoe, George Eliot, Tennyson, etc.

ENGRAVING. (1) Art of drawing on metal or wood by means of an incised line; and (2) impression in ink obtained from such drawing on paper or similar substance. In wood engraving the lines to be printed appear



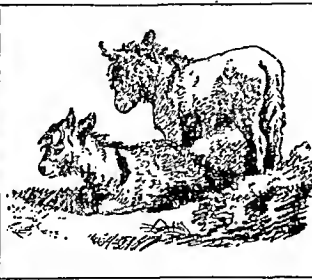
England and Wales. Map showing the principal railways and the county borders. Large scale maps are given under the headings of the respective counties

itself up so completely that when the rival houses were united in the Tudor dynasty, Henry VII and Henry VIII were able to establish the power of the crown as supreme, provided only that it worked in harmony with national sentiment. Its zenith was reached in the triumphant reign of Elizabeth, the reign in which England became definitely ranged with the Protestant powers in the wars of religion; a reign marked by the overthrow of the Spanish Armada in 1588.

Elizabeth's reign opened the way to the expansion of England; her death, which united the crowns of England and Scotland by making James the Stuart king of Scots king of England also, brought on the great struggle for effective supremacy between crown and Parliament, in which each side declared itself to be the champion of the law against its subversion by the other side. The issue was the Great Rebellion, the fall of the monarchy, the death of a king on the scaffold, the temporary establishment of a military dictatorship, and the restoration of the Stuart monarchy upon terms which practically conceded to Parliament all that it had claimed down to the eve of the war.

in relief, the wood between them being cut away. In the metal process, known as in taglio, the lines are sunk or incised by means of a steel graver or burin. Plates of several different metals have been used for intaglio

The town gives name to the title borne since 1789 by the family of Cole. William Willoughby Cole, the 3rd earl (1807-86), made a fine collection of fossil fishes, now in the British Museum. Florence Court, Enniskillen,



Engraving. Example of a stippled engraving on copper of a sketch by G. Morland. Left, the copper plate on which the design was engraved. Right, the impression

engraving: copper, steel, zinc, iron, silver, and even brass and pewter. Copper and steel, however, and especially copper coated with a thin layer of galvanised steel, are by far the most common.

Wood engraving is really wood cutting, and so does not come within the scope of engraving proper. Lithography (q.v.) is a form of engraving on stone.

ENHAM OR **KNIGHTS ENHAM**. Parish of Hampshire, 2 m. N. of Andover. In 1919 a scheme was started for taking over the Enham estate to erect buildings for the treatment and training of disabled soldiers. The British Red Cross Society made a grant of £10,000 for the building and equipping of a medical block. The offices of the Enham Village Centre are at 10, Upper Woburn Place, London, W.C.1.

ENLISTMENT. Act of the individual in voluntarily contracting to render military service as a private soldier to the state. The form of contract is the attestation paper, which the recruit, after being accepted and passed medically fit, is required to sign when taking the oath of allegiance, in the presence of an officer, magistrate, or other public dignitary, who witnesses or attests the signature. A recruit may choose the branch of the service he prefers. In the line he may choose any regiment for which he has a preference and which is open to recruiting. He cannot then be transferred to another regiment without his consent. A special branch of the army is detailed for recruiting duties, with an officer in charge of each district. See Army; Conscription.

Ennerdale. Lake in the W. of Cumberland. From it Whitehaven draws its water supply. It is 3 m. long and $\frac{1}{2}$ m. broad.

ENNIS. Urban dist. and county town of co. Clare, Irish Free State. It is on the river Fergus, 25 m. N.W. of Limerick, on the Gt. Southern Rlys. Here are the Roman Catholic pro-cathedral of the diocese of Killaloe and ruins of a Franciscan abbey. Pop. 5,518.

ENNISCORTHY. Urban dist. of Wexford, Irish Free State. It is on the Slaney, 77 m. S. of Dublin on the Gt. Southern Rlys. The chief building is the castle, built by the Norman conquerors in the 12th century. The town is an agricultural centre. Near by is Vinegar Hill (q.v.). Pop. 5,543.

ENNISKILLAN OR **INNISKILLING**. County town of Fermanagh, Northern Ireland. It stands on an island in the river between the upper and lower loughs Erne, and has suburbs on either side, with which it is connected by bridges. It is a station on the G.N. of Ireland Rly., 116 m. N.W. of Dublin. It is notable as a Protestant stronghold in the time of William III. Enniskillen gave its name to two regiments of the British army, fusiliers and dragoons. Pop. 4,850.

is the earl's chief seat, and his eldest son is known by the title of Viscount Cole.

ENNIUS, QUINTUS (239-169 B.C.). Earliest of the great Roman poets. Born at Rudiae, in Calabria, he attracted the notice of the elder Cato, who took him to Rome, where his knowledge of Greek and literary acquirements procured him admission to the Scipionic circle. His works embraced a wide variety of subjects, but it was as the author of some 20 tragedies and of the *Annales*, an epic of Roman history, that he achieved immortality. Only fragments survive, chiefly as quotations in later writers, especially Cicero.

ENOCH. Name of four men in the O.T. They are a son of Cain, a grandson of Abraham, a son of Reuben, and a son of Jared. The last, the father of Methusaleh, is recorded to have lived 365 years, and to have been translated without dying. He is described as being the seventh from Adam.

The Book of Enoch is one of the non-canonical O.T. Apocrypha or Pseudepigrapha, written originally partly in Aramaic and partly in Hebrew. It incorporates fragments of the Book of Noah. The work ranges from about 200 B.C. to A.D. 64, the subjects with which it deals including the origin of evil, the millennium, the Messiah, the future life, and even the Hebrew calendar.

The Book of the Secrets of Enoch belongs to the same category as the Book of Enoch. The work, preserved only in Slavonic, seems to have been written by a Hellenistic Jew in Egypt at about the beginning of the Christian era. It describes Enoch's ascension and voyage through the seven heavens.

ENSIGN. Flag which a ship carries astern to indicate her nationality. Each country has separate ensigns for its navy and its mercantile marine. Great Britain has three: the white ensign, flown only by ships of the Royal Navy and vessels of the Royal Yacht Squadron; the blue ensign, which is the flag of the Royal Naval Reserve; and the red ensign, the flag of the merchant service.

When a ship flies her ensign upside down it denotes that she is in distress. See Blue Ensign; Flag.

ENSIGN. Rank in the British army, now obsolete. The rank was that given to an officer of the infantry on first being commissioned, and it was his duty to carry and guard the regimental colours, both on parade and in the field. It was abolished in 1871, the rank of second lieutenant being substituted.

ENSTATITE. Common rock-forming mineral. One of the pyroxene group, it crystallises in the rhombic system, in stout prismatic crystals. Chemically a metasilicate of magnesium, it occurs in serpentines and peridotites, in the Whinsill dolomite, the Cheviot andesite, and generally as a primary

constituent of intermediate and basic igneous rocks. The word *enstatite*, from Gr. *enstatēs*, adversary, refers to the refractory nature of the mineral. See Crystallography.

ENTABLATURE. Term in architecture signifying the combination of architrave, frieze, and cornice at the summit of a building. The entablature is necessarily a prominent feature of the classic or horizontal styles of architecture, rather than of the Gothic or vertical styles. See Cornice.

ENTAIL. Legally, the settling of an estate on a man and his heirs. In feudal times land was granted to a man and his heirs in tail male or tail general, the idea being that if an heir failed it would revert to the king or lord who granted it. The entailed estates of to-day are simply settled estates, but they can only be settled on living persons and a period of 21 years beyond. The entail can be broken with the consent of the heir and after the performance of certain legal formalities.

ENTEBBE. Administrative capital of the Uganda (q.v.) Protectorate, Central Africa. It is on a promontory W. of Murchison Bay in Lake Victoria, and is connected with Kisumu and other lake harbours by steamer.

ENTENTE CORDIALE (Fr. cordial understanding). Phrase that became current early in the 20th century to signify the friendly relations then beginning to exist between Britain and France. The entente began soon after the South African War and was greatly helped by the influence of Edward VII. It culminated in the alliance of 1914.

Enteric Fever (Gr. *enterikos*, intestinal). Infective disease caused by the bacillus *typhosus*. See Typhoid Fever.

ENTERITIS (Gr. *enteron*, intestine). Inflammation of the mucous membrane of the intestine. The condition may be due to eating unsuitable or unsound food, or to irritant poisoning by arsenic and other substances. Secondary enteritis is a symptom of many diseases, particularly cholera, dysentery, and typhoid fever. The prominent symptoms are abdominal pain, severe diarrhoea, and sometimes blood in the evacuations. Epidemic enteritis, or "summer diarrhoea," is a very fatal disease among infants under one year of age. The disease is most prevalent in hot dry weather, the dust from dirty streets and refuse heaps being an important factor.

ENTEROPTOSIS (Gr. *enteron*, intestine; *ptōsis*, falling). General dropping or downward displacement of the abdominal organs. It usually develops gradually. Massage, electricity, and physical exercises may be employed to improve the tone of the abdominal vessels, and the symptoms are often relieved by wearing a belt to support the organs.

ENTERTAINMENT TAX. Duty levied in the United Kingdom on persons attending theatres, music halls, and other places of amusement; also football and cricket matches, and other open-air sports. Introduced in 1916, and modified in 1924, it is charged on all tickets of admission, as follows:

Exceeding 6d. and not exceeding 7d.	7d.	8d.	1d.
" 7d. " "	" 8d. " "	" 1d. " "	" 1d.
" 8d. " "	" 1/1 " "	" 1/3 " "	" 3d.
" 1/1 " "	" 1/3 " "	" 2/- " "	" 6d.
" 1/3 " "	" 2/- " "	" 3/- " "	" 9d.
" 2/- " "	" 3/- " "	" 5/- " "	" 1/-
" 3/- " "	" 5/- " "	" 7/6 " "	" 1/6
" 5/- " "	" 7/6 " "	" 10/6 " "	" 2/-
" 7/6 " "	" 10/6 " "	" 15/- " "	
" 10/6 " "	" 15/- " "		

ENTOMBMENT. Literally a burial. In a special sense, however, it is applied to the burial of Jesus Christ, and as such is the subject of several notable paintings. The most famous are one by Raphael, in the Borghese Palace at Rome, one by Titian in the Louvre, and one by Caravaggio in the Vatican.

ENTOMOLOGY (Gr. entomon, insect; logos, science). Branch of zoology which deals with insects. The offices of the Entomological Society of London are at 41, Queen's Gate, London, S.W.7. See Insect.

Entr'acte (Fr. entre, between; acte, act). Short piece of music played by the orchestra between the acts or scenes of a play.

ENVER PASHA (1882-1922). Turkish soldier. Born at Constantinople, he entered the Turkish army in 1896. He first came into notice in connexion with the Young Turk movement in 1905 at Salonica, and three years later joined the revolutionaries, who in July, 1908, captured Monastir. Enver soon afterwards was appointed military attaché at Berlin. In 1911 he organized the Arabs of Tripoli against the Italians, and in the second Balkan War he recaptured Adrianople from the Bulgarians in July, 1913. Shortly before he had become minister of war, with the rank of a pasha. One of the leading spirits of the Committee of Union and Progress, the central organization of the Young Turks, he helped to bring Turkey into the Great War. In 1918 Enver fled to the Caucasus, and he was killed in Bokhara, Aug. 4, 1922.



Enver Pasha, Turkish soldier

ENZYMES (Gr. en, in; zymē, leaven). Substance formed by micro-organisms and living animal and vegetable cells, which transforms organic compounds into simpler bodies. An example of enzyme action is the fermentation of sugar by means of yeast. The yeast cells contain an enzyme called zymase, which converts sugar into alcohol and carbonic acid gas. The enzyme itself is unchanged in the process, and a very small quantity is therefore capable of causing a large amount of transformation. Enzymes (e.g. pepsin) play a large part in the digestion of food. The souring of milk and the decomposition of meat by bacteria are other instances of enzymic changes.

EOANTHROPUS (Gr. eōs, dawn; anthropos, man). Systematic name of the oldest known European race with distinct head traits. It was given to some fossil bones now in the British Museum, unearthed in 1912 at Piltown, Sussex. After their discoverer, Charles Dawson, the species is called *E. Dawsoni*. Other remains were subsequently found. See Man: Piltown Skull.

EOCENE. Name given to the earliest part of the Tertiary period, when stratified rocks, the eocene system, were being formed. It followed the Cretaceous period. Eocene beds usually rest on eroded surface of chalk. Eocene rocks of W. Europe are usually soft sands and clays, with some limestone and marl; all were laid down in local basins under marine, brackish, or fresh-water conditions. In S. Europe, Caucasus, Asia Minor, N. Africa, through Persia towards China and Japan, great thickness of limestone developed, made up in places largely of the fossilised shells of large disk-shaped foraminifera (nummulites). The forerunners of nearly all kinds of animals now living appeared in eocene times.

EOLITH (Gr. eōs, dawn; lithos, stone). Stone implement of rudimentary workmanship than those of the Palaeolithic Age. Many such flints have been found. See chart, p. 98.

ÉON DE BEAUMONT, CHARLES (1727-1810). French diplomatist. Born Oct. 17, 1727, he entered the army in 1755, and in 1757, having attracted the attention of Louis XV, was sent, disguised as a woman, on a diplomatic mission to Russia. In 1762 he came to England, where in a fit of pique he published certain libels, for which he was convicted in 1764 and outlawed. He returned in 1777 to France, where he lived as a woman. In 1795, dressed as a woman, he gave an exhibition of fencing in London. He died May 21, 1810.



Éon de Beaumont, French diplomatist

Eos. In Greek mythology, goddess of the morning. She is identified with the Latin Aurora (q.v.).

EPACRIS. Genus of shrubs of the order Epacridaceae. Natives of Australasia, they have scattered leaves and abundant, cylindrical, bell-shaped flowers produced singly from the axil of a leaf. They are largely grown in European greenhouses, and many varieties and hybrids have been produced.



Epacris nivalis, a greenhouse plant from Australia

EPAMINONDAS (Gr. Epameinōndas). Theban general and statesman. Born about 418 B.C., he won renown at the battle of Leuctra (371), when he was chiefly responsible for the defeat which brought to an end the Spartan hegemony over Greece. Epaminondas determined to break the power of Sparta in Peloponnesus, and united the cities of Arcadia in a league, with the new city of Megalopolis, founded by himself, as the capital. In 362 the Spartans sent an army into Arcadia, which was defeated at the battle of Mantinea, but Epaminondas fell in the battle.

EPAULETTE (Fr. little shoulder). Shoulder ornament worn by officers of the British Navy and bearing the marks that indicate their rank. Lieutenants and superior ranks wear fringed epaulettes. The British Army abolished epaulettes in 1855.

ÉPÉHY. Town of France, 13 m. S. by E. of Cambrai. It was captured by the British, April 1, 1917. Retaken by the Germans, Mar. 22, 1918, it was captured by the British in Sept. of that year.

BATTLE OF EPÉHY. This battle was fought between the British and the Germans, Sept. 12-25, 1918. On Sept. 12 the British stormed Havrincourt and Trescault, and five days later fought their way into Holnon, where a fierce struggle, lasting for some days, took place. In the Allied centre the Australians broke through the German front to a depth of nearly four miles, forcing their way into the outer defences of the main Hindenburg line. By Sept. 22 the British 3rd corps had reached the positions

necessary for the direct attack on the German main fortifications, and on Sept. 24 the Quadrilateral was in British hands. All the British objectives were attained and 100 guns and 11,750 prisoners were taken from the Germans. See Cambrai.

ÉPERNAY. Town of France, about 19 m. W.N.W. of Châlons-sur-Marne. It is an important centre of the champagne industry, the wine being stored in cellars hollowed out of the chalk rock. The town was occupied for a brief period by the Germans early in the Great War. Pop. 21,800. See Marne.

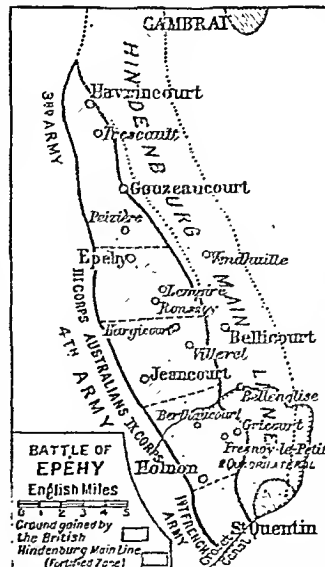
EPHAIH. In the O.T. name for the first in order of the sons of Midian (Gen. 25; 1 Chron. 1; Isaiah 60); concubine of Caleb in the line of Judah (1 Chron. 2); son of Jahdai (1 Chron. 2). The word, of Egyptian origin, was adopted as the name of a Hebrew dry measure which corresponded to the bath in liquid measure.

EPHEMERA or MAY FLY (Gr. ephemeros, living only for a day). Family of neuropterous insects, with a long, ten-jointed abdomen terminating generally in three long processes resembling bristles. The eyes are large and compound, the wings lace-like, and the mouth parts undeveloped, as the perfect insect does not eat. The larval stage is passed in the water. The perfect insects emerge about the end of May in most species, and their life is very short. Some examples live only for a few hours, while others survive several days if the weather is favourable. About fifty species of may fly are found in Great Britain.

EPHESIANS, EPISTLE TO THE. The first of the group of Pauline epistles commonly known as the Epistles of the Captivity, because they seem to have been written, probably between A.D. 61 and 63, during S. Paul's first imprisonment in Rome. It was probably intended to be a circular letter, and was not addressed particularly to the Ephesians. It has a close connexion with the Epistle to the Colossians. See Colossians, Epistle to the.

EPHESUS. Ancient city of Asia Minor, on the river Cayster. The chief of the twelve Ionian colonies of Asia, it was founded probably about 1000 B.C. In the 6th century it fell under the dominion of Croesus, king of Lydia, and later under that of Cyrus the Great. During the Athenian hegemony it paid tribute to Athens, but about the beginning of the 4th century B.C. it again passed under Persian rule. Later it acknowledged the Macedonian supremacy, and after the Roman conquest of Greece became the administrative capital of the Roman province of Asia. Ephesus was noted for the worship of Artemis or Diana, whose temple was regarded as one of the seven wonders of the ancient world. The city was visited by S. Paul, and was an early seat of Christianity. There are ruins of a theatre (Acts 19, 27), stadium, odeum, and the temple of Artemis.

Of the six important councils of the Church held at Ephesus the first, in 197, dealt with the date of Easter, and the second, in 245, was directed against the heresy of Noëtus. The third, 431, was the third ecumenical council of the Church. It confirmed the Nicene Creed and condemned the heresy of Nestorius. The fourth, 440, and the fifth, 447, councils here met to decide



Epéhy. Plan of the battlefield showing the ground gained by the British in the battle of Sept. 12-25, 1918

the question of episcopal succession. The sixth or robber council, in 449, dealt with disputes about individual bishops and clergy, but its general findings were superseded by the council of Chalcedon in 451.



Ephod. Jewish high priest wearing the ephod knotted below the breastplate

EPHOD. Symbolical waistcloth worn by the Jewish priests when officiating. That worn by the high priest was of fine linen, fastened round the body by a girdle and supported by two shoulder-straps, each ornamented with an onyx stone inscribed with the names of six of the 12 tribes. Attached to it was the breastplate (q.v.).

EPHRAIM. Second son of Joseph. With his brother Manasseh, he was adopted by their grandfather Jacob, and their descendants were reckoned among the tribes of Israel. The tribe of Ephraim occupied part of the northern territory of Palestine. Joshua belonged to this tribe.

EPIC (Gr. epos, tale, song). Name given to narrative poetry which deals in dignified and elevated style with some important action, usually heroic. The great examples are the *Iliad* and *Odyssey* of Homer, which are unmatched in any other language. Other peoples and later ages, however, produced poetry descriptive of great events to which the term epic has been generally and legitimately applied, such as the French Song of Roland and the English *Beowulf*. These all belong to the authentic, as distinguished from the literary, type, and, the work of many authors drawing upon tradition, are important as historical documents.

Paradise Lost belongs, like Virgil's *Aeneid* or Tasso's *Gerusalemme Liberata*, to the artificial, invented, or literary type. These are imitative poems, written in the epic manner by learned authors in epochs of advanced civilization. In modern times probably the nearest approach to the epic spirit is realized in *The Dynasts* of Thomas Hardy.

EPICETETUS. Stoic philosopher who lived about 100 A.D. Born at Hierapolis in Phrygia, he became an adherent and teacher of Stoicism. One of his pupils, Arrianus the historian, published his *Discourses* and a *Manual* of his doctrines. The latter and four books of the *Discourses* are extant. According to Epictetus, we are only concerned with things that are under our control. The highest principles of life are patience, abstemiousness, and self-control. See Arrianus.

EPICUREANISM. The doctrines of the school founded by the Greek philosopher Epicurus (341-270 B.C.). He was of Athenian parentage, and born in Samos. Coming to Athens, he founded his school in his garden. Epicurus divided philosophy into three parts: Canonics (logic, the theory of knowledge), Physics, and Ethics. The basis of all knowledge is the evidence of sensual perception; all perceptions are true and irrefutable. In physics Epicurus agrees in the main with Democritus, the founder of the atomic theory.

In ethics Epicurus follows the Cyrenaics. Pleasure is the aim of life, the only happiness. The virtuous man, he who rightly pursues pleasure, is alone happy. In modern language, Epicureanism is used for addiction to sensual enjoyment, more particularly that of the table. See Ethics; Philosophy.

EPIDAUROS. Town of Argolis, ancient Greece, on the Saronic Gulf. It was famous for its temple of Aesculapius; the god of healing, about 8 m. distant, which was visited by

the sick from all parts of Greece. Excavations have revealed remains of the temples of Aesculapius and Artemis, etc.

EPIDEMIC (Gr. epi, in; dēmos, people). Occurrence of a disease among a number of persons about the same time. When a disease is continually present in a locality the term endemic is usually employed. A pandemic is an outbreak of a disease which extends over the whole or a large part of the world.

In the Middle Ages, when sanitation was still in its infancy, epidemics were of frequent occurrence and were usually regarded as manifestations of divine wrath. In the 18th and 19th centuries it was gradually recognized that the disease was conveyed from one person to another by some virus or poisonous agent, found in most cases to be a bacillus or other micro-organism. Epidemics are spread by various agencies, including polluted drinking water, contaminated milk and other foods, and the bites of various insects. The prevention and arrest of epidemics necessitate active measures which vary with the particular circumstances controlling the disease.

EPIDENDRUM (Gr. epi, on; dendron, tree). Large genus, mainly of epiphytes, of the order Orchidaceae. They are natives chiefly of S. and Central America and the W. Indies. They have leathery, strap-shaped leaves, and flowers solitary or disposed in spikes and sprays. Characteristic features are the union of the fleshy base of the lip to the column, a passage at the base of the lip, and the four compressed pollen-masses. Some have handsome flowers, but in many species these are of a dingy green hue.



Epidendrum. Flower bud and leaves of this orchid

EPIDERMIS (Gr. epi, on; derma, skin). Name for the superficial layer of the skin, lying above the cutis vera or true skin. It consists of several layers of cells, the most superficial of which are horny in character, and form the thickest part of the epidermis. The deepest layers consist of soft protoplasmic cells. The epidermis grows from the deeper layers, the superficial horny cells being continually shed. See Skin.



Epiglottis seen from the front. Above, sectional diagram showing position of this structure in the throat

EPIDOTE. Hydrous silicate of calcium and aluminium. It is found abundantly, but outside Austria and America is rarely of sufficient transparency and fine colour to be cut as a precious stone. The colour ranges from green to brown. Piedmontite is a manganese epidote found in Piedmont.

EPIGLOTTIS (Gr. epi, on; glossa, glotta, tongue). Thin leaf-shaped structure, consisting of fibro-cartilage, placed behind the root of the tongue and in front of the superior opening of the larynx. It takes part in the closing of the larynx during the act of swallowing. See Larynx.

EPIGRAM (Gr. epi, upon; gramma, a writing). Originally a simple inscription attached to religious edifices and to statues of gods, heroes, and

all who had distinguished themselves by patriotism, courage, and virtue. Finally, among the Greeks, the epigram came to signify any short piece of poetry which conveyed a single idea with neatness and grace. As used by the Latin poet Martial and in the modern sense, the verse epigram has been defined as a short poem, generally of a personal character, meant to vex somebody, to pay off an old score, or to be smart at someone else's expense. Voltaire is the supreme French epigrammatist, while the poetry of Pope is a string of epigrams.

EPIGRAPHY (Gr. epi, on; graphein, to write). Study of inscriptions. In practice it concentrates upon inscriptions on durable materials such as stone, metal, and wood, including coins, gems, ornaments, seals, vases, and weapons, whereas palaeography studies the forms of writing upon papyrus, parchment, and paper. Important departments are Chinese, Greek, Hittite, Latin, Indian, Runic and Semitic epigraphy. See Palaeography.

EPILEPSY OR FALLING SICKNESS (Gr. epilepsis, seizure). Disease of the nervous system characterised by periods of unconsciousness. Epilepsy most commonly begins in childhood, before the fifth year. The fundamental cause is unknown, though fright, injury, alcoholism, and an attack of illness appear to be exciting causes. The offspring of those parents who suffer from insanity or neurasthenia are more prone to exhibit epilepsy than are other children.

Two forms are recognized. In petit mal the attacks of unconsciousness often last no longer than a few seconds and there are no convulsions. Grand mal is characterised by the occurrence of convulsive fits. The subject may have a preliminary sensation or aura, which warns him of what is going to happen. Sometimes the beginning of the fit is marked by a loud cry. At first the muscles are rigid, and suspension of respiration causes blueness of the face. After a few seconds, violent convulsions occur, and the tongue may be severely bitten. After one or two minutes the patient passes into a state of somnolence, which may be succeeded by prolonged sleep.

During an actual fit all that can be done is to prevent the patient from hurting himself. He should be allowed to remain in the recumbent posture, the clothes should be loosened round the neck, and a roll of cloth should be introduced between the teeth to prevent the tongue from being bitten. The most useful drugs are the bromides of sodium and potassium. These should be given for a long period. Careful attention must be given to the general health of the sufferer.

EPILOGUE (Gr. epilogos, conclusion, peroration). Short address in prose or verse frequently employed to round off a dramatic performance; sometimes in the form of an appeal to public favour for the play it followed, sometimes explanatory or even apologetic. The use of the epilogue, as of the prologue, went out of fashion before the close of the 19th century, except on special occasions.

EPIMENIDES. Greek legendary priest and miracle-worker. A native of Crete and associated with the worship of the Cretan Zeus and Apollo, he was summoned to Athens in 596 B.C. to purify the city from the curse of Cylon (see Alcmaeonidae). He is supposed to be the "prophet" of S. Paul's epistle to Titus (1, 12), according to whom the Cretans were "always liars." Pron. Epimēni-deez.

ÉPINAL. Town of France, capital of the dept. of Vosges. It is situated on both sides of the Moselle, 190 m. E.S.E. of Paris. Before the Great War it formed with Verdun, Belfort, and Toul the first line of defences along the Moselle-Meuse line. It is an important garrison town. The church of S Maurice dates from the 11th-14th cent. Pop. 25,816.

EPIPHANY (Gr. *epiphainein*, to manifest). Festival of the Christian Church, celebrated on Jan. 6. The English Prayer Book title is The Epiphany, or The Manifestation of Christ to the Gentiles. Formerly the Epiphany seems to have been part of the festival of Christmas, which lasted twelve days. It commemorated the manifestation of Christ's birth to the magi, the manifestation of the Trinity at Christ's baptism and Christ's first miracle at Cana.

In England on this day it was customary for the sovereign to offer gold, frankincense, and myrrh at the altar. This offering is made at the Chapel Royal, St. James's, by an officer of the royal household.

EPIPHYLLUM (Gr. *epi*, on; *phyllon*, leaf). Small genus of climbing shrubs of the natural order Cactaceae. Natives of Brazil, they have thin cylindrical stems, 2 ft. or 3 ft. high, with short, fleshy, leaf-like branches, whose broad ends produce large, showy flowers of pink or crimson hue.



Epiphyllum. Fleshy branches and flowers of *Epiphyllum truncatum*, a Brazilian cactus

EPIPHYTE. Plant which, instead of being rooted in the soil, grows upon the surface of other plants, chiefly trees. Large numbers of the tropical orchids are of this character, and are therefore known as epiphytal orchids. Some ferns and mosses have the same habit. True epiphytes do not derive any of their nutriment from their hosts, and are therefore often called air-plants.

EPIRUS (Gr. *ēpeiros*, mainland). Country in the N.W. of ancient Greece, bounded by Illyria, Macedonia, and Thessaly on the N. and E., and by the Ionian Sea on the W. The original inhabitants were so-called Pelasgians, but the Epirotes of historical times were a mixed race. The most famous king of later times was Pyrrhus (d. 272 B.C.). The modern district includes part of southern Albania and northern Greece. See Albania; Greece.

EPISCIA. Genus of perennial herbs of the natural order Gesneraceae. Natives of Central America and the West Indies, they have opposite leaves and beautiful funnel-shaped flowers. In colour they are white, flesh-tinted, lilac, vermilion, or crimson.



Episcia. Foliage and bloom of the American plant

EPISCOPACY (Gr. *episkopos*, overseer). Government by bishops. It is thus a particular type of Church government, as are Presbyterianism, Congregationalism or Independency, and Papalism. Early in the 2nd century the growing need of a centre of unity and source of discipline in each church led Ignatius to emphasise the local bishop as such, and so the importance of the presbytery, over which he presided, lessened. From the middle of that century the bishop is the representative and spokesman of each local church.

The bishop was chosen by the church, and his powers as ruler were limited by the concurrent rights of his presbyters, in the appointment of whom the laity also had a decisive influence. The nominee of the local church had then to be recognized and "consecrated" by the bishops of the surrounding churches or dioceses, which gradually formed themselves into provinces under metropolitan bishops; and thus the system acquired that catholic, or world-wide, quality and range to which no rival system has ever attained. See Anglicanism; Apostle; Archbishop; Bishop; Church of England; Diocese.

EPISTAXIS (Gr. *epi*, on; *stazein*, to drip). Bleeding from the nose. It may arise from injury, ulceration of the mucous membrane, tumour in the nose, rupture of a varicose vein, the presence of a foreign body, or cerebral congestion. It may also be a symptom of enteric fever, or some other disease. As a rule the haemorrhage can readily be stopped by applying cold compresses to the root of the nose and nape of the neck. In severe cases plugging of the nostrils may be necessary.

EPISTLE (Gr. *epistolē*, message, letter). Term generally applied in English literature to verses written in the form of letters addressed to specific persons, or to readers generally, as in the epistle dedicatory. Satiric or moral epistles, such as Pope's Essay on Man and Moral Essays, more or less on the Latin model, were a notable feature of English literature in the 18th century, at the close of which Burns gave the epistle an easier and freer form.

There are examples of epistles in the O.T., but the famous letters or epistles of the Bible are confined to the N.T. The chief writer is Paul, to whom thirteen Epistles are ascribed.

EPITAPH (Gr. *epi*, on; *taphos*, tomb or grave). Inscription on a tomb. Some of the earliest extant epitaphs are found on Egyptian sarcophagi, and they were commonly used among the Jews. Various anthologies and the catacombs of Rome supply numerous Greek and Latin examples.

In England epitaphs range from the lengthy recital of the deceased's titles and dignities in Latin and the solemn and elaborate survey of his career in the English of the eighteenth century to the severely simple and the frankly humorous. An effective Latin epitaph is that on Sir Christopher Wren in St. Paul's Cathedral, London, Si monumentum requiris, circumspice (If you seek his monument, look around).

EPITHALAMIUM. Nuptial song in praise of a newly wedded pair and invoking blessings on them, sung before the bridal chamber (Gr. *thalamos*). A celebrated Latin epithalamium is that on Peleus and Thetis written by Catullus. In English literature Edmund Spenser's Prothalamium and Epithalamium are among the most beautiful poems of this kind.

EPITHELIUM (Gr. *epi*, on; *thelē*, nipple). Tissue composed almost entirely of cells with little cementing material. It forms the superficial layer of the skin and lines the internal cavities of the body. Epithelium is classified according to the shape of the cells into pavement (flattened, mosaic effect), columnar, stratified, ciliated, etc.

EPOCH (Gr. *epoche*, pause). In astronomy, a date arbitrarily fixed, and necessary for computing the place of a heavenly body. Jan. 1, 1901, might, for example, be the date that is computed for the definition of the positions of the planet Mercury, and all the changes in its

positions would then be noted in succeeding periods of time

EPHING. Market town and urban district of Essex. It stands on the summit of a hilly ridge, 382 ft. above sea level, near Epping Forest, 17 m. N.E. of London by the L.N.E.R. The church of St. John Baptist (1832) was rebuilt in 1890 and superseded All Saints at Epping Upland as the parish church in 1889. Its tower was added in 1908. The town hall was built in 1863. Market day, Monday. Pop. 4,197.

Epping Forest is all that remains of the Royal Forest of Essex, known after the 13th century as the Forest of Waltham. It covers about 5,660 acres. The best of the wooded section includes Monkwood and Epping Thicks. Of two ancient camps, Ambresbury Banks is popularly assigned to Queen Boadicea, and Loughton Camp to early British or pre-Roman origin. The forest was secured to the public by the City Corporation and the Commons Preservation Society, and was opened by Queen Victoria in 1882. Additions have since been made to it.

EPSOM. Urban district and market town of Surrey. It is 14 m. S.W. of London on the Southern Rly. First known for its mineral springs, discovered in 1618, it became a fashionable spa in the 17th century. St. Martin's, the parish church, has works by Flaxman and Chantrey. Epsom College is a public school especially associated with the medical profession. Epsom is known for its race meetings held on the Downs. Market day, Sat. Pop. 24,000. See Derby; Horse Racing; Oaks.

Epsom Salts. Magnesium sulphate ($MgSO_4 \cdot 7H_2O$). It crystallises in small prisms, and is a useful saline purgative.

EPSTEIN, JACOB (b. 1880). British sculptor. Born in New York of Russo-Polish parents, Nov. 10, 1880, he studied in Paris at the Ecole des Beaux Arts and at Julien's Academy. Rodin's influence can be traced in the figures on the British Medical Association's former offices in the Strand, 1907-8; the sculpture for Oscar Wilde's tomb, 1913, is interesting for its echoes of Abyssinian and Egyptian art. Among his busts are those of Lord Fisher, the Duchess of Hamilton, Muirhead Bone, and Mrs. McEvoy. Much discussion was aroused by his figures of Venus, 1917, of Christ, 1920, by the figure of Rima in Hyde Park, 1923, and by the groups Day and Night on the Underground Headquarters Building, Westminster, 1920.



Jacob Epstein, British sculptor
Berkeley

EPWORTH. Market town of Lincolnshire. On the Isle of Axholme, 9 m. N.N.W. of Gainsborough and 24 m. from Lincoln on the L.N.E. and L.M.S. Rlys., it was the birthplace of John Wesley, whose father was rector here. Pop. 1,822.

EQUATOR (Lat. *aequare*, to equalise). Circle drawn round the globe midway between the N. and S. poles. At the equator the sun is seen directly overhead at noon at the time of the equinoxes. Latitude is measured N. and S. of this circle.



Equator. Perspective view of the earth, showing where the equator cuts Africa and a portion of S. America

It is the longest line, in one plane, that can be drawn round the earth, measuring approximately 24,902 m. Strictly speaking,

this line is the terrestrial equator. The great circle in which the plane of the terrestrial equator cuts the celestial sphere is called the celestial equator. The magnetic equator is that line drawn round the earth at any point on which the vertical components of the force of the earth's magnetism is zero. See Earth; Equinox; Latitude.

EQUATORIAL. Instrument so mounted that it can follow a heavenly body from its rising to its setting. This continuous observation is regulated by clockwork machinery. In the best arrangement, a strong steel pillar supports a headpiece, in which is fixed the polar axis of the instrument, parallel to the axis of the earth. This polar axis is turned round once in twenty-four hours. A telescope fixed to such an axis will always move in a "circle of declination," and thus a clock driving the telescope in one direction as fast as the earth is carrying it in the opposite direction will always keep the telescope fixed on the same point in the sky.

Equatorville. Alternative name for the town in Belgian Congo better known as Coquilhatville (q. v.).

EQUERRY. Originally an official of the royal stables. In the British royal household the equerries are army officers in the department of the master of the horse. The chief or crown equerry is a permanent official, who looks after the stables and stud. The sovereign always has an equerry in attendance.

EQUILIBRIUM (Lat. *aequus*, equal; *libra*, balance). In a system of forces a state of equilibrium exists when the forces under consideration are so arranged that they balance or have no resultant at any point. A body is in stable equilibrium when it returns to its original position after being disturbed; in unstable equilibrium when it continues to move in the direction given to it by a disturbing force.

EQUINOX. Dates on which the day and night are of equal length, and the length of day is the same for all parts of the world. Twice a year—at the vernal equinox, March 22, and at the autumnal equinox, Sept. 22—all places on the earth experience a day and a night each twelve hours long.

There is a belief that gales normally occur about the equinoxes, and these are called equinoctial gales. In N. America and Europe and over the N. Atlantic Ocean, from Nov. to Jan. is the period of most frequent and most intense gales.

EQUISETUM. Single genus forming a small order of Pteridophytes, the horsetails. They are mostly natives of the N. temperate regions, but a few are sub-tropical. They have creeping root-stocks, from which arise the erect, hollow, jointed stems. They are solid at the joints, which have toothed sheaths into which the next joint fits and from which the branches are given off in whorls. The spores are produced on the undersides of scales of a terminal oval cone. *Equisetum martii*, a native of Brazil, grows to 30 ft., but the other species are only a few feet high. The stems are covered with silica, and those of *E. hyemale* constitute the Dutch rushes of commerce, used for scouring and polishing.

EQUITY (Lat. *aequitas*). Term used by English lawyers to describe that part of the law of England formerly enforced only by the court of chancery, and not by the common law courts. Equity was of two kinds: (1) where the court of chancery gave rights which the

common law courts did not give; and (2) where chancery gave remedies which the common law knew nothing about.

At one time a court of equity could not award damages. They were reserved for the courts of common law. By the Judicature Act, 1873, however, all branches of the high court can now award damages in proper cases; though it is still unusual for a person to bring an action for damages alone in the chancery division. See Chancery.

ERASMUS, DESIDERIUS (1466-1536). Dutch humanist. He was born Oct. 28, 1463, and was illegitimate. He turned his Dutch father's name into the incorrect Latin and Greek equivalents, Desiderius Erasmus. After four years' schooling at Deventer, he was sent by his guardians to a seminary of the Brothers of Common Life at Herto-genbosch (Bois-le-duc), and in 1486 entered the cloister of Stein and took the vows of the Augustinian order. In 1491 he became secretary to the bishop of Cambrai and a priest in 1492. He studied in Paris and took pupils, one of whom, Lord Mountjoy, invited him to England. Residing chiefly in Oxford, he became the friend of Thomas More and Colet, and received instruction in Greek from Grocyn and Linacre. He taught Greek in Cambridge, and was appointed Lady Margaret professor of divinity. From 1521-29 Erasmus was at Basel, where most of his works were published, and then at Freiburg. He died at Basel, July 12, 1536.

Of his editions of classical works the most important is Terence, 1532. He edited many of the Fathers of the Church, but his greatest service to theology was his edition of the New Testament, 1516, the Greek text with a Latin translation, his treatment of which entitles him to be called the pioneer of Biblical criticism. Other famous treatises are *Encomium Moriae* (Praise of Folly), 1509, and *Colloquia*, 1516. Much of his correspondence throws light on the manners and customs of the England of his day. See More, Thomas.

ERASTIANISM. Term specially applied to the view of Church policy which regarded the Church as mainly or solely a department of the state. Its upholders urged that while the choice and practice of religion was a matter for the individual conscience, the external organization of churches—including the appointment of ministers—was a function of the state. The word comes from Thomas Erastus (1524-83), a Swiss theologian, who maintained that the offences of Christians should be punished rather by the civil power than the ecclesiastical.

ERBIUM. Metallic element of the rare earth erbia, which is its oxide. Its atomic weight is 167.7, its atomic number 68, and its specific gravity is 4.77. The oxide was first recognized in 1843. With dysprosium, holmium, and thulium it forms the erbia sub-group of rare earths, all of which are included in the yttrium group. Erbia is found in almost all the rare earths.

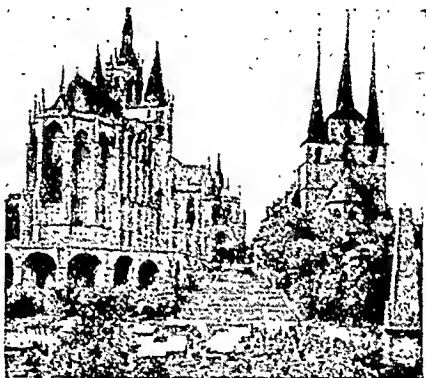
ERCKMANN-CHATRIAN. Compound signature of two successful literary partners and collaborators. They were Émile Erckmann, born May 20, 1822, at Phalsbourg, and Alexandre Chatrian, born Dec. 18, 1826, at

Soldatenthal, both in Lorraine. They first won success in 1859 with *L'illustre Docteur Mathéus*. In 1862 they began, with *L'invasion*; on le fou Yégo, a series of novels which included *Histoire d'un Conserit* and *Waterloo*, which remain among the best war stories ever written. Industrious playwrights, also in collaboration, they wrote *Le Juif Polonais* (Théâtre Cluny, June, 1869), familiar in English to all playgoers as *The Bells*. Chatrian died in Paris, Sept. 4, 1890. Erckmann died at Lunéville, March 13, 1899.

ERCOLE DA FERRARA (c. 1462-1531). Italian painter. Born at Ferrara, little is known of him except that he was in the service of the duke of Ferrara from 1492-99, and died in Ferrara in 1531. Among his best works, distinguished by the warmth of their colouring, are *The Madonna and Child*, and *Conversion of S. Paul*, in the National Gallery, London.

EREBUS (Gr. *erebos*, darkness). In Greek mythology, son of Chaos and father of Hemera (day) by union with his sister Nyx (night). The word is sometimes used as equivalent to the lower world generally, sometimes for the region through which souls passed on their way to Hades proper.

EREBUS. Volcano of Ross Island, Antarctica. It has an alt. of over 12,000 ft. Another volcanic peak, Mt. Terror, lies 30 m. E. They were discovered by Captain James Ross in 1841, who named them after his ships. Erebus has been recently active. It was reached in March, 1908, by the Shackleton expedition.

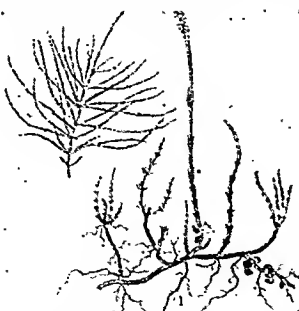


Erfurt. Left, Gothic cathedral church of Our Lady; right, the 15th cent. church of S. Severus. See below.

ERECH. Biblical name of the Sumerian city Uruk. Its site is occupied by the modern village of Warka on the left Euphrates bank, 138 m. from Bagdad. Excavation has revealed the temple and ziggurat (or tower) of its city-goddess Nana, as well as relics of the Arsacid and Seleucid period.

ERECHTHÉUM (Gr. *Erechtheion*). Ionic temple on the Acropolis, Athens, just N.W. of the Parthenon. It was built partly in honour of the Greek hero, Erechtheus, the legendary king of Athens. It contained the shrine and a sacred wooden image of Athena Polias, guardian of the city, and the tomb of Cecrops, beside other treasures. A unique and beautiful structure, much of which is still standing, it is noted for its remarkable porch of the Caryatids (q. v.), six draped female figures supporting the roof. See illus. pp. 14, 151.

ERFURT. City of Germany. It stands on the Gera, 14 m. from Weimar. There are engineering shops, especially for tly. rolling stock, breweries, and dye works, and it is an important market for flowers and vegetables. In the suburb of Ilversgehofen is a noted salt mine. The cathedral was mainly built in the 13th century and restored in the 19th. Among its features are the beautiful chancel.



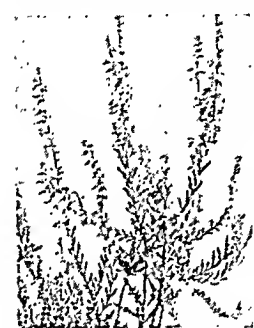
Equisetum. Fertile and barren stems of the horsetail.

the cloisters, and the lofty towers. It has decorations by Peter Vischer and others. Other old churches include the Prediger and the Barfüsser. Two convents remain. The monastery to which Luther belonged has been converted into an orphanage. Other buildings are the town hall and the picture gallery. Two citadels overlook the city.

For a time Erfurt was part of Thuringia. In 1255 it became a free city, and early in the 15th century it joined the Hanseatic League. From 1378 to 1816 Erfurt had a university. Pop. 135,579.

ERG (Gr. ergon, work). Measurement of work done by the force of one dyne (q.v.) acting on a body through a distance of one centimetre. The unit of power is the erg per second.

ERGOT (Gr. spur). Fungoid pest (Claviceps purpurea) that attacks the flowers of cereals—especially rye—cultivated grasses, such as rye-grass and Timothy grass, and wild grasses. What should have been a grain is replaced by a hard spurlike outgrowth (ergot), which, if devoured by pregnant stock, may cause abortion. Ergots should not be sown with grain or grass seeds, and wild grasses infested by them should be destroyed.



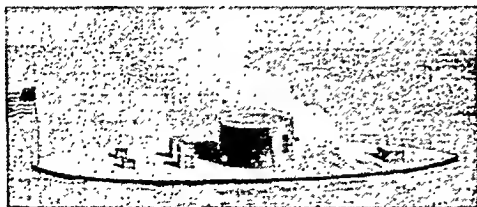
Ericaceae. Leaves and flowers of *Calluna vulgaris*

ERICACEAE (Gr. ereikē, heath). Large natural order of evergreen shrubs, under-shrubs, and a few small trees. They are chiefly natives of temperate and cold climates. They have simple leaves,

and regular flowers. To the order belong the heaths and the rhododendron.

Ericht. Loch on the borders of Perthshire and Inverness-shire. Lying 1,152 ft. above sea level, it is 14½ m. long.

ERICSSON, JOHN (1803-89). Swedish-American engineer. Born July 31, 1803, at an early age he developed great aptitude for mechanics, and in 1820 became an engineer in the Swedish army. He came to England in 1826 and occupied himself with improvements in steam machinery. Three years later he built, with John Braithwaite, the Novelty locomotive engine to compete with Stephenson's Rocket, after which he gave his attention to marine engines. In 1839 he went to America, where he lived for the remainder of his life. Turning his attention to defensive armour for warships and improvements in marine engines, he gained a wide reputation. In 1861 he designed the famous armoured turret ship the Monitor, and in 1862 built a number of similar vessels for the American navy. He died in New York. March 8, 1889.



Ericsson. The Monitor, an ironclad turret ship, built from Ericsson's plans by the Federal navy during the American Civil War

ERIDANUS. In classical mythology, a river and river-god of Italy. It was identified with the Padus, the modern Po, which rises in the Alps and discharges into the Adriatic by several mouths. Eridanus is also the name of one of the Ptolemaic constellations whose larger part is below the northern horizon. See Constellation.

ERIDGE CASTLE. Seat of the marquess of Abergavenny (q.v.) in Sussex, near the Kentish border, 3 m. from Tunbridge Wells. The estate has belonged to the Novilles since the 13th century, but the present castle dates from the early 19th century. At Eridge Green are the Eridge Rocks. The village has a station on the Southern Rly., and the place gives its name to the Eridge Hunt.

ERIDU. Sumerian settlement at Abu Shahrain, S. of Muqaiyr (Moghair or Ur), S. Babylonia. Originally an islet on a Persian Gulf estuary, sacred to the water-god Ea, it was the traditional cradleland of some aspects of Babylonian religion. Its sandstone wall, 20 ft. high, enclosed a platform with marble stairs, bearing a two-staged brick tower.

ERIE. Southernmost of the Great Lakes of N. America. It forms part of the boundary between the U.S.A. and Canada. Area, 10,000 sq. m. It is 250 m. long, and its greatest breadth is 60 m. The lake is about 330 ft. above the level of Lake Ontario, into which it discharges its waters by the Falls of Niagara. In winter it is generally frozen over for a considerable period. Lake Erie is the outlet of a system of connecting canals. The Welland Canal connects with Lake Ontario; the Erie Canal affords communication between Buffalo and Albany, thus linking up with the Hudson river; the Ohio Canal begins at Cleveland and ends at Portsmouth, on the Ohio river; and the Miami and Erie Canal connects Toledo with Cincinnati. See Canada; also map, p. 349.

ERIE. City of Pennsylvania, U.S.A., on Lake Erie, 88 m. S.W. of Buffalo. Its harbour is protected by a strip of land called Presque Isle. It is an important industrial and commercial centre with trade by lake and rly. in coal, iron, grain, and agricultural produce. It was founded on the site of the old French fort of Presque Isle, erected 1753. In 1915, the city suffered from a cloudburst. Pop. 93,372.

ERIGENA, JOHANNES SCOTUS (c. 810-877). Scottish philosopher. He was a Scot born in Ireland, and the name Erigena (Ierugena, Erugena, Erigena) probably means Irish-born. About 840 he became a teacher at the court school at Paris. Erigena attempts to combine the neo-Platonist theory of emanation with the Christian idea of the Creation and the doctrine of the Trinity, the result being a kind of pantheism, the view that all things are contained in God.

ERIN. Poetical name for Ireland. It was popularised by Thomas Moore's Irish Melodies, but is of much earlier origin.

The phrase Erin go bragh means Ireland for ever. Through its association with Ireland's demand for a freer and more independent government it became a party instead of an entirely national cry.

ERINUS. Genus of alpine herbs of the natural order Scrophulariaceae. They are natives of W. Europe. The spoon-shaped leaves, which grow in a tuft, have their broad ends boldly cut into about five pointed teeth. The leafy stem ends in a cluster of pretty rosy-purple or yellow flowers.

ERIS. In Greek mythology, goddess of discord. Annoyed at not being invited with the other gods to the wedding-feast of Peleus and Thetis, she threw a golden apple into the midst of the feast inscribed "for the fairest." It was claimed by Hera, Athena, and Aphrodite, and Paris (q.v.) had to decide.

ERITH. Urban district of Kent. On the S. side of the Thames, 14 m. E. of London, it has a station on the Southern Rly. There are large engineering works and other industries. The church of S. John the Baptist has a number of interesting brasses. Pop. 31,558.

ERITREA. Italian colony on the Red Sea. With a coast of about 670 m., it is bounded N. and W. by the Anglo-Egyptian Sudan, S. and S.W. by Abyssinia, and on the extreme S. by French Somaliland. Stock raising is the chief industry, and cotton is increasingly grown. The exports include hides, vegetable ivory, salt, potash, and mother of pearl. There are pearl fisheries at Massawa and in the Dahlak Archipelago, which is included in the colony. A rly. (75 m.) joins the capital, Asmara, to the chief port, Massawa. There is wireless communication with Italian Somaliland and with Italy. In 1870 Italy purchased Assab and the surrounding territory, in 1885 the Italians occupied Massawa, and in 1890 the Italian possessions on the Red Sea were formed into the colony of Eritrea. Its area is 45,754 sq. m. Pop. 510,000, of whom about 3,500 are Europeans.

ERIVAN. Capital of Armenia. It stands on the Sanga, 40 m. N.E. of Ararat. It contains the remains of an old palace of the Persian viceroy. The name Erivan is sometimes applied to the Armenian Republic itself. Pop. (est.) 90,000. See Armenia.

ERLKING or **ERLKÖNIG.** Figure in German mythology. He personifies an evil spirit haunting forests and plotting mischief to passers-by, especially children. The word, meaning king of the alders (Ger. Erle), from the vapours that cling to these trees at night, is a mistranslation, and should properly be elf-king. It is the subject of a famous ballad by Goethe, set to music by Schubert.

ERMINE. Name given to the winter phase of the stoat (q.v.), when the fur is white with the exception of the black tip to the tail. In Great Britain this change from the brown of summer takes place regularly in Scotland, and often in the N. of England; but further S. it is very rare. The ermine fur of commerce comes chiefly from Alaska; but it is now in little favour, except for official robes.

In heraldry, ermine is the principal fur. It is represented as silver or white powdered with sable spots, usually depicted like a small arrow head surmounted by three dots. See Heraldry.

ERMINE STREET. Early English name for an ancient British highway from London to Lincoln, and thence to York. Incorporated in part into the Romano-British road system, it passes through London along Kingsland and Stoke Newington to Royston, thence through Godmanchester, Castor, and Ancaster to Lincoln. See Britain.



Erinus. Roots, foliage and flower of *Erinus alpinus*

ERNE or **SEA EAGLE.** Name given to the white-tailed sea eagle, the only member of its group still found in Great Britain. It is of brownish colour, has a white tail, and is about 3 ft. in length. It still breeds in the Hebrides, but is becoming rare. See illus. p. 537.

ERNE. River and loughs of Ireland. The river issues from Lough Gownagh, in co. Longford, and flows mainly N through Lough Oughter and both upper and lower Lough Erne until it falls into Donegal Bay near Ballyshannon. Its main feature is the Ballock Falls on the lower river. Its length is 70 m. Enniskillen is on its banks. After leaving Longford it passes through counties Cavan and Fermanagh. The upper lough is 15 m. long and in one place 4 m. wide. The lower lough is 18 m. long and in one place 5 m. wide. The loughs are ten miles apart, and in both are a number of islands.

The title of earl of Erne has been borne since 1789 by the family of Crichton. The family seat is Crom Castle, Fermanagh, and the earl's eldest son is called Viscount Crichton. Pron Cryton.

ERNEST AUGUSTUS (1771-1851). King of Hanover. The fifth son of George III of England, he was born at Kew, June 5, 1771. He entered the Hanoverian army and distinguished himself during the Napoleonic wars. In 1799 he was made duke of Cumberland and Teviotdale, and in the House of Lords he acted with the more extreme Tories in opposing all kinds of reform, especially Roman Catholic emancipation and the great measure of 1832. At one time it seemed likely that Ernest would inherit the English throne, and by the operation of the Salic law he succeeded to Hanover in 1837. He died Nov. 18, 1851, and was succeeded by his son George. See Hanover.

ERNLE, ROWLAND EDMUND PROTHERO, BARON (b. 1852). British politician and writer. Born Sept. 6, 1852, a younger son of the Rev. G. Prothero, canon of Westminster, he was admitted to the bar, did literary work for some years, and in 1804 was made editor of *The Quarterly Review*. An authority on agriculture, he was appointed agent-in-chief to the duke of Bedford in 1899. In 1914 Oxford University chose Prothero as one of its members, and in 1916 he was included in the Coalition Government as president of the board of agriculture. He was made a peer as Baron Ernle in 1919. He wrote *The Pioneers and Progress of English Farming*, 1888; *Life and Correspondence of Dean Stanley*, 1893 (with G. G. Bradley); *The Psalms in Human Life*, 1903; and other books.



Baron Ernle,
British politician
Elliott & Fry

Eros. In classical mythology, the Greek name for Cupid (q.v.).

EROS. Nearest of the minor planets, discovered in 1898. The importance of the discovery lay in the fact that it had then approached nearer to the earth than Mars. The asteroid's subsequent nearest approach to the earth was in 1901. Another near approach is due in 1931.

EROSION (Lat. *erosio*, eating away). Wearing down of the earth's surface through the action of the atmosphere, rain, rivers, ice, and the sea and its tides. Wind transports particles and polishes surfaces over which they are carried. Sudden changes of temperature cause particles of rock to split off, subsequently to be removed by wind or water. Atmospheric acts chemically through rainfall, in causing decomposition of rocks. Disintegration of rocks being thus effected, the products are afterwards removed by running water. Glacial erosion takes place over large areas and on an extensive scale, and marine erosion is in continuous progress along coasts. The general result of all erosion is to lower the level of land. See Coast; Glacier; River.

ER RAM. Village of Palestine, on a hill on the Jerusalem-Nablus road. Identified as the ancient Ramah (q.v.) of Benjamin (1 Kings 15, 17), it formed a kind of frontier castle between the N. and S. kingdoms of Palestine, and was reoccupied after the return from captivity. The modern village was captured by Allenby, Dec. 28, 1917, in the advance following the capture of Jerusalem. See Palestine.

ERSE. Early Scottish variant of Irish. In the 14th-15th centuries the term was used of kings and caterans. In the 18th century it denoted Gaelic speech; at first Scottish Gaelic, and subsequently Irish Gaelic. In modern philology it sometimes designates the language-group, embracing Gaelic and

Erse. Irish Gaelic alphabet of eighteen letters

Manx, which is now usually called Goidelic. See Gaelic; Ireland.

ERSKINE, EBENEZER (1680-1754). Scottish divine and founder of the Secession Church. Born at Dryburgh, in Berwickshire, June 22, 1680, the son of a minister, his first charge was at Portmouk, in Kinross-shire, whence he moved to a church at Stirling. There he came into collision with his ecclesiastical superiors, and in 1732 he was suspended. With some associates he founded a separate presbytery, which developed into the Secession Church. In this Erskine remained until 1748, when his foes secured his removal from the ministry. He died at Stirling, June 2, 1754.



Ebenezer Erskine,
Scottish divine

ERSKINE, THOMAS ERSKINE, 1ST BARON (1750-1823). British lawyer. A younger son of the 10th earl of Buchan, he was born in Edinburgh, Jan. 10, 1750.

In 1778 he was called to the bar, and his success was instantaneous. In 1783 he was elected M.P. for Portsmouth. Having been attorney-general and chancellor to the prince of Wales, he was lord chancellor in the Whig ministry of 1806-7. He was then raised to the peerage. He died Nov. 17, 1823. The barony still remains with his descendants.

Erskine's eldest brother, Henry Erskine (1746-1817), was also a distinguished advocate. He was lord advocate in 1783, and again in 1806-7.

ERUBESCITE. Ore of copper also known as variegated copper pyrites and as horse-flesh ore. Chemically it is a sulphide of the metal. See Copper.

ERVINE, ST. JOHN GREER (b. 1883). Irish dramatist and novelist. He was born at Belfast, Dec. 28, 1883, and in 1915 was manager of the Abbey Theatre, Dublin. Notable plays written by him are: *Mixed Marriage*; *The Magnanimous Lover*; *Jane Clegg*; *John Ferguson*; *The Ship*; *The Lady of Belmont*; and *The First Mrs. Fraser*, which was produced in London in 1929. He has also written novels and volumes of short stories, including *Eight O'Clock* and *Other Studies*, 1913; *Mrs. Martin's Man*, 1914; *Changing Winds*, 1917; *The Foolish Lovers*, 1920; and *The Wayward Man*, 1927.

ERYSIPELAS (Gr. *erythros*, red; *pella*, skin). Acute contagious disease due to infection by the micro-organism *Streptococcus pyogenes*. Infection occurs through some injury to the surface of the skin, which may be quite trivial. The skin rapidly becomes swollen and red, the inflammation advancing with a more or less well-defined margin and dying away behind this. The face is most frequently involved.

The duration of the disease is generally from one to three weeks. In aged, debilitated persons and chronic alcoholics the outlook is not good. Treatment by drugs does not appear markedly to influence it, but some physicians recommend perchloride of iron. Icthyol is a useful local application. Injections of antistreptococcal serum have been used with success. The patient must be strictly isolated.

ERYTHEMA (Gr. from *erythainein*, to make red). Redness of the skin owing to dilatation of the small blood-vessels. It is usually associated with swelling. The condition may be localised, when it may be due to simple inflammation, burning, or irritation by chemical substances; or it may be more or less present over the whole body, when it is usually a symptom of infectious fever, or of poisoning by unsound food or certain drugs.

ERZBERGER, MATTHIAS (1875-1921). German politician. Born at Bittenhausen, Sept., 1875, he devoted himself to the study of political economy. He entered the Reichstag, and came into prominence when, as a member of the Catholic or Centre Party, he made a speech on July 6, 1917, accusing ministers of misrepresenting the military situation, and at the same time demanding the reform of the Prussian franchise and a statement of the peace aims of Germany. In 1919 he was minister of finance and vice-premier. Erzberger resigned in Feb., 1920, and was assassinated, Aug. 26, 1921.

ERZERUM or **ERZURUM.** City of Turkey.

In a wide plain, surrounded by mountains, 6,200 ft. above the sea, it is 120 m. S.E. of Trebizond (Trabzon), its port, and about 150 m. W. of Mt. Ararat. It is the centre of a large pastoral district and a depot for goods passing between Persia and Europe.

Its main importance came from its position strategically with respect to Russia. Under the Turks, who occupied it in the 16th century, it was made into a fortress and was the headquarters of an army corps. It was taken by the Russians in 1829 and again in 1878. During the Great War it was captured by the Russians in Feb., 1916, but during the winter of 1917-18 it was abandoned by them by order of the Bolshevik Government, and was re-occupied by the Turks in March, 1918. It was the scene of massacres of Armenians in 1895 and again in 1915. Pop. 30,800.

ERZGEBIRGE or **ORE MOUNTAINS.** Mountain range of central Europe. Partly in Saxony and partly in Bohemia, it stretches for about 90 m. from the Elbe to the Elstergebirge. The highest peaks are in the centre, the Kln (Keilberg) being over 4,000 ft. high. Only a little lower are the Fichtelberg and the Spitzberg. On the S. the range has a precipitous face, but on the N., or Saxon side, it slopes more gradually. The range, as the name suggests, is rich in minerals, silver, lead, tin, copper, iron, and gold being found. There are a number of health and pleasure resorts, and much of the scenery is very fine and attracts numerous visitors. The hills are densely wooded and the whole district is well served by railways.

ERZINGAN or **ERZINJAN.** Town of Turkey, the medieval Arsing. This formerly important military centre of the Turks lies on the W. Euphrates (Kara Su) about 75 m. W. of

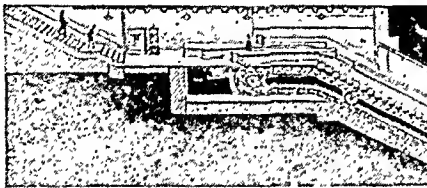


1st Baron Erskine,
British lawyer
After Hoppner

Erzerum. During the Great War it was the headquarters of a Turkish army corps, and as a military base was second in importance only to Erzerum. It was captured by the Russians in July, 1916.

ESARHADDON. Assyrian king, who reigned 680-668 B.C. His first three years were marked by the rebuilding of Babylon, destroyed by his father, Sennacherib (2 Kings 19). Besides conducting campaigns against Cilicia, Arabia, and Elam, he sacked Sidon, 676, and Memphis, 670. At Shamaal he set up a stela with his portrait in relief, and erected palaces at Nineveh and Calah. His son Ashurbanipal succeeded him.

ESAU. Son of Isaac and elder brother of Jacob, whose great rival he became after the younger brother had secured by a trick the privileges of primogeniture. He became a hunting man, married wives of Hittite nationality, and founded a tribe which occupied the mountains S. of the Dead Sea. See Jacob.



Escalator. Diagrammatic view of an escalator as used on the London Underground Electric Railways

ESBJERG. Seaport of Denmark, in Jutland. It stands opposite the island of Fanø, 56 m. by rly. W. of Fredericia. It exports to Gt. Britain bacon, beef, etc. Pop. 21,251.

ESCALATOR. Moving stairway, consisting of an endless chain of steps running round sheaves at the top and bottom of the staircase. Every step is mounted on two two-wheeled trucks, the forward wheel of a truck being out of line with the rear one. On the sloping part of the staircase the rear-wheel rails are set higher than the front-wheel, but gradually reach the same level as the horizontal portions are approached; the treads are always horizontal. The stair-chain is driven by an electric motor.

An escalator transports more people than a lift in a given time, vertical travel and power consumption being equal in both cases, costs less in attendance, and is generally more convenient to use. At many stations on the London underground railways they are in use in place of lifts.

ESCALLONIA. Genus of evergreen shrubs of the natural order Saxifragaceae, natives of S. America. The tubular white, pink, or red flowers are disposed in small clusters at the ends of branches. Two species are grown in the South of England near the sea as garden hedges.

Escallonia. Foliage and flower of *Escallonia macrantha*

are disposed in small clusters at the ends of branches. Two species are grown in the South of England near the sea as garden hedges.

ESCARPMENT

(Fr. escarper, to cut vertically). Steep face or ridge along which a bed or formation of rock abruptly ends. Escarpments are often found where gently tilted beds of hard and soft rocks occur in alternate layers. The steep southern face of the N. Downs and the abrupt northern face of

the S. Downs are escarpments. Escarpments are also found in plateau regions, where they are usually produced by the fracturing and tilting of crustal blocks.

ESCHATOLOGY (Gr. eschatos, last; logos, discourse). Term used for that branch of theology which deals with death, judgement, the life after death, and the return of Christ to the earth. The general teaching of the Christian Church on the subject has been marked by great reserve, with the exception of the Church of Rome in the Middle Ages, when the doctrine of purgatory was developed in detail. The present attitude of theologians is one of opposition to speculation on the subject. See Immortality; Survival.

ESCHEAT (Lat. excidere, to fall out). Term used in law for the reversion of land to its ultimate owner, generally the crown, because there is no other heir. Escheat was recognized by both English and Scottish law, until it was abolished in 1922.

ESCUDO (Port. shield). Silver coin, monetary unit of Portuguese currency since May 22, 1911. Divided into 100 centavos, and of nominal value 4s. 5d., 2, 5, and 10 escudo pieces are minted in gold, and 1,000 form a conto.



ESCURIAL (Span. Escorial). Palace and monastery of Spain, situated 26 m. N.W. of Madrid, on a spur of the Guadarrama mountains. It was designed for Philip II of Spain by Juan Bautista de Toledo, and took from 1563 to 1582 to build. It is of grey granite, in the severest Doric style. The plan is that of an immense rectangle, with a comparatively small rectangular wing, embodying the Palace of the Infantas, projecting beyond the E. side. The gloomy severity of the exterior is emphatic. The central space is occupied by the church, the plan of which was based on the original one of S. Peter's, Rome. Below the high altar is the famous Pantheon, containing the tombs of the kings and queens of Spain. Distributed over the church are paintings by Tintoretto, El Greco, Zurbaran, Ribera, and Coello. On the N. side is the palace.

Philip II was the founder of the Escorial Library. Don Diego de Mendoza, the Inquisition, and Augustin, archbishop of Tarragona, were other donors, the collection being further increased by confiscated libraries, and by the rule that a copy of every book published in Spain should be presented to it.

ESDRAS. THE BOOKS OF. Several works bear the title Esdras. One of these (O.T. Apocrypha), commonly called I Esdras, contains substantially the same materials as the Biblical books known as Ezra, Nehemiah, and II Chronicles. The other work in the O.T. Apocrypha is

commonly called II Esdras, but sometimes IV Esdras. It contains seven visions, and is the only specimen of Apocalyptic Literature in the O.T. Apocrypha.

ESHER. With Thames Ditton and Long Ditton, an urban district of Surrey and residential suburb of London. It stands on the Portsmouth Road near the river Mole, 15 m. S.W. of London on the Southern Railway. Esher Place, built by William of Wyndesbury in 1460, and now represented by a ruined tower, was the residence of Wolsey after his fall in 1529. It was sold in 1928 by Lord D'Abernon. One mile S. is Claremont (q.v.). Pop. 14,309.

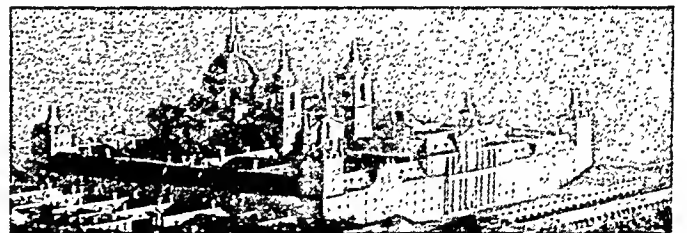
ESHER, WILLIAM BALIOL BRETT, 1ST VISCOUNT (1817-99). British judge. He was born Aug. 13, 1817. In 1840 he became a barrister, and after some years at the bar entered the House of Commons as Conservative M.P. for Helston in 1866. In 1868 Brett was made solicitor-general, but left political life to become a judge of the court of common pleas. In 1876 he was promoted to be a lord justice, and in 1883 to be master of the rolls. He died May 24, 1899. In 1885 Brett was made Baron Esher, and in 1897 was raised to the rank of viscount.

His son, Reginald Baliol Brett (1852-1930), the 2nd Viscount, was Liberal M.P. for Penryn and Falmouth 1880-85. He was secretary to the office of works 1895-1902, and under King Edward VII he was deputy-governor of Windsor Castle, and again from 1928. Esher took a great interest in the Territorial Force, and was on the committee of imperial defence. He died Jan. 22, 1930. His publications include To-day and Tomorrow and Other Essays 1910; and, with A. C. Benson, he edited the Letters of Queen Victoria, 1907.



2nd Viscount Esher, British publicist Hereford

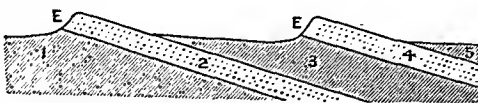
ESK. River of Great Britain. Formed by the confluence of the Black Esk and White Esk, which meet in Eskdalemuir, it flows for 42 m. through Dumfriesshire and Cumberland to the Solway Firth, about 5 m. below Long-



Escorial. The palace and monastery from the north. In the centre is the church; the palace, college, and convent occupy parts of the surrounding buildings

town. The Esk of Midlothian, formed by the junction of the N. Esk and S. Esk in Dalkeith Park, flows thence 3½ m. N. to the Firth of Forth at Musselburgh. The North Esk flows S.W. for 29 m. to the North Sea, 4½ m. N.N.E. of Montrose. The South Esk flows 49 m. S.E. and E. to the North Sea at Montrose.

ESKIMO (Abenaki, raw flesh eater). Primitive race inhabiting arctic America. Their geographical range of 5,000 m. is the widest of any aboriginal race in the world. The native name is Innuitt (men). Long-headed, broad-faced, lank-haired, and of a yellowish brown colour, an origin in prehistoric Europe is suggested, but has recently been contested in favour of relationships more definitely mongoloid. Their one-man skin canoes (kayak), transport boats (umiak), summer tents of skin, winter huts of turfed stone, migrant snow-houses (igloo), harpoon floats, dog sledges,



Escarpment. Sectional diagram illustrating formation of escarpments E.E. 1. Soft layers of lower Severn Valley. 2. Oolitic limestone of Cotswold Hills. 3. Soft layers of middle Thames basin. 4. Chalk beds of Chiltern Hills. 5. Soft layers of London basin.

ally the same materials as the Biblical books known as Ezra, Nehemiah, and II Chronicles. The other work in the O.T. Apocrypha is

cairn-burials, all betoken an intelligent adaptation to adverse conditions. They live by hunting the musk ox and reindeer, and seals are captured with the harpoon.

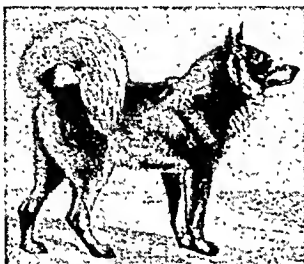


Eskimo man in hunting dress

The language stock, with its many dialects, attests an ancestry anterior to their American advent. Their animism embraces a crude magic, governed by medicine-men (angakok). Their communal life recognizes no national chiefs; tribal warfare is unknown. The Aleuts of the Aleutian Islands are a self-contained branch of the race. A tribe of blond Eskimo was discovered by Stefansson during his 1909-11 expedition on Coronation Bluff, far in the Arctic zone. See Aborigines.

ESKIMO DOG. Breed of dogs kept by the Eskimos of Arctic America. They are little more than domesticated wolves of the district.

The Eskimo dog has a sharp muzzle, upright ears, rough coat, and a bushy tail. Though usually of the colour of the wolf, black-and-white specimens are not uncommon. Like the wolf, it does not bark, but howls. It is employed for sledge drawing, about eight being usually yoked together. When the going is good a dog will draw on an average over 300 lb. for 35 m. in a day. They are fed on frozen fish, and their drink is snow.



Eskimo Dog. Specimen of the breed, closely akin to the wolf

ESMOND, HENRY VERNON (1869-1922). Stage and pen name of Henry Vernon Jack, British dramatist and actor. He was born at Hampton Court, Nov. 3, 1869, and went on the stage in 1885. He was the author of many plays, some of which enjoyed considerable popularity. They include *Bogey*, 1895; *One Summer's Day*, 1897; *The Wilderness*, 1901; *The Sentimentalist*, 1901; *My Lady Virtue*, 1902; *A Young Man's Fancy*, 1912; *Eliza Comes to Stay*, 1913; *The Dangerous Age*, 1914. He died April 17, 1922.

ESNEH, ESNA OR ISNA. Town of Egypt. It is on the W. bank of the Nile, 36 m. by rly. from Luxor. The *Tesnet* of ancient Egypt, it was called *Latopolis* by the Greeks, after the locally venerated lotos fish. The chief object of interest is the temple of Khnum. A subterranean Coptic church was identified here in 1895. The harrage at Esneh ensures adequate irrigation for a large area. Pop. about 20,000.

ESPALIER (Fr.). Shape or form of fruit-tree. An espalier consists of a main root stem, the original stock, from which fruit branches in tiers extend horizontally right and left, one above another. During the year after hudding, when the side-shoots make their appearance, all are removed except three, grouped close together. One is trained upwards to form a continuation of the main stem, and the remaining couple are coaxed to grow right and left, parallel with the ground. When the main stem produces three more buds suitably situated, the process is repeated above the original tier.



Espalier. Pear tree trained to grow in this way upon a trellis

ESPARTO GRASS (*Stipa tenacissima*). Tall perennial grass of the order Gramineae. It is a native of S. Europe and N. Africa, where it grows in rocky soil. Its leaves are rolled in from the edges, so that they appear thread-like. Being tough and wiry, it is used in the manufacture of ropes, mats, and a superior kind of paper. For the latter purpose many thousands of tons of the grass are imported into Britain annually. As a crop it yields about 10 tons per acre. See Paper.



Esparto Grass

ESPERANTO. International language invented by Dr. Zamenhof, an oculist of Warsaw. Completed in 1878, and first published in 1887, it has since made great strides, the number of Esperanto societies rising from 26 in 1901 to 2,700 in 1913. The alphabet consists of 28 letters, and the language is easily learned, every rule being without exception, the spelling phonetic, and the vocabulary surprisingly small.

International congresses have been held annually since 1905, except during the years 1914-18. The language is controlled by an international academy and a language committee, and the organization of the movement by the central office at 51, Rue Clichy, Paris. There is a flourishing literature, translated and original, and some 70 Esperanto periodicals are now published regularly. The headquarters for the British Empire is The British Esperanto Association, Inc., 142, High Holborn, London, W.C. The *Universala Esperanto-Asocio* is at 14, Muscum-strasse, Berno, Switzerland. See Language; Phonetics.

ESPIONAGE (Fr. *espion*, spy). Aiding an enemy by supplying information otherwise than as a helligerent engaged on reconnaissance duty, or as a citizen openly helping his own country. The soldier if captured must be treated as a prisoner of war; a civilian may be guilty of a war crime, such as war treason, but in neither case, if no dissimulation has been practised, is the offence that of espionage. A captured spy may be lawfully sentenced to death, as were numbers during the Great War.

ESQUIMALT. Port of British Columbia, Canada. It is on Vancouver Island, 3 m. from Victoria. It has a magnificent harbour and is the Pacific coast headquarters of the Canadian navy, for which there is a dockyard and other naval establishments. The town is served by the C.N.R. and C.P.R. The industries include shipbuilding. Pop. 4,700.

ESQUIRE (old Fr. *es-cuyer*, shield-bearer). Title of honour. The word, originally denoting one who bore the shield for a knight, became a title of honour below the rank of knight. Among those legally esquires are sons of peers, the eldest sons of baronets and knights, justices of the peace, and barristers.

ES SALT. Village of Palestine. Identified as the ancient Ramoth (Deut. 4, 43; Josh. 20, 8), it is 15 m. N.E. of the crossing of the

Jordan at El Ghoraniye, 20 N.E. of the N. end of the Dead Sea. During the Great War it was a depot of the Turks, who when they retired from it, April 1, 1918, brought away some thousands of Jewish, Syrian, and Armenian refugees. On April 30 Allenby resumed operations E. of the Jordan, and Australian mounted troops entered Es Salt. It was evacuated by the British, May 3, when Allenby withdrew his whole force to the Jordan crossings. See Palestine.

ESSEN. Town of Prussia, in the Rhine province, 20 m. N.E. of Düsseldorf. Situated near vast iron and coal deposits, it was here that the Krupp works were established, and to them the town owes its growth, the population having increased from 9,000 in 1850 to 470,524 in 1925. It is also an important railway centre. Essen grew up around a Benedictine nunnery, and has a notable church, the minster. Other buildings include the town hall, railway station, and exchange. Essen, with neighbouring towns, was occupied by the French in Jan., 1923. See Krupp; Ruhr.

ESSENES. Jewish sect originating in the 2nd century B.C. It sought to combine the ascetic practices of the Jewish religion with various Oriental tenets and rites. The Essenes believed in one God and in eternal predestination. While maintaining the immortality of the soul, they denied the resurrection of the body; and they held a Greek view of future rewards and punishments. They led very austere lives. Community of goods was practised, and the time was divided between prayer, study of the sacred books, and agriculture. Strongly opposed by orthodox Jews, they were favoured by the Herods. The sect died out before the 3rd century A.D.

ESSENTIAL OILS. Oils representing in the majority of cases the characteristic properties of the plant from which they have been extracted. They are sometimes called volatile oils. This class of oils can be entirely volatilised without change, whereas the fixed or fatty oils make a permanent greasy mark if placed on a piece of paper.

ESSEX. County of England. It is bounded S. by the Thames, E. and S.E. by the North Sea, N. by Suffolk and Cambridgeshire, and W. by Hertfordshire and Middlesex. Its area is 1,530 sq. m. Its seaboard is indented



Esquimalt, British Columbia. Aerial view of harbour, one of the safest on the Pacific coast

Courtesy of Agent General for British Columbia

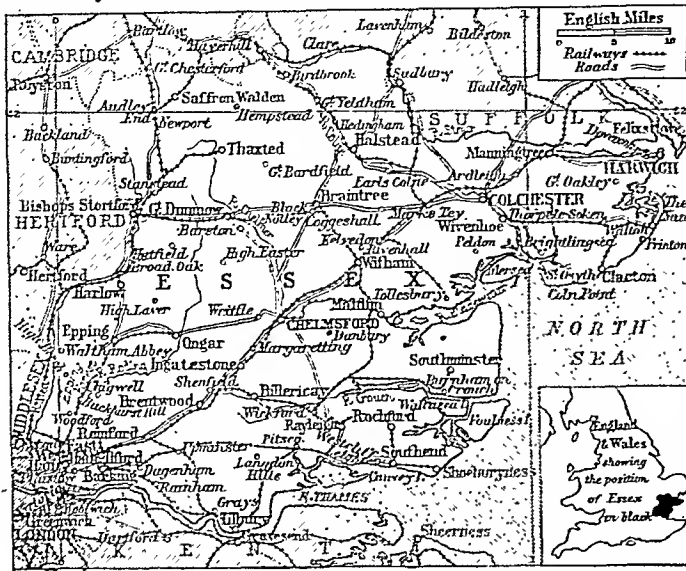
by several river estuaries and marked by low-lying islands: Canvey, Foulness, Wallasea, Mersea, etc. The chief rivers are the Thames, Lea, Stour, Colne, Chelmer, Blackwater, Crouch, and Roding. The coastal region is flat and marshy, but there is comparatively high ground in the N.W. and centre. Chelmsford is the county town. Harwich is the chief port, and Southend, Walton-on-the-Naze, Dovercourt, Clacton, and Frinton are popular holiday resorts.

The county produces wheat, barley, and fruit, but apart from brewing (Romford) and engineering (Colchester), the manufacturing industries are largely confined to the metropolitan area, in which is the bulk of the population. The Crouch, Blackwater, and

Colne have productive oyster beds. There is a gunpowder factory at Waltham Abbey, and the Tilbury Docks and Victoria Docks (Pla-

His son, Robert Devereux (1591-1646), the 3rd earl, was restored in 1604 to the title his father had lost, James I being then on the throne. In 1639 he held a command in the army sent by Charles I against the Scots, but on the outbreak of the Civil War he took the side of the parliamentarians, and was appointed general of their forces. He resigned his position when the self-denying ordinance was passed in 1645, and died Sept. 14, 1646.

the rate of 4 p.c., reckoned from the day of death. On real estate this can be paid by instalments, on which interest is only charged after twelve months. See Legacy; Will.



ESTCOURT. Town of Natal. At an elevation of 3,833 ft., on the rly. from Pietermaritzburg to Ladysmith, 76 m. N.W. of the former it was the scene of important operations during the S. African War. At Weenen, 28 m. E., parties of Boers were massacred by the Zulus in 1838. Pop. 800.

ESTE. Name of a noble Italian family founded by Oberto II (c. 1015), margrave of Casalmaggiore. It takes its name from a city



ESSEX. Map of the deeply-indented county, showing its relation to the London area (tow) are on the Thames. Burnham-on-Crouch is a yachting centre. The forest of Essex has dwindled to what is known as Epping Forest (q.v.). The county is served by the L.N.E. and the L.M.S. Railways. For long the county was in the diocese of London, but since 1914 it has been in that of Chelmsford.

The county is rich in prehistoric, Roman, Anglo-Saxon, medieval, and monastic remains: has many notable churches and some fine old houses, Audley End among them, while the remains of Norman castles, e.g. Colchester and Hedingham, and the fragment at Hadleigh, bear witness to the Norman occupation Pop. 1,470,257.

ESSEX. EARL OF. English title now held by the family of Capell. There were earls of Essex soon after the Norman conquest, and Geoffrey de Mandeville was one of the first. The earldom afterwards passed successively to the Bohuns, the duke of Gloucester, the Bourchiers and the Devereux. With the death of Robert Devereux, in 1646, the title became extinct. In 1661 Arthur Capell was made earl of Essex. He was succeeded in 1683 by his son Algernon, and the title is still held by his descendants. His chief seat was Cassiobury Park (q.v.). The earl's eldest son is known as Viscount Malden. In 1916 Algernon (h. 1884) became the 8th earl.

ESSEX, ROBERT DEVEREUX, 2ND EARL OF (1591-1646). English soldier and courtier. Eldest son of the 1st earl, he was born at Netherwood, Herefordshire, Nov. 19, 1566, and was introduced at court in 1577, when he soon became a favourite of the queen. He took part in Drake's expedition to Portugal, 1589, commanded an expedition to Normandy, 1591, distinguished himself at the capture of Cadiz, 1596, lost favour by the failure of the Islands, or Cadiz Voyage, 1597, and was master of ordnance, earl marshal, and informal foreign secretary to the queen. In 1599 he was appointed governor-general of Ireland, but was dismissed from office and imprisoned from Oct., 1599, to Aug., 1600. He attempted a rising in London, was arraigned, and beheaded Feb. 25, 1601. He was a writer of sonnets and masques.

the Castle and Key and the word Gibraltar on their colours. They fought in the West Indies and Egypt against France, before taking part in the Peninsular War. They were at Waterloo, and in the retreat from Kabul (1842), the Crimean War, the Indian Mutiny, the China War (1860), the Nile Campaign (1884-85), and the S. African War. In the Great War the 2nd Essex were in the retreat from Mons, and in Cambrai, 1917, a company of the 13th Essex made a gallant stand at Moeuvres. The regimental depot is at Warley.

ESTATE DUTIES. Name given in the United Kingdom to the duties paid on the estates of deceased persons. They date from



Essex Regimental badge

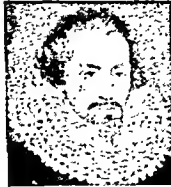
Exceeding	Per cent	Exceeding	Per cent
£ 500	2	100,000	20
1,000	3	120,000	22
5,000	4	140,000	22
10,000	5	150,000	24
12,500	6	170,000	24
15,000	7	200,000	26
18,000	8	250,000	28
21,000	9	300,000	30
25,000	10	325,000	30
30,000	11	400,000	32
35,000	12	500,000	34
40,000	13	600,000	36
45,000	14	750,000	36
50,000	15	800,000	38
55,000	16	1,000,000	40
65,000	17	1,250,000	42
75,000	18	1,500,000	45
85,000	19	2,000,000	50

Estate Duties. Table showing the scale of duties in force after the Budget introduced by Mr. Philip Snowden in 1930, in which the rates on fortunes of £120,000 and over were increased

1894. Real property, hitherto exempt from charges of this kind, was made to pay at the same rate as personal property, and the duties were levied on a graduated scale. The legacy duty, which was in force before 1894, is sometimes classed with the estate duties.

Gifts made within three years of death, unless part of the deceased's normal expenditure, are charged with duty. Payment may be made in real or leasehold property; also in war loan, which is taken at its nominal value. Estates under £500 may pay an inclusive fee of 30s. or 50s., which covers all duties. Interest on the duty on personal property is charged at

ESTHER. Book of. O.T. book so named after the chief character in the story. When Vashti, the consort of the Persian king Ahashverosh (Xerxes), was deposed, Esther, the



Robert Devereux, 2nd Earl of Essex after Hilliard

adopted daughter of Mordecai, a Jewish exile, was chosen in her place. She was thus enabled to frustrate the plots of Haman (q.v.) a powerful enemy of her people. The real purpose of the book seems to be to explain the origin of the Jewish festival Purim.

ESTON. Urban dist of Yorkshire (N.R.). It is 5 in S.E. of Middlesbrough, on the L.N.E.R. There are blast furnaces and iron-foundries. Pop. 30,634.

ESTONIA. Republic of N. Europe, formerly part of the Russian Empire. It is bounded N by the Gulf of Finland, E. by Russia and Lake Peipus, S. by Latvia and the Gulf of Riga, and W by the Baltic Sea. Except in the S.E., which is hilly, the mainland of Estonia lies low, it is intersected by numerous rivers and streams and much of it is swampy.

There are many lakes. About 20 p.c. is forest. The climate is rather hot in the summer and cold in the winter. Hiiumägi (Dago), Oesel (Ezel), and other islands belong to it. Its area is about 18,632 sq. m. pop. 1,116,474.

The chief occupations are agriculture and dairy farming. Good crops, particularly of flax, are raised from a naturally poor soil, and there is a flourishing livestock industry. Oil-shale is plentiful. Manufactures include textiles, paper, wood pulp, and spirits. Among the exports are dairy produce, wood and wood products, cotton fabrics, and paper. Estonia carries on a large transit trade, the seaport of which is Tallinn (Reval), the capital, connected by railway with Leningrad. Other towns include Narva, Tartu (Dorpat), and the port of Pärnu (Pernau).

Early in the 13th century the country was conquered by Danes and Germans. The Danes founded Reval (Tallinn) in 1219, and later divided the land between themselves and the Germans, finally selling their part in 1346 to the Teutonic Knights, who joined it up with Livonia. After the dissolution of the Teutonic Order in 1560, N. Estonia passed to Sweden. S. Estonia remained under Poland till 1629, when the whole of Estonia became a Swedish province with Livonia, which was ceded to Russia in 1721.

After the outbreak of the Russian Revolution in 1917, Estonia regained her independence, being proclaimed an independent republic on Feb. 24, 1918. On May 3, 1918, Great Britain, and later France and Italy, accorded Estonia de facto recognition, and on Jan. 26, 1921, the Supreme Council of the Allies agreed to give the republic de jure recognition. Soviet Russia recognized Estonia's independence on Feb. 2, 1920. Estonia is a member of the League of Nations. The country is governed by a state assembly of 100 members, who choose the members of the government and the premier or state head.

ÉTAPLES. Town of France. On the estuary of the Canche, 17 m. S. of Boulogne, and near the coast, it is the railway terminus for Paris-Plage, and is a fishing centre. The Great War created a new Etaples. It expanded N. along the main road to Boulogne, a city of hospitals, with the British military cemetery on the Camiers road. It was a huge British

encampment. Among the training grounds was the well-known Bull Ring. Pop. 5,846.

ETCHING (Ger. ätzen, to corrode). Method of engraving on metal either by biting with an acid a design drawn through a ground specially laid on the metal, or by drawing with a needle directly on the metal. Copper is the metal almost universally used. In etching by acid, the plate is covered with a coating of wax or other resinous substance. The drawing is traced with a steel needle through the wax down and into the copper, and the plate submitted to the action of nitric or other acid. The parts that are to come light and sketchy are "stopped out" with varnish. Those which are to be darker are exposed for a further period, and then stopped out; and those which contain the heavy shadows and blacks are then exposed long enough

1014 Ethelred fled to Normandy, where duke Riehard was his father-in-law. He was again in England when he died in 1016. Ethelred's sons included Edmund Ironside and Edward the Confessor.

ETHER or **ÆTHER** (Gr. aithēr). Name given to a super-sensible elusive medium supposed to fill all space, not only the space between the worlds, but the space between the atoms of matter even in the most solid objects. This medium is held to be responsible for gravitation and cohesion as well as for electric and magnetic attraction. Light waves are thought to be propagated through the ether, and those forms of vibration of which Hertzian waves or electro-magnetic oscillations are an example. A recent school of mathematical physicists seeks to dispense with the ether. See Relativity.

ETHER (ETHYL ETHER) (C₂H₅)₂O. Colourless, inflammable liquid, lighter than water, prepared by heating together a mixture of sulphuric acid and alcohol. Large quantities of ether are used in the manufacture of cordite, aniline dyes, and artificial silk. As a solvent of gun-cotton it is employed in making collodion, used in the wet-plate process of photography.

In medicine, ether is employed in doses of 15 to 30 minims for repeated administration, and 45 to 60 minims for single administration. Ether evaporates rapidly, producing great cold, and a spray directed against the skin eventually numbs sensation sufficiently to permit the performance of small operations. Its most frequent use is as a general anaesthetic. See illus. p. 80.

ETHEREGE, SIR GEORGE (1634-91). English dramatist. Born of an Oxfordshire family, he gave his time mainly to the life of a man of fashion. In 1664 his first comedy, *The Comical Revenge; or Love in a Tub*, was produced, and from that time its author's name and fame were assured. A second comedy and then a third followed, each a distinct success. In 1685 Charles II, having knighted Etherege, sent him to represent England at Ratisbon. In 1688 he left that city, and passed most of his later life in Paris. Etherege may be described as the originator of the modern comedy of social life.

ETHICS. Inquiry into human conduct in so far as conduct is right or wrong, or has moral value. The term good is used to denote that which possesses such value, and thus ethics is sometimes described as consisting of an inquiry into the meaning of good. It is to be distinguished from anthropology or sociology, sciences mainly descriptive or scientific, while ethics is essentially reflective or philosophic. "What is the aim of human life, and what the chief end of man's activities?" is the question which ethics has to answer. Starting with men's moral judgements of right and wrong, of good and bad, it asks what they imply as to man's nature.

In modern times the greatest influence has been the growth of the natural sciences with their view of nature as one deterministic system. This assumption has focussed ethical inquiry on the problem of the freedom of the will. The modern point of view is best represented by Immanuel Kant. He regarded the outstanding fact of conduct as the contrast between what is and ought to be, and emphasised the impossibility of deriving the latter from the former.

The Ethical Society was founded for the culture of morality apart from theology. South Place, Finsbury, E.C., and the W. London Ethical Church, Bayswater, W., are the principal London centres. The more important English ethical societies are federated in a Union with headquarters at 1, Little George Street, Westminster, S.W.1.



Estonia. Map of the Baltic republic which, before the Great War, was part of the Russian Empire. Its independence was proclaimed on Feb. 24, 1918

to complete the cross. In the dry-point method the artist draws his subject with a hard, sharp steel point upon a perfectly clean, unscratched, flawless copper plate.

Etching dates from the time of Albert Dürer (1471-1528), who dry-pointed two or three plates in 1512 and etched a few more between 1515 and 1518, but no practitioner has ever equalled Rembrandt (1606-69). Modern etchers like 'Sir' Seymour Haden, James McNeill Whistler, Sir D. Y. Cameron, William Strang, Joseph Pennell, Muirhead Bone, and many Continental artists, carry on the best traditions of the art.

Ethane. Variant name for the gas ethyl hydride. See Ethyl.

ETHELBERT. Name of two English kings. One became king of Kent about 590, and in 597 was described as overlord or bretwalda of England. He became a Christian through the influence of his wife Bertha, a Frankish princess, and was baptized by Augustine, who settled at Canterbury in his reign. He died about 616. See Bertha.

A later Ethelbert, an elder brother of Alfred the Great, was king of Wessex and Kent from 860 to 865.

ETHELRED. Name of two English kings. Ethelred I, an elder brother of Alfred the Great, succeeded his brother Ethelbert as king of Wessex and Kent in 865. His reign, which ended with his death, April 23, 871, was occupied in fighting the Danes, over whom he gained a great victory at Uffington.

Ethelred II, called the Unready, became king in 979. He was responsible for paying Danegeld to the Danes, and was king when many of them were massacred in Nov., 1002. Years of fighting between the English and Sweyn, king of Denmark, followed, and in

ETHIOPIA OR **AETHIOPIA** (Gr. Aithiopia). In ancient geography, name given by the Greeks to the whole of Africa from the Red Sea to the Atlantic, in a narrower sense to parts of what are now the Anglo-Egyptian Sudan and Abyssinia. The name was originally applied to all countries inhabited by persons of dark-brown or black colour. From earliest times Ethiopia was intimately connected with Egypt, which more than once had Ethiopian kings. The first Ethiopian kingdom was that of Napata, founded about the 11th century B.C. The name Ethiopia is also given to a Christian kingdom established in the Abyssinian highlands. This was the origin of the empire of Abyssinia (q.v.), the official title of which is still Ethiopia.

ETHNOLOGY. Study of the characteristics and distribution of the various races of mankind over the various regions of the globe. Man as we know him is not differentiated into species; that is, the divisions which we call races can be crossed and produce offspring which remains fertile. Everyone now takes for granted that the animal genus *Homo* was evolved, not less than half a million years ago, out of a lower form of animal structure from which were also evolved the anthropoid apes.

The species *Homo sapiens* which peoples the earth to-day may not have arrived till two or three hundred thousand years later. Other species of the genus may also have arrived and perished—that may be indicated by some of the doubtfully human bones of an incalculable antiquity which modern research has discovered; but, such bones apart, other species have left no traces of themselves.

Wherever and whenever it was that *Homo sapiens* did arrive as a species endowed with the specific characteristics which still belong to him, his offspring had scattered themselves far and wide over the earth's surface before the last Ice Age came and went, leaving that surface changed beyond recognition. Man survived, already dispersed and divided into distinguishable type-groups, the nuclei of the primordial 'races,' marked by growing divergences in their physical structure and appearance—colouring (which seems to be mainly a matter of long racial development under continuous climatic conditions), growth of the hair, size and thickness of the bones, shape of the face, and most of all (in the view now prevalent), shapes of the jaw and cranium.

These races it is usual to divide primarily into four groups: the American, since the people who had found their way to that hemisphere were almost permanently cut off from the peoples on the other land-mass; the Negro in the African equatorial regions and south of the equator; the 'Caucasian' on the North African littoral, in Western Asia and in Europe; and the Mongolian in central, northern, and eastern Asia. With the Negro proper in Africa is connected the Negroid in southern Asia, the archipelagos, and Polynesia. Both Mongolian and Caucasian have many

mental divisions, the geographical distribution corresponding in general to the craniological and other structural criteria of classification, though there are many regional blendings of physical types. The Negro develops as a 'long-head' with protruding jaw, the Mongolian as a 'short' or 'broad'-head with a flat face, while the Caucasian is more complex, including both long-head and short-head, whose fusion produces also a middle-head type.

After another thousand centuries or so, in the twilight dawn of history, now no more than between five and ten thousand years ago, the Caucasians seem to provide us with three distinguishable main groups—short-headed Mediterraneans, Alpines in the European interior and Asia Minor, and long-headed Semites in western Asia, though the Sumerians of Babylonia appear to be Mongolian. The cultural development has two centres, the Nile basin and Mesopotamia, the one presumably but not quite certainly deriving from the other, though which is parent and which offspring is hotly disputed. But about 3000 B.C. set in the migrations—in a long succession of waves—of another Caucasian race, long or middle headed, variously referred to as Aryan, Indo-European or Nordic, from its very uncertain homeland somewhere north of the Black Sea.

Its eastern streams penetrated India and Persia; its Hellenic and Latin streams flowed into the Balkan peninsula and Italy, the Celtic or Gallic into the lands with an Atlantic seaboard; in every case not exterminating but dominating, permeating and gradually in various degrees fusing with the more populous tribes they found already in possession. Only about 100 B.C. began the last great Teutonic influx in combination with a Scandinavian element, though the Slavonic group behind them were still to overflow into the Balkan peninsula. And later still Mongolians—not Caucasians at all—were by the tenth century A.D. to plant themselves as distinct peoples, Magyars in Hungary and Bulgars on the Danube, and finally Turks; though without otherwise affecting the racial ingredients of Europe. See Anthropology; Man.

ETHYL. Organic radical represented by the chemical formula C_2H_5 . It has not been isolated, but its combinations, e.g. ethyl-alcohol (ordinary alcohol) and many compounds, are well known. Ethyl chloride or monochlorethane is a volatile liquid, used as a solvent. Ethyl nitrite is a solution containing 3 p.c. of ethyl nitrite, by weight, with 95 parts of absolute alcohol and five parts of glycerine. It forms the Liqueur Ethyl Nitritus of the British Pharmacopoeia.

Ethyl petrol is the name given to motor fuel containing a small proportion of lead tetra-ethyl. It is claimed that such an addition reduces the 'knock' in the engine, gives longer mileage, and confers other advantages.

ETHYLENE (C_2H_4). Colourless gas prepared by the action of sulphuric acid on alcohol. It is easily inflammable, burns with a luminous flame, and forms an explosive mixture with air or oxygen.

ETIVE. River and sea-loch of Argyllshire. The river issues from Loch Mathair Etive and flows 15 m. S.W. to the head of Loch Etive. The loch extends 10½ m. S.W. and then 8½ m. W. to the Firth of Lorne.

ETNA (Lat. Aetna; Sicil. Monte Gibello). Active volcano near the E. coast of Sicily. Its height is about 10,750 ft. The base covers an area of about 460 sq. m., and has a circum-

ference of 90 m. Etna presents the appearance of a symmetrical cone, broken on the E side by the Valle del Bove, a gaping abyss from 2,000 to 4,000 ft. deep. There are some 200 minor cones. Its slope comprises three zones of vegetation. In 1923 there was a serious eruption of Etna, and in Nov., 1928, another.

Ancient legend connects the volcano with the giant Typhön, who is said to have been buried beneath it by Zeus, and to have caused its eruptions by his breathing; and with the workshops of Hephaestus (Vulcan), wherein the Cyclopes fabricated thunderbolts.



Eton. The town from Windsor; in the centre is the college chapel. Above, the School Yard and Lupton's Tower, built in the 16th century.

ETON COLLEGE. English public school at Eton, Buckinghamshire. It was founded by Henry VI, and its first charter is dated Sept. 12, 1440. A supplementary charter was granted in 1441, when the buildings, completed in 1553, were begun. Henry Sever was the first provost, succeeded by William of Waynflete, 1443. Among heads have been Nicholas Udall, John Keate, the famous Hoger, E. C. Hawtrey, J. J. Hornby, Edmond Warre, E. Lytton, and C. A. Alington.

Of the buildings, the hall, 1448, restored 1858, is the only part built according to the founder's final plan. The Gothic chapel, 1442-80, resembles that of King's College, Cambridge, and was restored in 1848-60. The library was built in 1729. The wall game is a form of football played at Eton. Rowing boys are known as wet bobs, cricketers as dry bobs.

ÉTRETAT. Town and watering place of Normandy. Facing the English Channel, 16 m. N.N.E. of Havre, it became a popular holiday resort in the latter part of the 19th century. Its Romanesque church dates in part from the 11th century. Pop. 2,000.

ETRURIA (Gr. Tyrrhēnia). Ancient district of Italy nearly corresponding to the modern Tuscany. Its inhabitants, called Tusei, Etrusci, or Rasenae, were warlike and enterprising people, whose power, at its height during the 7th century B.C., began to decline two centuries later. They early came into contact with Rome, whose Tarquin kings were of Etruscan origin, and in 285 finally submitted to her yoke.

In their buildings the Etruscans made use of the principle of the arch, as in the bridges at Chiusi (q.v.). Their walls, unattached by cement, consisted of large blocks of stone. The Servian wall at Rome was of Etruscan construction. Their tombs in mountainous districts were usually hewn out of rock. Where



Etna. The snow-capped volcano seen from Taormina, the beautiful Sicilian coast town on the Straits of Messina.

varieties, of great importance in the later developments. But these four seem to be acceptable, at least provisionally, as the funda-

the soil was yielding and crumbly they took the form of a tumulus.

The Etruscans showed special skill in making clay vessels adapted from Greek models, cinerary urns, and terra-cotta sarcophagi. Numerous specimens are extant of statues, and of various kinds of vessels, candelabra, silver goblets, ivory, gold, and silver thrones, and ornamented weapons. Perhaps in painting they achieved the greatest success, whether on the walls of sepulchral chambers or on pottery. The Etruscan mirrors, too, are well known—round or pear-shaped plates of bronze, the outer side polished and the inner adorned with figures. The Etruscans were skilled musicians, their national instrument being the flute.

ETRURIA. District of Staffordshire. It is within the bor. of Stoke-upon-Trent, with a station on the L.M.S. Rly. Josiah Wedgwood established his pottery works here in 1769. Etruria Hall, where Wedgwood died in 1795, has been converted into offices. See Burslem.

The name Etruria Marls is applied in geology to beds of red and purple marl and clay, occurring in the upper coal measure strata of the coal-basins of the Midlands and N. of England. They are used in pottery manufacture. See Pottery.

ETTRICK FOREST. District of Selkirkshire. Formerly a part of the Caledonian Forest which comprised Selkirkshire and portions of Peeblesshire and Midlothian, it was a hunting ground of the Scottish kings. It is now almost denuded of its trees.

The river of Selkirkshire known as Ettrick Water rises in Ettrick Pen and flows 32 m. N E to the Tweed, about 2 m. below Selkirk. In the churchyard of Ettrick parish are buried Hogg, the Ettrick shepherd, and Tibbio Shiel (1732-1878), who kept the famous inn at the head of St. Mary's Loch.

ETTY, WILLIAM (1787-1849). English painter. Born in York, March 12, 1787, he entered the Royal Academy schools in 1806,



William Etty,
English painter
From a photo, 1849

and was for a year a pupil of Sir Thomas Lawrence. In 1824 he was elected A.R.A., and R.A. in 1828. He died in York, Nov 13, 1849. Of his smaller pictures Youth on the Prow and Pleasure at the Helm in the National Gallery is the most popular. Among his vast canvases are The Combat and the three Judith pictures at Edinburgh, and Ulysses and the Sirens in the Royal Institution, Manchester.

ETYMOLOGY (Gr. etymon, true; logos, science) The investigation of the origin and meaning of words. Etymology as a science is of comparatively recent origin, and became possible with the introduction of a knowledge of Sanskrit into Europe by Sir William Jones. This led to a thorough examination of the vocabulary of the Indo-European languages and the establishment of certain fixed principles of sound-change which governed the changes in the form of a word in different languages. See Language.

EUBOEAE (Turk. Egripo; Ital. Negroponte). Island of Greece in the Aegean Sea. Off the E. coasts of Boeotia and Attica, it has a length of 115 m. and a breadth varying from 4 m. to 32 m., and is separated from the mainland by a narrow channel called Euripus. The surface is mountainous with fertile valleys, pasturing large herds of cattle. Its thermal springs have been esteemed since ancient times. The chief town is Chalcis. Euboea was taken by the Turks in 1470, and in 1830 was restored to Greece. Area 1,430 sq. m. Pop. 154,449. Pron. Ev-via.

EUCAINE (Gr. eu, well; and cocaine) Artificially prepared alkaloid allied to cocaine. It is used as a local anaesthetic in small operations and extraction of teeth.

EUCALYPTUS (Gr. eu, well; kalyptos, covered). Genus of trees of the order Myrtaceae. The name is given to it because the petals cover thoroughly the unexpanded flowers. (See Gum Trees.) Eucalyptus gum, the exudate of the red gum-tree of Australia, contains tannic acid and is a powerful astringent. Eucalyptus oil is distilled from the Eucalyptus globulus, the blue gum-tree. It is used as an antiseptic, and as an inhalation.

EUCHARIS (Gr. eucharis, pleasing). Small genus of bulbous herbs of the natural order Amaryllidaceae. Natives of New Granada, they have egg-shaped bulbs, and white flowers from 3 ins. to 5 ins. across. These are borne in clusters on top of a tall stem, and consist of a slender tube expanding into a cup, surrounded by six sepals and petals.



Eucharis Amazonica, a South American bulbous herb

EUCHARIST (Gr. eucharistia, thanksgiving). One of the names used from early times for the Sacrament of the Lord's Supper. It arose from the Gospel accounts of the Supper, in which Christ is recorded to have given thanks over both the bread and the cup. The Eucharist has always been the central act of Christian worship in most churches. The Roman Church styles it the Mass, the Anglican Church Holy Communion, while most of the Protestant denominations prefer the primitive name of the Lord's Supper. It has been the cause of much controversy.

As regards the sacrificial aspect, the Roman Church teaches that in the Eucharist there is a "true and proper" sacrifice of Christ, Who is offered to the Father as a propitiation for both living and departed. The Eastern and Anglican Churches recognize a perpetual memorial or pleading before God of the sacrifice of Christ on Calvary, but not a repetition of it. The various Protestant churches altogether reject the sacrificial idea.

Except the Church of Rome, all Churches from Apostolic days have given Communion to the people in both kinds. The Roman Church requires at least one annual participation, at Easter; the Anglican Church fixes three times a year, Easter to be one, as the minimum. See Communion; Mass.

EUCHRE. A card game. It is played with 32 cards, the 2, 3, 4, 5, and 6 of each suit being thrown out. There are two players, or four in partnership. The dealer gives five cards to each player, three at a time and then two, turning up the next face upwards on the pack for trumps. In the trump suit the knave, the "right Bower," is highest, the other knave of the same colour coming next, the "left Bower." The remaining cards of the trump suit, and those of the other three, rank from ace to seven.

Special rules attach to the players' decision to play or to pass. Two cards constitute a trick. The game is five up. Five tricks constitute a march, and score two points; if a player makes three tricks, he makes the point, and scores 1 (four tricks count for no more than three). If he fails to make three tricks he is euchred, and his opponent scores 2.

EUCLASE. Rare mineral consisting of hydrated silicate of beryllium and alumina. Occurring in short prisms, with vertical striae on crystal faces, it is either colourless, yellowish, green, or blue. It is found in Minas Geraes, Brazil, in the Ural mts. and Austrian Alps.

EUCLIDES (fl. 300 B.C.). Greek mathematician, whose more familiar name is Euclid.

Little is known of his life, except that he was of Greek descent, and lived and taught at Alexandria. Besides the Elements of Geometry, Euclid wrote De Divisionibus, a collection of 36 problems on the division of areas, possibly the only survivor of many such collections.

EUCLID. Text book on the elements of geometry, based upon the work of Euclides. It has been discarded by schools mainly for two important reasons: it is unsuitable to students of school age because it is entirely deductive; it is almost valueless as an introduction to geometry because it takes no note of modern ideas. Measurement and constructive movement are dominant in modern life, and Euclid ignores both.

EUDIOMETER. Instrument used for measuring gases. It is commonly used for determining the constituents of a gaseous mixture. In some forms it comprises a graduated glass tube or cylinder, either straight or U-shaped, closed up at one end and open at the other, and having inverted near the closed end two platinum wires, which are near enough to allow the passage of an electric spark through the mixture.

EUGENE (1663-1736). Italian prince and Austrian soldier. Born in Paris, October 18, 1663, his father was Eugene Maurice, prince of Savoy. In 1691 Eugene held a command in Italy, where, between then and 1693, he won several successes over the French.

In 1697 he crushed the Turks at Zenta. He fought in the war of the Spanish succession, and was with Marlborough at Blenheim, but when Ramilies was fought (1706) he was again in Italy, where he captured Turin. He fought at Oudenarde, and after the English had withdrawn he arranged in 1714 the peace of Rastatt. He was commander against the Turks in 1716, and captured Belgrade in 1717. A period of peace followed, the prince serving as governor for the Netherlands. In 1734 he led the Austrians in the war of the Polish succession, and on April 21, 1736, he died in Vienna, the greatest of all the soldiers who have served Austria.



Prince Eugene,
Austrian soldier
From a contemp.
portrait

EUGENICS. The science of breeding. The word is derived from the Greek eugenēs, meaning well born, and the primary objects of the science are the perpetuation and augmentation of healthy physical and mental attributes in the human race. The modern eugenio movement dates back to the time of Sir Francis Galton (1822-1911) who was largely influenced by Darwin's theories of evolution in his efforts to better the human race. It has been placed on a more secure basis by recognition of the importance of the observations of Mendel (1822-82) on the transmission of physical characteristics.

The fundamental fact of eugenics is that the chief determining factor of human life is what the child is or has to start with, in virtue of its hereditary relation to parents and ancestry. The statistical inquiries of workers in the Galton Eugenics Laboratory show the prime importance of natural inheritance.

For the practical application of eugenics societies have been formed whose activities may be described under three headings: (1) Positive eugenics; this includes the encouragement of marriage and the procreation of children by individuals of a fine

stock (2) Negative eugenics, or the discouragement or prevention of the procreation of children by those of feeble or diseased constitutions. (3) Preventive eugenics, under which are included the majority of the principles of hygiene and social reform. See Evolution; Heredity; Mendelism

EUGÉNIE (1826-1920) Empress of the French. Born at Granada, Spain, May 5, 1826, the daughter of count de Montijo and Maria Manuele Kikspatriek, whose Scottish father was U.S.A. consul at Malaga, she made her debut in Paris society in 1851, where her beauty attracted Napoleon III, who married her, Jan. 30, 1853. In political affairs the empress exercised a strong, not always beneficial, influence upon Napoleon. At the outbreak of the Franco-Prussian War, 1870, she became regent when the emperor went to the front, but after Sedan fled to England, where she was joined by the emperor, 1871, and they settled at Chislehurst. Napoleon died in 1873; their only son, the Prince Imperial, was killed with the British army in the Zulu campaign in June, 1879; and Eugénie, who moved to Farnborough (q.v.) in 1887, died whilst on a visit to Spain, July 11, 1920.



Eugénie, Empress of the French

EUGENOL. Chief constituent of clove oil. Obtained by distilling cloves, and from pimento-leaf oil, the oil contains from 80 to 90 p.c. of eugenol. It has the same spicy odour as clove oil, from which it is separated by caustic potash. Eugenol is used medicinally as a carminative, and frequently as a palliative in toothache. Commercially eugenol is of importance in the manufacture of vanillin.

EUMAEUS (Gr. Eumaios). In Greek legend, the faithful swineherd of Odysseus, to whom his master revealed himself when he arrived in disguise in his native Ithaca. Eumaeus afterwards helped Odysseus to slay the suitors of Penelope (q.v.). Pron. U-mē-us.

EUMENIDES or **ERINYES**. In Greek mythology, avenging deities who pursued those guilty of crime, especially crimes against the family and crimes of bloodshed. They are represented as winged women with snakes sprouting from their heads instead of hair, and bearing torches and scourges. They were three in number—Tisiphone (avenger), Alecto (unceasing, relentless), and Megaera (jealous). They were propitiated by wineless libations of water, milk, and honey.

A tragedy by Aeschylus, which deals with the trial of Orestes before the Areopagus (q.v.) for the murder of his mother, Clytemnestra (q.v.), is called Eumenides. Pron. U-mēy-deez.

EUMOLPUS (Gr. sweetly singing). In Greek mythology, son of Poseidon, the sea-god, by a mortal mother, Chione, who, in remorse, threw the infant Eumolpus into the sea. He was saved by Poseidon. He was credited with being the founder of the Eleusinian mysteries, and his descendants, the Eumolpidae, were priests at Eleusis (q.v.).

EUNUCH (Gr. eunē, bed, ekhein, to keep). Word originally applied to a man in charge of the women's apartments in Oriental countries, but afterwards to a castrated attendant in the harem. Eunuchs frequently acquired great power and high position. In modern times lads were castrated in order to preserve their clear, boyish voices. Italian churches employed castrati in choirs, but Leo XIII abolished the practice in 1878.

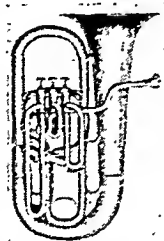
EUPEN. District and town of Belgium. The district lies S. of Aix-la-Chapelle, and covers an area of 400 sq. m., with a pop. of

about 40,000. It contains Eupen, Raeren, Kammersdorf, and Conzen. The town has a pop. of 12,245. It is situated on the Weser, 10 m. S. of Aix-la-Chapelle.

Formerly part of the duchy of Limburg, Eupen was under the government of Austria until 1801, when by the peace of Lunéville it passed to France. In 1814 it was given to Prussia. By the treaty of Versailles (1919) Germany renounced in favour of Belgium all rights and title over the territory comprising the whole of the circles of Eupen and Malmédy.

EUPHEMISM (Gr. eu, well; phēmē, voice). Substitution of refined and delicate words for coarse and vulgar words conveying the same idea. The object is to suppress as far as possible painful or unpleasant subjects which yet must be mentioned.

EUPHONIUM (Gr. eu, well; phōnē, sound). Brass wind instrument of the saxhorn family. Of bass pitch and tone, it is of the same pitch as the baritone saxhorn, but its bore is wider and tone fuller. The euphonium is the chief bass solo instrument employed in military bands. Euphoniums are made in C and B flat, both played as non-transposers, and have a chromatic compass of over three octaves.



Euphonium, 4-valve instrument
By courtesy of
Hawkes & Co.

Asia Minor, at one point being only 80 m. from the Mediterranean. It then turns to the S.E. and later in its course enters Mesopotamia or Iraq. Its length is about 1,800 m. Near Basra it unites with the Tigris, and as the Shatt-al-Arab the united stream enters the Persian Gulf. There are no large towns on its banks, and, having only one large tributary, the Khabur, its waters suffer much from evaporation. It is only navigable for small vessels.

The valley of the Euphrates and Tigris was one of the cradles of civilization and in ancient times one of the most fertile areas in the world. This was due in part to a system of irrigation canals between the two rivers which are mentioned by Xenophon. These fell into disuse, but in 1909 steps were taken to irrigate the area again, and in 1913 two dams were erected to regulate the flow of the Euphrates and so reclaim a considerable extent of land. See Iraq; Tigris.

EUPHUISM (Gr. euphuēs, clever). Name given to the artificial style in which John Lyly (q.v.) couched his famous romance, Euphuës, the Anatomy of Wit, 1579, followed in 1580 by Euphuës and His England. The characteristics of this "new English" were the balanced antithetical sentences marked by elaborate alliteration, the excess of classical allusion, and the extravagant drafts upon natural history for purposes of moral reflection.

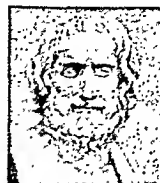
EURASIAN. Term originally denoting the offspring, and their descendants, of a European father and a Hindu mother. It was formed out of the continental names, about 1820; the colloquial name in previous use was ebe-chee.

EUREKA (Gr. eurēka, I have found). Exclamation of Archimedes (q.v.), on finding that he had discovered a method of detecting the alloy in the gold of Hiero's crown. In modern language, the term is applied to an expression of delight on making a discovery.

EURHYTHMICS (Gr. eu, well; rhythmos, measured motion). Art of expressing harmony by gestures, in which physical movement is made to reflect musical notation. It was

invented by Émile Jaques-Daloz, professor of harmony at the Geneva Conservatoire, towards the end of the 19th century. Time is shown by movements of the arms and notes by movements of the legs. The unit is the crochét. The various exercises relate to rates and changes of speed, dynamic, expression, syncope, phrasing, etc., and are made by both arms and legs. There is a School of Daloz Eurhythmics in London.

EURIPIDES (480-406 B.C.). Athenian dramatist. According to tradition, he was born on the island of Salamis on the day of the great naval victory over the Persians. In 455 B.C. he exhibited his first tragedy, and in 441 gained the first prize for the first time. He was credited with over 90 plays in all, of which 18 survive. These are: Alceste, Medea, Hippolytus, Hecuba, Andromache, Ion, The Suppliants, Heracleidae, The Mad Heraeas, Iphigenia among the Tauri, The Trojan Women, Helen, The Phoenician Maidens, Electra, Orestes, Iphigenia at Aulis, Baeaeae, Cyclops, the last being the only extant specimen of a satyr drama. The Rhesus is certainly spurious.



Euripides, Greek dramatist

The plots of Euripides were all drawn from the old mythology, but the characters act and talk like Athenian men and women of his time. Euripides was accused by his contemporaries of endeavouring to undermine faith in the gods and in morality, and was bitterly attacked by Aristophanes. The last few years of his life were spent at the court of King Archelaus in Macedonia, where he died, 406 B.C. See Drama; Tragedy. Pron. U-ripi-deez.

EUROCLYDON (Gr. Euros, east wind; klydon, wave). Name given in Acts 27, 14, A.V.: to the gale which, blowing off Crete, seized the ship in which S. Paul was wrecked on the coast of Malta. The form adopted in the R.V. is Euraquilo, meaning a tempestuous N.E. or E.N.E. wind of the Mediterranean.

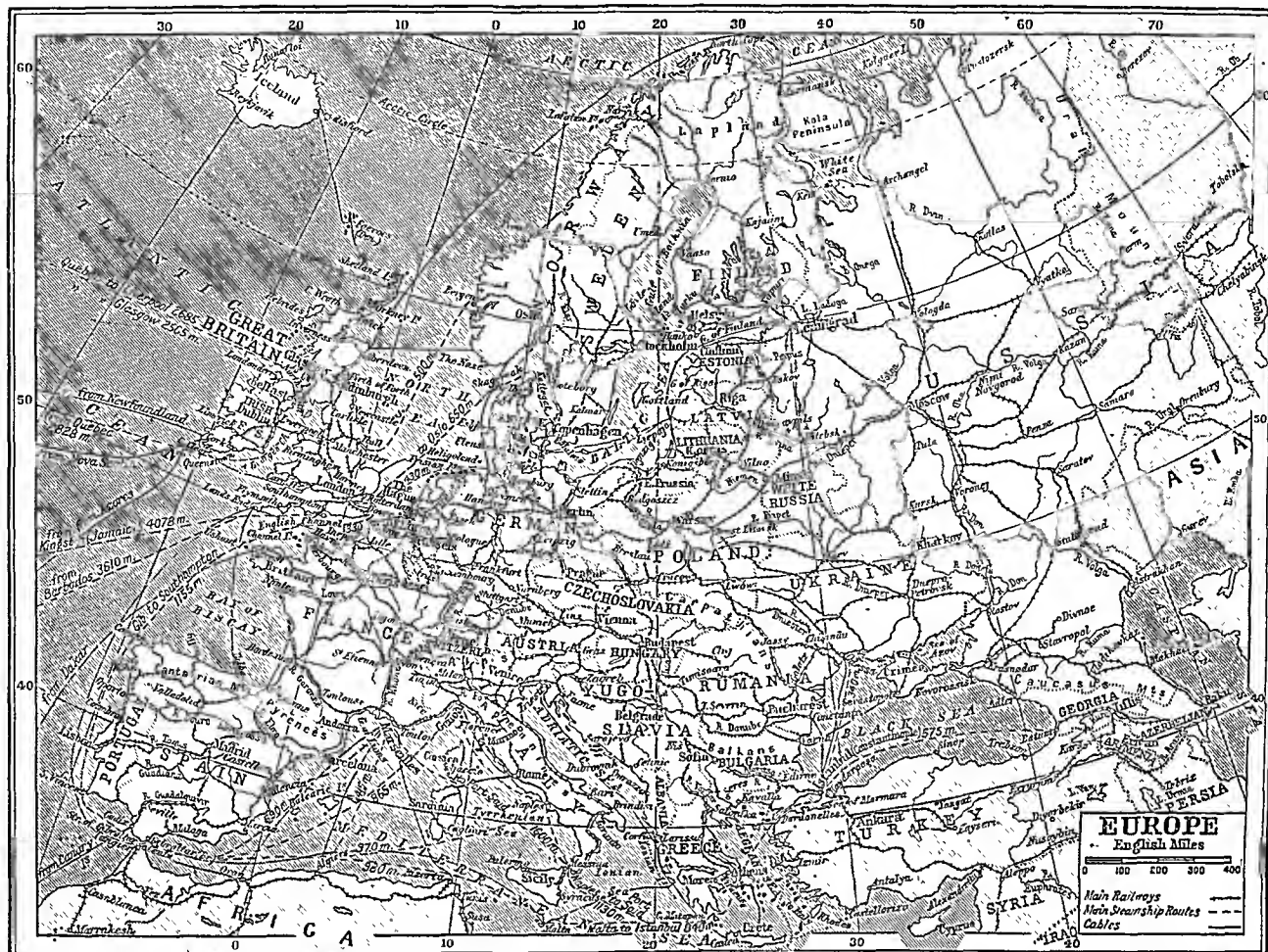
EUROPA. In Greek mythology, daughter of Agenor, king of Phoenicia. While she was playing one day with her maidens, Zeus appeared in the form of a white bull, and Europa was induced to mount on the animal's back. The bull thereupon carried her off over the sea to Crete, where by Zeus she became the mother of Minos, the king and lawgiver of Crete, Rhadamanthus, and Sarpedon.

Europa Point is a headland at the extremity of the peninsula of Gibraltar, Spain, just S.E. of Europa Bay. To the N.W. is Little Europa Point and to the E. Great Europa Point.

EUROPA. German liner. Belonging to the North German Lloyd line, she is sister ship to the Bremen, and her tonnage is 46,000. In March, 1930, she beat the record set up in 1929 by the Bremen for the fastest Europe to America run, the Europa's time being 4 days, 17 hours, 6 minutes. See Bremen.



Eurhythmics. An attitude in a plastic exercise in this rhythmic method of training



Europe. Map showing the states and boundaries of this continent. Larger scale maps of the different countries will be found under their respective headings

EUROPE. One of the world's six or seven continents. It covers an area of about 3,750,000 sq. m., and is thus about the same size as Canada and slightly larger than Australia. Its length from the North Cape to Cape Matapan in Greece is about 2,400 m., and its breadth from Cape S. Vincent to the Urals is about 3,000 m. The political boundary between Europe and Asia extends to the Urals; in the south-east the continent is bounded by the Black Sea, Turkey, and Persia.

Washed by the Atlantic and Arctic Oceans, with the Mediterranean Sea as its southern boundary, Europe has a very extensive coastline. Its climate, except in the far north, is temperate and its soil fertile. Its agricultural and mining industries can produce most of the requisites of human life, but owing to its comparatively dense population, the continent is an importer of foodstuffs, as it is of cotton, rubber, and other tropical products. It is rich in coal and ironstone, but for silver, copper, and tin it is mainly dependent on outside areas. Its most important rivers are the Danube and the Rhine; nearly all the others are national, not international waterways.

THE STATES OF EUROPE. There are in Europe 35 separate countries, reckoning as such the Irish Free State, part of the British Empire, and Iceland under the same ruler as Denmark. The largest is Soviet Russia, which covers more than one-third of the continent, and the smallest the new Vatican state. The second largest is France. States which came into being after the Great War are Austria, Czechoslovakia, and Hungary, formed out of the ruins of the Austro-Hungarian empire; and

Estonia, Finland, Latvia, and Lithuania, once part of Russia. Poland and Albania, too, are new, although both had been independent states in the past. Turkey is still a European state, but only to the extent of 10,000 sq. m.

Since 1918 there have been no empires in Europe. There are, however, 13 kingdoms, Albania, Belgium, Bulgaria, Denmark, Great Britain, Iceland, Italy, Netherlands, Norway, Rumania, Spain, Sweden, and Yugoslavia. Of the others, 16 are republics. Of these all save four, Switzerland, France, and the tiny states of San Marino and Andorra, are creations of the 20th century.

POPULATION. The population of Europe is estimated at 475,000,000. Of this total 108,000,000 are in Soviet Russia. Germany, with 63,000,000, is numerically the next largest, and then follow in order Great Britain, Italy, and France, the three almost equal, Poland, Spain, Rumania, Czechoslovakia, and Yugoslavia. No other European country has 10,000,000 inhabitants.

HISTORY. Five thousand years ago, Europe was sparsely inhabited by various races whom we may call collectively pre-Aryans. In the second half of the second millennium B.C. appeared the Hellenic branch of the Aryan races, dominating the pre-Aryans in the eastern Mediterranean peninsula, the isles of the Aegean, and the coastland of Asia Minor; where they developed the form of polity known as the city state, which fostered an intense political and intellectual vitality that militated strongly against union and consolidation. In the 5th century the city states did combine sufficiently to hurl back the conquest threatened by the Oriental power

of Persia, but none could establish a decisive supremacy; individually, their artistic and intellectual achievements have never been surpassed. In the 4th century they conquered half Asia, begetting by their contact with the east the culture called Hellenistic; but they were incapable of maintaining political unity.

Political consolidation was born of the genius of the Latin Aryans in Italy. There, too, the city state developed between the Apennines and the sea; but there, during the 5th and 4th centuries, the city of Rome established a complete ascendancy over her neighbours. In the 3rd she exterminated the rival Mediterranean power of Carthage and planted her own power in Spain; in the next two she established her dominion over all Europe W. of the Rhine (by this time mainly Celtic), and S. of the Danube, and extended her empire far beyond the bounds of Europe. But she had to defend her frontiers against new and warlike Aryan tribes, German or Scandinavian; by the close of the 4th century A.D., when Christianity had already driven out paganism, the Roman empire was falling asunder; the barbarian tide flooded in, and though the empire survived for another thousand years at Constantinople, the west sank into the welter known as the dark ages.

A new approximation to order was inaugurated by the great king of the Franks, Charlemagne, who was crowned the first Holy Roman emperor of the west in 800 A.D. Emperor and pope were recognized as the two heads, temporal and spiritual, of Christendom. This empire lasted for another thousand years, and was in conflict with the papal claims to a superior and divine authority. If became,

in effect, a German empire, ever striving vainly to retain a grip on Italy and to absorb rising Magyar or Slavonic kingdoms in central Europe. All Europe based itself on the feudal system, which made a strong central government all but an impossibility. Italy became a collection of city states, which in the 14th and 15th centuries rivalled those of ancient Greece in their artistic and intellectual brilliancy and their incapacity for union. But in the west, England, France and finally Spain consolidated national kingdoms; so that at the moment when new worlds were being discovered a new state system was born in Europe, the system of rival Great Powers. And even at that moment the Turk had wiped out the historic Roman empire and planted himself at Constantinople (Istanbul).

The conflict of Papacy and Empire was for a time displaced by that between the papacy and the protestant reformation. The state rivalry shaped as a rivalry of dynasties, mainly Hapsburg and Bourbon, till the rise of Russia under the Romanovs and Prussia under the Hohenzollerns in the 18th century. This was interrupted by the French Revolution and Napoleon: and culminated in the World War of 1914-18, which was followed by the birth of a new order, still in its infancy to-day, and centring in the League of Nations. See England; France; Germany; Spain, etc.

EUROPIUM. Rare element discovered by E. A. Demarçay in 1896. Found associated with samarium, it was separated by fractional crystallisation, and was first isolated in 1901. Its symbol is Eu, its atomic weight 152, and its atomic number 63.

EURYDICE. In Greek mythology, wife of the poet Orpheus. When she died Orpheus went down into Hades, and by the power of his lyre induced Pluto, ruler of the underworld, to restore his wife to him, on condition that he did not look behind until he reached the earth again. In his eagerness to see if his wife were following, he forgot the condition, and Eurydice was lost to him for ever. See Orpheus. Pron. U-riddy-see.

EUSEBIUS (c. 264-340). Church historian. Often called Eusebius Pamphili, he was probably a native of Palestine. His historical writings, especially *Praeparatio Evangelica* (selections translated by H. Street, 1842), *Demonstratio Evangelica*, and *Historia Ecclesiastica*, entitle him to be called the father of ecclesiastical history.

EUSTACHIAN TUBE. Tube leading from the upper part of the pharynx to the tympanic cavity of the ear. Its function is to maintain equal atmospheric pressure on both sides of the ear-drum. It is ordinarily closed, but is opened by each act of swallowing. The tube is named after Bartolomeo Eustachio (d. 1574), an Italian anatomist. See Ear. Pron. U-stā-kyan.

EUTECTIC (Gr. eu, well; tēkein, to melt). Term introduced to denote a condition of equilibrium which was found to exist in solution of common salt, and since extended to include similar conditions. Plumbers' solder, consisting of two parts lead and one part tin, is a eutectic alloy, solidifying at a lower temperature than any other alloy of these metals, hence its utility in wiping a joint.

EUTHANASIA (Gr. eu, well; thanatos, death). Easy or comfortable death: in medical language, the employment of means calculated to render the death of those suffering from painful and incurable diseases as painless as possible.

EUTYCHES (5th century A.D.). Founder of the Eutychiean heresy: He taught that the human nature of Christ was absorbed in the divine, and therefore non-existent, even His body not being truly human. Pron. U-ty-keez.

EUTYCHUS. Name of a young man who, having fallen into a deep sleep while Paul was preaching at Troas, fell from the third loft, and was healed or restored to life by the Apostle (Acts 20, 9-10).

Euxine. Ancient name of the Black Sea, the Pontus Euxinus, or hospitable sea. See Black Sea.

EVANDER. Legendary Italian hero. Writing and other arts and the institution of the Lupercalia in honour of the Arcadian god Pan were ascribed to him.

EVANGELICAL (Gr. evangelikos, of the Gospel). Term applied to the two religious revivals in England in the 18th century. The movement led by John Wesley (q.v.) became exterior to the Church. The other movement is attributed to the teaching of William Law (q.v.), author of *The Serious Call*. The Evangelicals emphasised original sin, the efficacy of the Atonement, the need of personal conversion, justification by faith, and veneration for the letter of the Scriptures.

The World's Evangelical Alliance is a Protestant organization founded in Liverpool in 1845, and incorporated in 1912.

The Evangelical Union, a Scottish Presbyterian body, was founded by the Rev. James Morison, 1816-93, of Kilmarnock, in 1843.

EVANGELIST (Gr. evangelistēs, proclaimer of glad tidings). Originally one chosen by the apostles to preach the Gospel where it was unknown. Theodoret first restricted the name to travelling preachers; Oecumenius first applied it to the authors of the four Gospels; to-day it is also used for missionaries and revivalist preachers. See Apostle; Gospel; Preaching.

EVANS, SIR ARTHUR JOHN (b. 1851). British archaeologist and numismatist. Born at Hemel Hempstead, the eldest son of Sir John Evans, he was educated at Harrow, Oxford, and Göttingen. His excavation of the Minoan palace of Knossos in 1900-8 elucidated the Aegean civilization first revealed by Schliemann at Mycenae. In 1911 he was knighted. His publications include *The Palace of Minos at Knossos*, 2 vols., 1922 and 1928.

EVANS, EDITH. British actress. Born in London, she won fame as the Serpent and the She-Ancient in Shaw's *Back to Methuselah*, parts she created in 1923 at the Birmingham Repertory Theatre; in *Tiger Cats* at the Savoy in 1924; and

as Millamant in *The Way of the World* at the Lyric, Hammersmith, in 1924.

EVANS, EDWARD RADCLIFFE GARTH RUSSELL (b. 1881). British sailor and explorer. He was navigating officer to the Antarctic relief ship *Morning*, 1902-4, joined the British Antarctic Expedition as second in command in 1909, and after the death of Captain Scott in 1912 brought it back.

He was in command of the *Broke* when, in 1917, that vessel and the *Swift* defeated six German destroyers and he received the D.S.O. He has published *Keeping the Seas*, 1920; *South with Scott*,

1921. In 1929 Evans took command of the Australian navy.

EVAN-THOMAS, SIR HUGH (1862-1928). British sailor. Born Oct. 27, 1862, he entered the navy in 1875. Rear-admiral of the first battle squadron, 1913-14, he commanded the fifth battle squadron in the battle of Jutland. Knighted for his services in 1916 and promoted admiral in 1920, he was commander-in-chief at the North, 1921-24. He died Aug. 30, 1928.



Sir H. Evan-Thomas,
British sailor
Russell

monly given to the process by which a liquid, and less commonly a solid such as carbonic acid snow, changes into a state of vapour. Evaporation may be said to be a function of heat and pressure. Liquids may evaporate at all temperatures; under the application of heat or the removal of pressure from their surfaces, they evaporate more quickly. At a given temperature evaporation in a closed vessel ceases when a certain pressure of vapour is attained, for condensation of the vapour balances the evaporation of the liquid.

The evaporation value in fuels is the amount of water which each is capable of converting into steam when burnt under specified conditions. See Fuel.

EVE. Name of the first woman in the Biblical story. In Hebrew the form is Chawwah. It was given to the woman by Adam (Gen. 3, 20). See Adam; Creation.

EVELYN, JOHN (1620-1706). English author and diarist. He was born at Wotton House, Surrey, Oct. 31, 1620. One of the founders of the Royal Society, his *Sylva*, 1664, first drew attention to the importance of forestry in England; *Terra*, 1676, was a first attempt in English at a scientific study of agriculture. He wrote a *Character of England*, 1659, *Sculptura*, 1662, a work on engraving, an admirable *Life of Mrs. Godolphin*, a discourse on Medals, and a *History of the Dutch War*, which is lost.

Evelyn is remembered for his *Diary*, 1640-1706 (more properly described as his memoirs), a work valuable for its reflection of the political, social, and religious life of his time. The MS. of this was in danger of destruction when, at the suggestion of William Upcott, it was edited by William Bray, and first published in 1818. After 1694 Evelyn lived at Wotton, Surrey, where he died, Feb. 27, 1706, and was buried in the chapel there.

EVENING PRIMROSE (*Oenothera biennis*). Biennial herb of the order Onagraceae. It is a native of N. America. The leaves are oblong-lance-shaped: the flowering stem (2nd year), 4 ft. or 5 ft. high, branched, with narrower, toothed leaves, terminates in a long spike of large, pale yellow flowers, opening in the evening.

EVEREST. Loftiest peak of the Himalayas and on the globe. Its height is 29,141 ft. (5½ m.). It stands on the border between Nepal and Tibet and was named after Sir George Everest (1790-1866) the noted geographer and surveyor.



John Evelyn,
English diarist:
After Holt



Edith Evans,
British actress
Suzanne



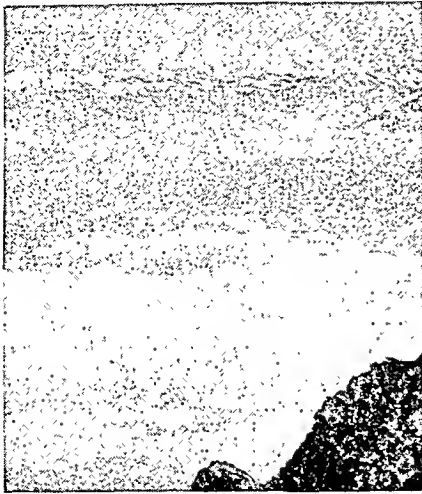
Sir Arthur Evans,
British archaeologist:
Lafayette



E. R. G. R. Evans,
British explorer
Russell



Evening Primrose,
a biennial herb



Everest from Mt. Phalut, Darjeeling. Over five miles high, its summit is the loftiest in the world

Several expeditions have attempted to scale the mountain, notably those led by C. G. Bruce (q.v.) in 1922 and 1924. In the second of these the climbers were only beaten when at a height of over 28,000 feet. See Himalayas.

EVERETT, EDWARD (1794-1865). American politician and orator. Born at Dorchester, Mass., April 11, 1794, he became a Unitarian minister. In 1819 he was made professor of Greek at Harvard, and in 1820 editor of *The North American Review*. In 1824 he entered Congress and resigned both positions. From 1841-45 he was American minister in London, and from 1845-49 president of Harvard. In 1853 he was a senator, and he died at Boston, Jan. 15, 1865. Everett won a high reputation by his speeches, highly elaborated and most carefully prepared.



Edward Everett, American statesman

EVERGLADES. Swampy wilderness in S. Florida, U.S.A. It extends N. to S. for about 120 m., is about 45 m. broad, and is mainly covered with saw-grass. Attempts at reclamation by cutting canals have met with some success, and sugar cane has been cultivated in the drained portions. See Florida.

EVERGREEN. Plant whose leaves last several years and are not shed simultaneously. Although there is a leaf-fall every year, it only affects the oldest leaves, and the foliage as a whole is always full and green. Evergreen leaves are of leathery consistence with glossy surface, and are thus protected against rapid loss of moisture in summer and the effects of frost in winter.



Everlasting Flowers of *Helichrysum bracteatum*

form and colour for several years

• **EVERSLEY.** Village of Hampshire. It is 14 m. N.E. of Basingstoke. The church of S. Mary had Charles Kingsley for its rector from 1844-75. Pop. 864.

EVERSLEY, GEORGE JOHN SHAW-LEFEVRE, BARON (1832-1928). British politician. Born

June 12, 1832, he was a nephew of Charles, 1st Viscount Eversley (1794-1888), who was Speaker of the House of Commons 1839-57. As a Liberal he was M.P. for Reading, 1863-85, and for Bradford, 1885-95. He was civil lord of the admiralty in 1856, secretary to the board of trade, 1869-71; first commissioner of works, 1881-83 and 1892-93; postmaster general, 1883-84; and president of the local government board, 1894-95. He was raised to the peerage in 1906. In 1919 he published his *Reminiscences*, and he died April 19, 1928.

EVERTON. Suburb of Liverpool (q.v.). It is celebrated for its toffee.

Everton gives its name to an Association Football Club, which, founded in 1879, originated from a church school, the first ground being in Stanley Park, Liverpool. In 1885 it adopted professionalism, and in 1888 was one of the twelve clubs that formed the Football League on its foundation. Its present ground is Goodison Park, Liverpool. Everton won the Association Cup in 1906 and has been at the top of the Football League on several occasions. See Football.

EVERYMAN. English morality play of the late 15th century, probably translated from its Dutch counterpart, *Elckerlijck* (printed c. 1495). The story of God's summoning of Everyman (all mankind represented as an individual) by Death on that journey which none may escape, and of Everyman's attempts to find a willing companion, is based on an earlier parable told in the religious romance of Barlaam and Josaphat.

The Everyman Theatre at Hampstead, London, N.W., was opened as a repertory theatre on Sept. 15, 1920.

EVESHAM. Borough and market town of Worcestershire. It stands on the Avon, 15 m. E.S.E. of Worcester, on the G.W. and L.M.S. Ryds. It is a centre for fruit growing. Market day, Mon. Pop. 8,900.

The battle of Evesham was fought here, Aug. 4, 1265, when the royalists under Edward, afterwards Edward I, defeated the baronial party under Simon de Montfort, who was killed.

EVICITION (Lat. evincere, to overcome). Name given to the process of ejecting a tenant from a house or land. The word is chiefly known in connexion with the evictions of Irish tenants for refusing to pay their rent, which was a feature of the land trouble between 1880 and 1900. See Distraint; Rent.

EVIDENCE (Lat. evidētia). Word used for the legal method of proving facts in a court of law. In England all evidence must be relevant to the issue and relevant matters must be proved by the "best" evidence. How far any given fact tends to prove any matter in issue is for the judge to decide. A witness's opinion is no evidence. The contents of a document must be proved by producing the document itself unless the judge is satisfied it has been lost, stolen, or destroyed. A statement made by one of the parties (admission or confession) is always evidence against him, but not in his favour. In a criminal case, except in a case of bigamy, a husband or wife cannot give evidence for the prosecution, unless it is on a charge brought by one spouse against the other. See Jurisprudence; Law.

A View of the Evidences of Christianity is the title of a theological work by William Paley first published in 1794.

EVIL. In the theological sense the absence of good; also that which does not conform to the Will of God. In certain circumstances a thing may be evil which is not necessarily evil in itself. But we are not in a position to judge the circumstances; for the simple reason that only a portion of the world of reality lies within our ken. See Ethics.

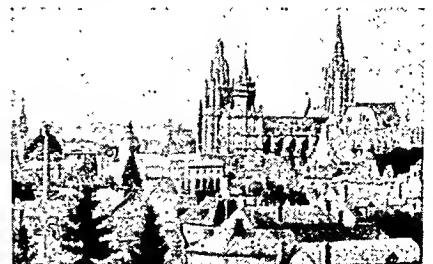
EVIL EYE. Faculty of causing material harm by means of a glance. In rural England it is called overlooking. From its ancient Roman name, fascinum, comes the word fascination. It denotes a form of witchcraft, owing its origin to the presumption that the eye is capable of operating at a distance. It may be exerted, voluntarily or involuntarily, upon human beings and domestic animals, especially when young, besides crops, dwellings, and other objects. Envy is an incentive of evil eye. See Amulet; Divination; Magic; consult also Evil Eye, F. T. Elworthy, 1895.

EVIL MERODACH (d. 560 B.C.). King of Babylon. The name is the Biblical spelling of the eunuchiform Amel-Marduk, servant of Marduk. He succeeded his father, Nebuchadnezzar II, and was, within two years, violently slain by his brother-in-law, the Nergalsarezer of Jeremiah 39, who thereupon seized the reins of government.

EVOLUTION (Lat. evolvēre, to unroll). Process wherein one kind of living creature gives rise to another kind, which persists alongside of or in place of the original stock. Thus we believe that birds evolved from an ancient reptilian stock, and mankind from a primitive simian lineage, the origins in both cases being extinct. Similarly, wild ancestors of such cultivated plants as cabbages and apple trees still exist. The evolutionary process should not be confused with development, which in biology is the individual's coming to be. Hence we should speak of the development, not of the evolution, of the earth.

Evolution may be in the direction of increased complexity and control (differentiation and integration), or in the opposite direction. Yet in spite of many instances of retrogressive evolution in animate nature, the general trend of the process has been progressive, i.e. towards increased differentiation and integration of fuller and freer life. The divergence between plants and animals was one of the greatest cleavages in evolution, the raw material of which is furnished by variations which are inborn, not acquired or imposed from without.

The idea of evolution virtually dates from Darwin's great work of 1859: *The Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Existence*. He stated the gist of the theory, which Alfred Russel Wallace had independently reached, in a couple of sentences: "As many more individuals of each species are born than can possibly survive, and as, consequently, there is frequently recurring struggle for existence, it follows that any being, if it vary, however slightly, in any manner profitable to itself, under the complex and sometimes varying conditions of life, will have a better chance of surviving, and thus be naturally selected. From the strong principle of inheritance any selected variety will tend to propagate its new and modified form." See Adaptation; Biology; Cell; Darwin, C.; Heredity; Life; Sex.



Evreux. The city and cathedral seen from the south. To the left is the 15th century belfry

ÉVREUX. City of Normandy. It is 67 m. W.N.W. of Paris, and stands on the Iton, a branch of the Eure, in the dept. of

Eure, of which it is the capital. The chief building is the cathedral of Notre Dame, the earliest part dating from the 11th century and some parts from the 16th. It was completely restored at the end of the 19th. Evreux was frequently besieged and taken in the wars between England and France, and from it the English family of Devereux takes its name. Pop. 15,913.

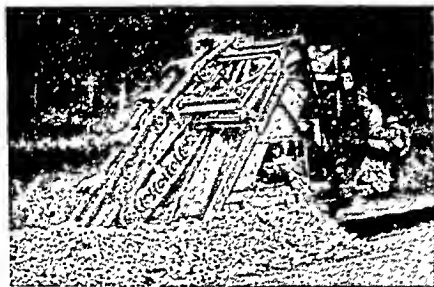
EWE. W. African language-group. Mostly found in Dahomé, S. Togoland, and the Gold Coast Colony, it forms part of a primitive W. Sudanic speech once widespread in the Guinea region before the advent of Bantu influences.

EWING, SIR JAMES ALFRED (b. 1855). British physicist and engineer. Born at Dundee, March 27, 1855, he was educated at the high school and at Edinburgh University. Until 1878 he assisted Lord Kelvin, and from 1878-83 was professor of mechanical engineering at the imperial university of Tokyo, Japan, where he studied earthquakes. After holding professorships at Dundee and Cambridge he was director of naval education 1903-16 and principal and vice-chancellor of Edinburgh University 1916-29. He was knighted in 1911.

Ewing's inventions include: magnetic curve-tracer, hysteresis tester, and a permeability bridge, all used for testing the iron employed in making dynamos and transformers.

EXARCH (Gr. *exarchos*, leader). In Byzantine history, a title specially applied to the military governor of the district of Ravenna in Italy. It lasted from 584-752. The name was also given to a dignitary of the church who held a position above that of metropolitan and to the head of certain monasteries, and survives as the title of the patriarch of Bulgaria.

EXCAVATOR (Lat. *ex*, from, out; *cavare*, to hollow). Mechanism for removing large masses of earth. Some closely resemble



Excavator which digs a trench 18 in. wide and 4 ft. deep, doing in one hour the day's work of 50 men

dredgers, as the steam shovel or steam navy, which will deal with anything from soft earth to lumps of blasted rock weighing several tons each. Some of these giant diggers in combination with mechanical unloaders will enable ten men to clear in a day as much as would keep 500 men busy with shovels. One form of mechanical excavator for surface work is a rotary machine with a capacity of about 16 tons of material per minute. Some sections of the London tube tunnels were driven by an electrically operated rotary boring digger, a transverse wheel with six radial arms carrying chisels and scoops. The cutting chisels loosen the material, which falls into the invert and is picked up by the buckets and emptied on to a belt-conveyor.

EXCELLENCY. Title of honour. In modern British usage it is confined to the governor-general of India, the governor-general of Ireland, colonial governors, ambassadors and envoys. In France and the S. American republics the president is styled Excellency, but not in the U.S.A.

EXCESS PROFITS DUTY. Tax levied by the British Government to meet the expenses of the Great War. It was first imposed in Sept., 1915, when all excess profits made in business were taxed at the rate of 50 p.c., the amount being raised to 60 p.c. in 1916 and to 80 p.c. in 1917. Excess profits were defined as those in excess of the average made in the two or three years before the outbreak of war, but the tax was not charged on the first £200. Farmers and professional men were not liable to the tax, which was abolished in Mar., 1921, though receipts from excess profits were collected for several years afterwards.

EXCHANGE. Term used in various senses. In a financial sense it means the transformation of the money of one country into that of another. By money is meant coin, or else some instrument or document—a cheque, bill, or note, for example—convertible as of right into coin.

The rates of exchange, which vary from day to day, are given in the newspapers. Banks and financial houses do a large business in exchanging the currency of one country into that of another, e.g. pounds into dollars or francs into pounds.

The name Exchange is given to a building wherein merchants meet for the transaction of business. See Stock Exchange.

EXCHEQUER. Name given in England to the department entrusted with the duty of receiving the royal revenues. The word means a chess board, because it was by means of a device of this kind that the early accounts were kept. The Late Lat. equivalent is *scaccarium*, and the *Dialogus de Scaccario*, a treatise of the time of Henry II, gives most of our existing information about the early English exchequer.

The early kings had both a treasury and an exchequer, and the functions of the two have been somewhat intermingled even until the present day, when, while the main financial work of the country is done by the treasury, its actual head is the chancellor of the exchequer, and not the first lord of the treasury, who is the prime minister. See Treasury.

The Exchequer and Audit Department is a Government department under the comptroller and auditor-general, whose business is to see that all public money is expended in accord with the wishes of Parliament. The office was established in 1866.

An exchequer bill was a form of British Government security in vogue from 1696 to 1896. Exchequer bonds are promissory notes issued generally by the Government for three or five years and redeemable at par.

EXCISE (Lat. *ad*, to; *census*, a tax). Name given to taxes levied on goods produced within a country as opposed to customs, which are duties levied on imports. The principle of free trade demands that every customs duty shall be balanced by a corresponding excise duty, so as to give no preference to either.

In Great Britain excise duties are levied on beer, spirits, patent medicines, table waters and matches. The licence duties paid by publicans and others are excise duties, and the entertainments tax falls into the same class. In 1930-31 the estimated revenue from the excise duties was £129,860,000. The duties are collected by the board of customs and excise, which has inspectors and collectors all over the country.

EXCITER. Generator for producing electric current for exciting the field magnets of an alternator or a dynamo. In the case of alternators, the field magnetism of which it is difficult to excite by current generated by the alternator itself, the exciter may consist of a separate dynamo. Direct current

dynamos are usually self-excited, i.e. their magnetic fields are produced by their own current. See Dynamo.

EXCLUSION BILL. Measure introduced into the English Parliament in 1679 for the purpose of excluding James, duke of York, from the throne. Passed in 1680 by a large majority in the House of Commons, it was rejected by the Lords.

EXCOMMUNICATION (Lat. *ex*, out of; *communis*, common). Term used specifically for the temporary or permanent exclusion of an offending member from the fellowship of the Christian Church. Generally it means exclusion from any organized community. Examples are found in the history of the Jews (Lev. 13; Num. 9 and 12; Ezra 10). It existed among Greeks, Romans, and Druids, and has affinity in the tabu of the Polynesians.

The Christian Church claims Scriptural authority for excommunication (Matt. 16 and 18; John 12 and 16; 1 Cor. 5). Imposed first by the community and then by the bishops as a penalty for heresy, immorality, or disobedience, its primary objects were the bringing of the offender to repentance, and the protection of the Church from corrupting influences. In pagan and Christian usages it has been imposed in degrees of varying severity, ranging from admonition to temporary and partial suspension, and, finally, anathema (q.v.)

EXE. River of Devon. It rises in Somerset on Exmoor and flows across Devon, mainly S., to the English Channel. Its length is 55 m. There is trout fishing in the Exe, which flows mainly through wild and beautiful scenery.

EXECUTION (Lat. *exsequi*, to follow out, carry out). Act of performing anything. It is used in law for the carrying into effect of the judgement of a competent court or the signing, sealing, and delivering of a legal document. It is also used in other senses, as in executing a commission, or the execution of a piece of music. In a special sense the word has come to mean the carrying out of a death sentence. In England the death penalty was carried out mainly by hanging or by beheading. Beheading was reserved for political offenders and persons of rank. When the death penalty was confined to serious crime, hanging became the only form. In France the guillotine is adopted for executions, while electrocution is the method which is in use in the U.S.A. See Capital Punishment; Electrocution; Guillotine.

EXECUTIVE. Name given to a body of men who carry out the orders of others. In most modern states the legislature makes the laws, which the executive carries out. In the United Kingdom the executive consists of the Cabinet and the various state departments under its control. The local government bodies have also a legislature and an executive. See Cabinet; Government; Parliament.

EXECUTOR. In English law, the person or persons appointed by a testator to carry into execution a will as the "legal personal representative" of the deceased. An executor becomes the legal owner of all the deceased's property. He must first prove the will. Armed with the probate copy thereof he collects the property, realizes enough to pay (1) funeral and testamentary expenses; (2) debts, crown debts coming first; (3) legacies in order; and then hands over the balance to the persons entitled under the will. He is allowed a year to wind up the estate before any legatee can sue him for his legacy. See Estate Duties; Will.

EXEGESIS (Gr. *explanation*). Branch of study concerned with the interpretation of Holy Scripture. Properly including all that is

connected with the full exposition and understanding of the Bible, it is more commonly restricted to literary interpretation, which determines the sense of the sacred text upon the same principles that would be applied to any other literary work. It differs from Biblical criticism in taking the text as it stands, and examining its meaning rather than its origin and authenticity. See Bible.

EXERCISE (Lat. exercitium). Movements of the muscles, either voluntary or passive. Voluntary exercise means deliberate movement; passive exercises are movements effected by the manipulation of another person or by a machine. Muscular contraction, such as occurs during steady walking, stimulates the circulation of the blood through the muscles. This, in turn, acts on the heart and the respiratory system, which both act more vigorously. The formation of more waste products in the tissues makes increased demands upon the excretory system.

Strenuous exercise is beneficial to the young and healthy, but should not be undertaken by persons beyond middle life or those suffering from cardiac or other serious affections.

Passive exercises are mainly employed to prevent wasting of the muscles and stiffening of the joints following sprains of the bones or other injuries to limbs, and to increase the mobility of joints in those suffering from rheumatism or similar conditions.

EXETER. City of Devonshire, also a county in itself since 1537, river port, and the county town. It stands on the Exe,

EXETER, MARQUSS OF. English title borne by several distinguished families. In 1605 Thomas Cecil, Lord Burghley, a son of the great Lord Burghley (q.v.), was made earl of Exeter. His descendants continued to hold the title, and in 1801 Henry, the 10th earl, was made a marquess. In 1898 William Thomas (b. 1876) became the 5th marquess. The seat is Burgbly House (q.v.), and the eldest son is known as Lord Burghley.



1st Earl of Exeter,
English statesman
After Jansen

In 1397 John Holand, a half-brother of Richard II, was made duke. He was executed in 1409 for conspiring against Henry IV. Thomas Beaufort was duke from 1416 to 1426, after which the title was given to John Holand, a son of the duke executed in 1400. His son Henry lost it during the Wars of the Roses.

EXETER HALL. Public building in London, the site of which is now occupied by the Strand Palace Hotel. Built in 1831, it became a centre for the annual meetings of many religious bodies. In 1880 it was acquired by the Y.M.C.A., which occupied it until 1907.

EXHAUST (Lat. ex, from, out; haurire, to draw). Word meaning in general the stream of burnt gases ejected from an engine, or it may be applied to the exhaust piping itself.

EXHIBITION (Lat. ex, out; habere, to have). Term used for a display or show of any kind. In a special sense the word is used for displays of manufactured goods, and national and international exhibitions of this kind were organized on an enormous scale during the 19th and 20th centuries. These are known to the French as expositions. In a sense they are the modern equivalent of the great medieval fairs, although the idea is not so much to sell goods directly as to make them known.

The modern international exhibition is generally regarded as having started in 1851, when one was held in Hyde Park, London. It was visited by over 6,000,000 people. The British Empire exhibition, held Apr.-Nov., 1924 and 1925, at Wembley, was intended to foster imperial interests, both commercial and political. See Crystal Palace.

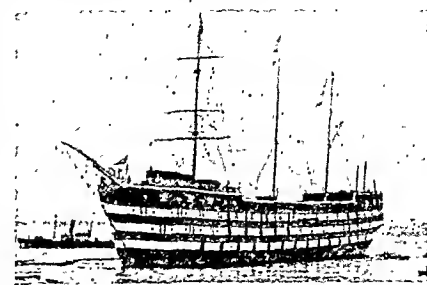
EXHUMATION (Lat. ex, out of; humus, ground). Act of digging up and removing any object from the ground, but generally applied to the removal of a dead body from its burial place. It is a misdemeanour to do this for any purpose without legal authority. See Bodysnatching; Burial.

EXILE (Lat. exsilium). Removal from one's native land, either voluntarily or under compulsion. In Greece, exile was chiefly a punishment in cases of homicide, but was also enforced for certain crimes and offences against the state and society. A peculiar method of banishment was ostracism (q.v.). In Rome exile did not become a recognized form of punishment until about the time of the Gracchi. See Deportation; Transportation.

EXMOOR. Elevated moorland expanse in Somersetshire and Devonshire. Formerly a forest, three-fourths of its area is now covered

with heather and coarse grass, on which are pastured ponies, sheep, and red deer. On Feb. 22, 1917, Sir Thomas Acland granted a lease of between 7,000 and 8,000 acres to the National Trust for 500 years. Lorna Doone, Blackmore's romance, has made Exmoor familiar. The highest point is Dunkery Beacon.

EXMOUTH. Urban dist., seaport, market town, and watering place of Devonshire. It stands at the mouth of the Exe, 10½ m. S.E. of Exeter on the Southern Ry. Market day, alternate Tues. Pop. 13,614.



EXMOUTH. Ship at Grays, Essex, in which boys are trained for the merchant service

The name Exmouth is given to a training ship for the British merchant service. It is moored off Grays, Essex.

EXMOUTH, EDWARD PELLEW, 1st Viscount (1757-1833). British sailor. He was born at Dover, April 19, 1757, and entered the



1st Viscount Exmouth,
British sailor
After W. Owen, R.A.

navy at the age of 13, and became one of the most able commanders of Nelson's time. In 1814 he was raised to the peerage as Baron Exmouth of Canonteign. Made viscount in 1816, he died Jan. 23, 1833. The title is still held by his descendants, Edward (b. 1890) having become the 5th viscount in 1899.

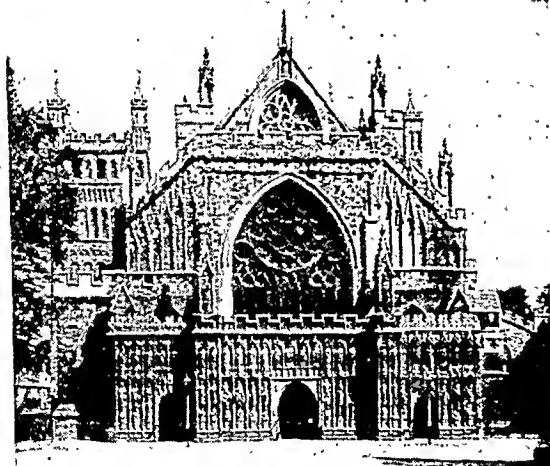
Exmouth Gulf. Inlet of the W. coast of Australia. It penetrates inland about 65 m., and at its entrance is 30 m. across.

EXODUS. The second book of the Pentateuch, or rather Hexateuch. The title, taken from the Septuagint (Ex. 19, 1), means the "Going-forth." The Hebrew title is "Names" or "And these are the Names." See Hexateuch.

EXOGENY (Gr. exō, outside; gamos, marriage). Primitive institution binding a man to marry outside his own social group. Its primal impulse was probably economic rather than eugenic. Arising from it are such marriage customs as marriage by capture. A special form called hypergamy exists in some Hindu castes; it requires a woman to marry into a caste higher than her own. See Marriage.

EXOGENS (Gr. exō, outside; stem, gen, to be born). Name for the great division of plants now generally known as dicotyledons. It indicates that the annual increase of girth is due to the addition of a ring of new wood between the old wood and the bark. See Botany.

EXORCISM (Gr. ex, out; horkizein, to adjure). The expulsion of malign spirits by ritual means. The Semitic Babylonians regarded most mental and bodily ailments as due to intrusive demons, whose expulsion was sought by the incantation of charms containing a divine name, fortified by material aids. Exorcism passed into the Greco-Roman world, was rife in W. Asia in N.T. times, and was taken over by early Christianity. Baptismal exorcism is retained by the Roman and Old Lutheran communions. See Demonology.



Exeter. West front of the cathedral and the 14th-15th century screen ornamented with sculptured figures of Biblical characters

17½ m. W.S.W. of London, on the G.V. and Southern Rlys. Still partly surrounded by its old walls, it occupies an elevated position on a ridge of land overlooking the Exe. The chief attraction of the city is its comparatively small but magnificent cathedral, a complete restoration of which was undertaken by Sir G. G. Scott towards the end of the 19th century. In its library is an MS. collection of Anglo-Saxon poems presented in the 11th century by Bishop Leofric. The guildhall is a fine Elizabethan building. The city has a university college, part of a memorial to Prince Albert. Exeter School, one of the most important public schools in the west of England, was founded in 1629.

There is an important rly. centre, has form and basin, and is connected with the sea by a tidal estuary which extends five miles and

EVERSLEY. Estuary near Topsham. For 14 m. N.E. of Exeter. An active woollen industry. Mary had Charles I. buried here. 1844-75. Pop. 864. A large malting, and a paper manufacture are also carried on.

EVERSLEY, GEORGE J. DAY. Pop. 60,990 (1832-1928). British.

EXPANSION (Lat. ex, from, out; pandere, to spread). Enlargement of an object, a term used especially of metals when heated. For each degree centigrade the following are the coefficients of expansion of some materials:

Platinum	0.00000899
Copper	0.00001678
Zinc	0.00002918
Glass	0.0000033

The expansion, both apparent and absolute, of some liquids can also be determined. Gases expand with heat at all temperatures, but pressure changes their coefficients of expansion. *See Heat; Temperature.*

EX PARTE (Lat. from one side). Expression used in English law to signify something done or said by one person not in the presence of his opponent. Thus an *ex parte* application is one made in the absence of the other side. An *ex parte* statement is one made when no one is present to contradict it.

EXPECTATION. State of expecting something. In the plural it is used for the money which one should receive under a will. Expectation of life is a term used by actuaries and others engaged in life insurance business for the number of years a person may be expected to live. By careful calculations from a large number of cases tables have been worked out which are used when annuities are bought and sold. The expectation differs for males and females, and for different ages, but a roughly accurate method is to value the expectation of life at two-thirds of the difference between the present age and 80. *See Annuity; Death; Insurance.*

EXPEDITIONARY FORCE. Name given in the British army organization to the force of regulars trained and ready for operations abroad. The British Expeditionary Force that reached France in Aug., 1914, had a combatant strength of about 60,000 men—four divisions of infantry and one cavalry division. The other two divisions of infantry, provided in the reorganization of the army, 1907, did not reach the front till the middle of Sept. The original force, divided into two corps under Sir Douglas Haig and Sir Horace Smith-Dorrien, and the whole commanded by Sir John French, took its place on the front in Belgium, Aug. 23. *See Army; Mons.*

EXPERIMENT. Testing a provisionally adopted theory by facts. The great progress of natural science in modern times has been chiefly due to the systematic employment of experiment.

EXPERIMENTAL FARM. An experimental farm is one at which science is applied to the processes of agriculture and the results tabulated for reference and publication. The best known and oldest of English experimental farms is that founded by Sir John Lawes at Rothamsted in 1843. Since that pioneer work, the great agricultural societies started other stations such as that at Woburn, and of Pumphorston in Scotland. There are experimental farms on a large scale in Canada and Australia. *See Agriculture; Crops; Farm.*

EXPLODER. Term designating the priming employed in high-explosive shell, and the electric machine for firing blasting charges fitted with electric detonators. The high-explosive charge employed in a shell is always in a very dense condition in order to reduce its sensitivity, utilise the greatest possible weight in the limited space, and prevent movement owing to the shock of discharge when the projectile is fired. Exploders for firing blasting charges occasionally utilise current from a set of accumulators passed through an induction coil, but the more usual machines are of the magneto type. *See Ammunition; Shell.*

EXPLOSION (Lat. ex, from, out; plaudere, to clap). Accidental ignition of gas. Explosions in coal mines are due to the fact that coal deposits give off certain gases which, when mixed with air in certain proportions, form explosive compounds which only require a spark or flash to fire them. Mine explosions began to be more frequent as the ventilation of the workings was improved, a circumstance which led to an important inquiry as to the relations between explosive gas and the oxygen in the atmosphere of the workings. In England the use of the safety-lamps is made imperative and certain classes of explosives are prohibited in all dangerous mines; while arrangements now exist for giving all coal mining regions warnings of any approaching atmospheric changes which may be calculated to favour the escape of gas in the workings and increase the normal risks. *See Safety-Lamp.*

EXPLOSIVE (Lat. explosus, driven out). Solid or liquid substance or mixture which is capable of being converted in a very small interval of time into other more stable substances wholly or chiefly gaseous. The tremendous disruptive effect of explosives is due to their capability of releasing the whole of their energy in a minute interval of time.

For some six centuries gunpowder remained the only known explosive, and its composition remained almost unchanged, saltpetre, charcoal, and sulphur being the ingredients. In 1846 nitrocellulose and nitroglycerine were discovered, but many disasters followed the first attempts to use them. Nitroglycerine was too sensitive to percussion for safe use, and Alfred Nobel invented dynamite, a less sensitive explosive consisting of a plastic mass of nitroglycerine and kieselguhr.

Nitrocellulose proved very unstable, but in 1868 guncotton, a successful military explosive, was developed from it. Ammonium nitrate explosives were introduced in 1867. Sprengel experimented in 1871 with picric acid (trinitrophenol), which was first used for shell filling in 1885. It was the first of a new class of explosives—the nitro-derivatives of aromatic hydrocarbons. Smokeless powder, with nitrocellulose as a base, was invented in 1865, and adopted for military use in 1884. Cordite, a smokeless nitroglycerine explosive, was patented by Abel and Dewar in 1880. Since picric acid did not prove very suitable for shell filling, the nitration of other aromatic hydrocarbons was essayed, and trinitrotoluene came into use, being adopted for military purposes by most of the Great Powers. Dynamite and blasting gelatine are generally used where great shattering effect is required, and gunpowder is still employed for rendering.

In mining the explosives in use comprise: gunpowder, cheddites, dynamite, gelignite, ammonite, roborite, and fulminate of mercury, which is used for detonators. For use in coal mines safety explosives are employed, these usually having an ammonium nitrate base.

The manufacture, storage, and transport of explosives are governed in Great Britain and other countries by special legislation aiming at the protection of both public and workers. The Explosives Act, 1875, defines an explosive to include gunpowder, nitroglycerine, fulminate of mercury or of other metals, coloured fires, dynamite, guncotton, blasting powders, and every other substance used or manufactured with the object of producing an explosive or pyrotechnic effect. Special regulations govern the conveyance of such substances by rail or ship. *See Ammonite; Ammunition; Dynamite; Gunpowder.*

EXPORTS (Lat. exportare, to carry out). Name given to goods sent out of a country. These are valued at the custom houses, or by other authorities, and all civilized countries issue periodical returns showing their value.

In the United Kingdom this is done monthly by the Board of Trade.

The difference between a country's exports and its imports is known as its balance of trade, but, while exports are valued at their price when put on board ship, in the price of imports the cost of carriage is included. Invisible exports is the name given to charges for freights and the like.

The following figures show Great Britain's exports in 1913 and from 1925 to 1929:

1913	£634,820,000
1925	927,417,000
1926	778,542,000
1927	832,034,000
1928	843,780,000
1929	838,000,000

The above totals include the re-exports. *See Balance of Trade; Imports.*

EXPORT CREDITS In 1926 the British Government introduced a scheme to facilitate foreign trade by guaranteeing credit to reputable firms in return for a premium of insurance. Under the Department of Overseas Trade it has an office at 9, Clement's Lane, Lombard Street, London, E.C.

EXPRESS SERVICE. Organization for the rapid transit of small parcels. Companies for this purpose are specially numerous in the U.S.A. and Canada, where they undertake the carrying of money and valuables, as well as of ordinary goods. They insure these and, if required, collect the money on delivery.

EXTENSION. Term used in engineering for the stretching of materials under strain. All materials stretch under a pull, though the amount may be relatively very small. Heat is an important cause of extension of metals, and due allowance for that extension is made in all engineering construction.

An extensometer is an instrument for measuring the stretch or small deformation of materials under various kinds of stresses. Modern extensometers will measure to less than the millionth part of an inch. *See Engineering.*

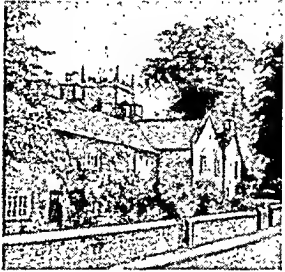
EXTRACT (Lat. extractus, drawn out). Term applied in chemistry and pharmacology to products obtained by treating any substance with solvents and then evaporating the latter. In a more restricted sense, an extract is a concentrated form of a vegetable drug. It contains the active part of the drug, the inert portion, consisting of woody fibre, being exhausted of its active principles during the process of extraction.

EXTRADITION (Lat. ex, out; traditio, handing over). Term used in law for the surrender, by one state to another, of fugitive criminals. As between the states, this depends on treaty; no state has an inherent right, apart from express agreement, to claim extraditory rights from another. Treaties for extradition now exist between most civilized states, but political criminals are invariably excepted from their operation. The manner in which extradition is applied for and granted depends upon the law of the country where the fugitive is.

EXTRATERRITORIALITY. Term used in international law. It describes the status of a person who, when in foreign territory, is immune from the jurisdiction of local laws and courts. Sovereigns and diplomatic agents are considered such persons by ancient usage. A ship of war in a foreign harbour, behaving peacefully, remains a part of the country whose flag she flies.

EXTREME UNCTION. Fifth of the seven sacraments of the Roman Catholic Church. Recognized also in the Greek, Coptic, Armenian, and Nestorian Churches, with varying ceremonial, and dating from the 12th century, it is regarded as authorised by James 5. 14-15, and is administered by the priest, who anoints the dying person. *See Sacrament.*

EYAM. Village of Derbyshire. It stands in Eyam Dale, 5 m. N of Bakewell. In the churchyard is a Runic cross, and there are several barrows. During the plague in 1665-66 the greater part of the population perished. Pop 1,224. Pron. Eem.



Eyam. Cottages dating from the plague of 1665-66

vince of Limburg. He began, and his brother Jan (c 1385-1440) completed, the famous altar-piece of The Adoration of the Lamb, executed for the cathedral of S. Bavon, Ghent, where he died, Sept. 18, 1426. Both painters rank among the very greatest of the Flemish school. Their drawing and finish were meticulously exact, their colouring is almost as fresh and brilliant as it was 500 years ago, and they so improved the method of oil painting that they made it virtually a new medium.

Jan, who died at Bruges on July 9, 1440, is represented at his best in the National Gallery, London, by the magnificent picture of John Arnolfini and his Wife, and at the Louvre by the exquisite Chancellor Rollin Kneeling before the Virgin.

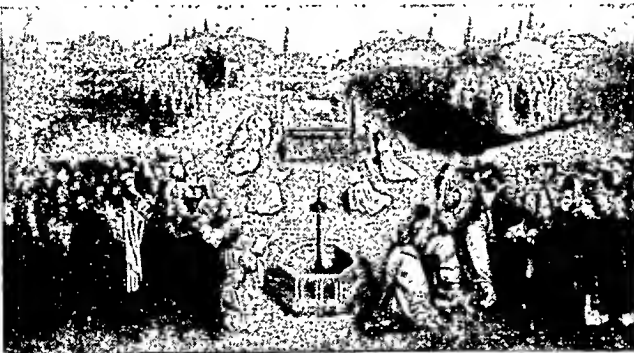
EYE. The essential parts of the visual apparatus are the eye, or eyeball, certain nerve cells in the hinder part of the large brain, and nerve fibres connecting the eye with these cells. Vibrations of the ether, known as light, produce images of the outside world on the sensitive membrane, or retina, at the back of the eye, thus stimulating the ends of the optic nerve, whence impulses pass back to the brain and cause the sensation of sight.

The eye is contained in the orbit, a bony cavity in the front of the skull, and is thus largely protected from external violence. Its movements are effected by three pairs of opposing muscles. In front is a circular transparent window, the cornea, and beyond this the white of the eye. The latter represents the sclerotic coat, a dense tough membrane, which, except for the corneal surface, covers the eyeball. This is almost spherical, but if the eye is examined from the side, it is seen that the cornea projects from the sclerotic part. Within the sclerotic coat is another, the choroid, and inside this the retina. The former extends forward to near the junction of the cornea with the sclerotic coat, where it forms folds known as the ciliary processes, and beyond is continuous with the outer circumference of the curtain of the eye, the iris.

The iris, which is of different colours in different individuals, is perforated by a central,

circular opening, the pupil, which contracts or dilates according as the eye is exposed to a bright or a dim light. Behind the iris is the crystalline lens of the eye, an elastic body capable of varying its convexity, and thus hinging about accommodation or the power of focussing. The lens and its suspensory ligament divide the eye into a smaller front and a larger back portion, the former filled with aqueous, or watery, humour, the latter occupied by a clear, transparent jelly known as the vitreous humour.

The retina has many layers, the most important being a layer of nerve fibres, the layer of specialised nerve cells known from their shape as rods and cones and behind these a layer of pigment cells. The rods and cones are marshalled together all over the retina, except on the optic disk, a small area marking the point of entrance of the optic nerve; consequently there is no perception of light here. At the centre of the back of the eye there is a little area called the macula lutea or yellow spot, in which visual perception is sharpest in ordinary illumination. Lining this part and close around it there are only cones; on the outlying parts of the retina, however, where vision is best in a subdued light, the rods form a great majority. See Blindness:

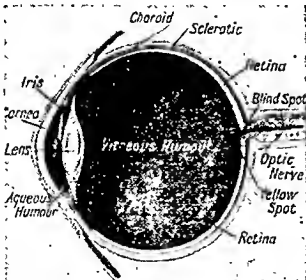


Van Eyck. The Adoration of the Lamb, the central panel of the altar-piece at the cathedral of S. Bavon, Ghent, the masterpiece of the Van Eyck brothers

Cataract; Conjunctivitis; Sight; Squint; Stye; Trachoma.

EYE. Borough and market town of Suffolk. It is 19 m. N. of Ipswich, on the L.N.E. Rly.; has castle ruins, a grammar school founded in 1566, and corn exchange. Brewing is an industry. Market day, Mon. Pop. 1,781.

EYEBRIGHT (*Euphrasia officinalis*). Small annual herb of the natural order Scrophulariaceae. A native of N. Europe, N. and W. Asia, and N. America, it is a parasite upon the roots of grasses, sedges, etc. The leaves are oval or lance-shaped, with cut edges, the flowers small, white, veined with purple, and the middle lobe of the lip yellow. It grows freely in meadows and heaths.



Eye. Sectional diagram showing its formation and principal parts

EYEMOUTH. Burgh of Berwickshire. A fishing centre, it stands at the mouth of the Eye, 8 m. from Berwick, on the L.N.E. Rly. There is a good harbour. Pop. 2,453.

EYLAU. Town of Prussia. It stands on the Pasma, about 24 m. from Königsberg, and is noted for the battle fought here, Feb. 8, 1807, between the French under Napoleon and the combined Russians and Prussians. The last named retired on Königsberg, having lost 18,000 men and 24 guns. The French losses amounted to 15,000 men. Pron. Ile-ow.

EYRA. S American wild cat. Resembling a large weasel with a long tail, it ranges from Mexico to Brazil. It is a pest to the poultry farmer.

EYRE. Former lake of S. Australia. It is 4,000 sq. m. in area and 110 m. across at its widest, and its surface is now a parched flat of salt and sand. The centre of many native legends, the result of its extraordinary mirages, it was discovered by Edward John Eyre in 1840 and explored by aeroplane in 1921 and 1929, when a few springs were found on its western margin. Borings revealed water at a depth of 19 ft.

EYRE, EDWARD JOHN (1815-1901). British explorer. Born at Hornsea, he emigrated to Australia in 1833, and carried out valuable explorations, especially of the coast between Adelaide and King George Sound, in 1841. He went to New Zealand as governor in 1846, to St. Vincent, 1854, and to Jamaica, 1861. He died Nov. 30, 1901.

EYRES-MONSELL, SIR BOLTON MEREDITH (b. 1880). British politician. A son of Bolton Monsell, he took the name of Eyres on his marriage in 1904. At that time he was in the Navy, which he entered in 1894. He left it in 1906, but returned to active service during the Great War. In 1910 he was elected Unionist M.P. for S. Worcestershire, and in 1919 was made treasurer of the household. Next he was civil lord of the Admiralty and then its financial secretary. In 1923 he became the chief whip of the Unionist party, and as such was parliamentary secretary to the Treasury in 1923 and again 1924-29. In 1929 he was made a baronet.

EZEKIEL, BOOK OF. One of the prophetic books of the O.T. Its author was one of the priests of Jerusalem who, with King Jeboiachim and other members of the upper classes, were deported to Babylonia in 597 B.C. by Nebuchadrezzar (605-562 B.C.).

Ezekiel's visions of the chariot and cherubim (Ezek. 1, 1-3, 15) had considerable influence on the later symbolical literature. The vision of the valley of dry bones in Ezekiel 37 has become famous. In Ezekiel 38 and 39 occur the curious creations Gog and Magog.



Eyebright. Flowers and leaves of *Euphrasia officinalis*

Gog, perhaps suggested by Gyges, king of Lydia, is a prince from the land of Magog, who leads a great host of nations against the restored Israel, and is defeated ignominiously. In the later Jewish eschatology Gog and Magog are represented as leading in vain the final attack of the powers of the world upon the Kingdom of God.

EZRA, BOOK OF. Book of the O.T. It was written by a Jewish scribe living in exile in Babylon, under Artaxerxes Longimanus. About 458 B.C. he was allowed to return to Jerusalem. There he found the remaining Jews had intermarried with heathen women, and great laxity prevailed, and he set out to restore worship and order. He started the rebuilding of the Temple, and restored the text of the Jewish law. The threefold work, Chronicles-Ezra-Nehemiah, covers the history of Israel from Adam to the second visit of Nehemiah to Jerusalem in 432 B.C.; but the history is viewed from a different standpoint from that of the other O.T. books from Genesis to Kings, namely an ecclesiastical and priestly standpoint.

F. Sixth letter of the English and Latin alphabets. Its ordinary sound is as in fat. In of, it is pronounced as v. In halfpenny, f and l are mute (hā-peny). In the plural, f is often softened, as in loaf, loaves. Its sound is represented by ph in words derived from the Greek, as philosophy, phrase.

In music, F is the fourth note of the natural scale of C. See Alphabet; Phonetics.

FABER, FREDERICK WILLIAM (1814-63). British divine. Born at Calverley, Yorks, June 28, 1814, and educated at Balliol College, Oxford, he became rector of Elton, Huntingdonshire. In 1845 he seceded to the Roman Church, and four years later became superior of the Oratory of S. Philip Neri. A popular preacher, he wrote some notable hymns, including Sweet Saviour, bless us ere we go, and Hark, Hark, my soul. He died at Brompton, Sept. 26, 1863.

FABIUS, MAXIMUS QUINTUS (d. 203 B.C.). Roman general. Appointed to the command of the Roman forces after the Carthaginian victory at Lake Trasimene, 217 B.C., by a series of delaying tactics—whence his surname, Cunctator (the delayer)—he avoided pitched battles with Hannibal, wore down the Carthaginian offensive, and by giving the Romans time to reconstitute their forces paved the way for Scipio's victories. Fabian tactics became proverbial for a cautious and waiting policy, and were adopted by the promoters of the Fabian Society, an English socialist organization founded in 1884.

The name Fabius was borne by Gaius Fabius Pictor (c. 302 B.C.), the first Roman painter, and Quintus Fabius Pictor (c. 225 B.C.) the earliest Roman historian.

FABLE (Lat. fabula, story, narrative). Short allegorical story in which generally animals, trees, etc., are endowed with speech and human qualities, and by their words and deeds are made to convey moral lessons. Its invention is frequently ascribed to Aesop (q.v.), but many fables associated with his name probably originated at a much earlier date in India. Of later fabulists La Fontaine, Gay, and Kriloff are the best known.

FABRE, JEAN HENRI (1823-1915). French scientist. Born at Sainte-Leone, Aveyron, his early years were passed in great poverty. At



Jean H. Fabre, French entomologist

18 he was in charge of a primary school, where he improved his knowledge of mathematics and physics in his spare time, and where he bought his first book on entomology. Becoming professor of philosophy in the college of Ajaccio and in the Lycée at Avignon, he turned his attention to the study of insects. His earliest observations appeared in the *Annales des Sciences Naturelles*, 1855-58; subsequently enlarged in *Souvenirs Entomologiques*, 10 vols., 2nd ed. 1914, etc. His writings display not only most amazing powers of minute and careful observation, but possess an unusually high literary quality. He died Oct. 11, 1915. Consult *Works*, complete Eng. trans. A. Teixeira de Mattos, 1912, etc.

FACE. Front of the head: the regions of the forehead, temples, ears, eyes, nose, mouth, cheek, and upper and lower jaws. Of the facial bones, twelve are in pairs: the superior maxillary, malar, nasal, palate, lacrymal, and inferior turbinated bones. The mandible or lower jaw and the vomer, which forms part of the septum dividing the nose into two parts, are single bones. Some of the bones assigned by anatomists to the cranium also help to form the face, namely: the frontal, parietal, sphenoid, and temporal bones. The eyeball is in a bony framework known as the orbit.

The trigeminal nerve is the main sensory supply, and the facial nerve supplies most of the muscles. The facial artery passes from the neck to the eye. The facial angle is the method, show in the accompanying diagram, of measuring the facial profile. It is 40° in the orang-utan, 70° in the negro, and 80° in the European profile.

A face conveyor is a machine used for the transport of coal. Face value means the nominal value of financial securities.

FACTOR (Lat. faecre, to make). An agent, especially one who buys and sells for a principal. He differs from a broker in that he usually handles the goods in which he deals and transfers them to his principal; moreover, he has a greater latitude about buying and selling. In England the laws regulating the relations between a factor and his employer were consolidated in 1889. Factor is used in Scotland for a man who manages an estate, a land agent. A judicial factor is one appointed by a court of law to manage the estate of a minor or imbecile.

The factor of safety is the figure which indicates the maximum strength of any part of an engineering structure in relation to the maximum stress it is called upon to bear. In aeroplanes it is replaced by the factor of loading, based on the forces acting on the plane in horizontal flight.

FACTORY ACTS. In the United Kingdom, a series of over twenty statutes, aimed at regulating conditions in factories and workshops, especially on behalf of women and children. The first was passed in 1802, Addington's Act, and the existing law is contained in the Factory Acts of 1901 and 1911, by which minute provisions are laid down for ventilation, sanitary conveniences, fencing of machinery, means of escape from fire, as to inspection, accidents and disease and their prevention, education of children, and working hours.

In textile factories the hours for women and young persons must not exceed 66 a week, which period includes at least 10 hours for meals, and they must not start before 6 a.m. or leave off after 7 p.m. The Saturday half-day is general. No female may be employed within four weeks after her confinement. Children who work half-time are not to be employed otherwise. For these classes of employees Sunday work is barred, with specific exceptions, and overtime and night work are the subject of restrictions. There are many women as well as men inspectors attached to the Home Office. Efforts are being made to bring about an international eight-hour day and a 48-hour week. See *Child*; *Labour*.

FACULTY (Lat. facultas, facility, ability). Any special mental power; e.g. the faculty of speech; a department of a university and its instructors; and the members in a collective sense of a learned profession, e.g. the faculty of advocates in Scotland.

The court of faculties is a court held on behalf of the archbishop of Canterbury for granting faculties in connexion with church buildings, for marriage otherwise than by publication of banns, and so on. In the archdiocese of York similar work is performed by the archbishop's court. See *Bishop*; *Chancellor*.

FAED, THOMAS (1826-1900). Scottish painter. Born at Gatehouse of Fleet, Kirkcudbrightshire, June 8, 1826, he painted many scenes of Scottish life. A.R.S.A. in 1843, he came to London in 1852, and became A.R.A. 1861, and R.A. in 1864. He died Aug. 17,

1900, almost blind, at St. John's Wood. His *Faunts on Both Sides*, *Silken Gown*, and the *Young Highland Mother* are in the Tate Gallery, London.



Face. Diagram showing the method of measuring the facial angle

FAENZA (anc. Faventia). City of Italy. Founded by the Romans, it stands on the Lamone, 31 m. by rly. S.E. of Bologna. Surrounded by medieval walls, it has for centuries been famed for its art pottery, called faience (q.v.). On the principal square are the cathedral (1474), the former palace of the Manfredi, now the city hall, and the church of S. Michele. There is an arcaded market-place, and the municipal art gallery has frescoes, sculptures, and specimens of local majolica. Pop 43,070.

FAGAN, JAMES BERNARD (b. 1873). British dramatist. He was born May 10, 1873, and educated at Clongowes Wood College and Trinity College, Oxford. He was for four years an actor. His first play, *The Rebel*, was performed in 1899. It was followed by *The Prayer of the Sword*, 1904; *Under Which King*, 1905; *Hawthorne, U.S.A.*, 1905; *The Earth*, 1909; *A Merry Devil*, 1909; *Bella Donna* (adaptation), 1911; *And So to Bed*, 1926; and *The Greater Love*, 1927.

FAGGING. System at English public schools under which the older boys are empowered to exact certain duties from the younger boys. The duties consist of running errands, tidying studies, etc., and games fagging. The system varies at different schools. As a rule the sixth form alone are entitled to fags, but some schools extend the privilege to the fifth and also to members of the cricket and football teams.

FAGUET, ÉMILE (1847-1916). French critic. Born at La Roche-sur-Yon, he became professor of poetry at the university of Paris, 1897. His writings, which are reminiscent of Sainte-Beuve, include *La Tragédie au XVIIe Siècle*; studies of great French authors of the 16th, 17th, 18th, and 19th centuries; and a number of monographs, including those on Voltaire, Flaubert, and Zola. He died June 6, 1916. Consult *Émile Faguet*, A. Seché, 1904.

FA-HIEN OR **FA-HSIEN** (c. A.D. 400). Chinese traveller and antiquary. A Buddhist monk, he set out in 399 from Hsian-fu, Shensi, for a pilgrimage of the Buddha's cradle-land. Traversing the Gobi desert to Khotan, he crossed the Hindu Kush into the Afghan valleys, visiting Peshawar and the Ganges cities. He proceeded by sea in 412 to Ceylon, whence he returned home in 414.

FAHRENHEIT. Thermometer invented by Gabriel Daniel Fahrenheit (1686-1736), a German physicist, who reckoned the freezing point of water at 32°. The difference between this and the boiling point of water Fahrenheit divided into 180 degrees, so that the latter is 212° F. The centigrade scale of temperature has the melting point of ice for its zero degree, and the boiling point of water is fixed at 100°. See *Centigrade*; *Thermometer*.

FAÏENCE. Term loosely used to designate every description of glazed pottery and earthenware painted with decorative designs. The name comes from the Italian city of Faenza (q.v.), which has made a speciality of this kind of ware from the close of the 13th century. It had a soft paste and thin transparent glaze, which heightened the colours. Some varieties from Josiah Wedgwood's work are styled English faience. See *Pottery*.

FAILSWORTH. Urban dist. of Lancashire. On the L.M.S. Rly., just outside the Manchester boundary, its industries are connected with the manufacture of cotton. Pop. 16,973.

FAINTING OR **SYNCOPE.** Temporary unconsciousness caused chiefly by defective action of the heart, sudden emotion, over-exertion, loss of blood, and blows on the head or abdomen. While unconscious, the sufferer should be allowed to lie quietly on his back with his head as low as possible, the clothing about neck and chest loosened, and persons should be prevented from crowding round. Smelling salts may be held beneath the nose, but until consciousness returns nothing should be given by the mouth. When able to swallow, a little brandy or sal volatile in water may be given.

FAIR (Lat. feria, holiday). Periodical assembly of traders at a place and time fixed by charter, statute, or custom. In early times certain localities came to be used for the periodical exchange of commodities, either by reason of their situation or because they were resorted to at stated times for religious or other purposes. With the improvement in communications the importance of fairs diminished, and gradually many were abolished. Amusements formed an important feature of the old fairs, many of which became more disorderly revels and were suppressed as nuisances. The most celebrated London fair was Bartholomew (q.v.) fair.

Existing English livestock fairs are those for horses at Horncastle, Barnet, and Woodbridge; Weyhill for sheep, and Ipswich for lambs; Exeter for cattle and horses; and Carlisle and Ormskirk for cattle. Nottingham has a goose fair; Falkirk a fair, or tryst, for cattle, sheep, and horses; and Ballinasloe, co. Galway, one for cattle. Gloucester cheese fair is well known. In parts of England and Wales, and in Scotland, servants are engaged at the hiring, or statute, fairs.

On the continent of Europe, the great annual book fair at Leipzig is one of the best known. In America an industrial exhibition is called a fair, and this use has spread to Europe, where world fairs have been held in various large cities. See Exhibition.

FAIRBAIRN, ANDREW MARTIN (1838-1912). British theologian. Born near Edinburgh, Nov. 4, 1838, and educated at the university there and at Berlin, he became principal of Airedale Congregational College, Bradford, in 1877, and in 1889-1909 was principal of Mansfield College, Oxford. He was Muir Lecturer at Edinburgh, Gifford Lecturer at Aberdeen, and Lyman Beecher Lecturer at Yale. He published numerous books chiefly on the philosophy of religion. He died Feb. 9, 1912.

FAIRBANKS, DOUGLAS (b. 1883). American actor. Born at Denver, May 23, 1883, he was educated there and studied mining at the Colorado School of Mines. His first appearance on the New York stage was in 1901. Engagements at various New York theatres followed, and he toured the U.S. from 1908-10 in A Gentleman from Mississippi. About 1914 he took up cinema work, at which he made a great success. In 1920 he married the film actress Mary Pickford (q.v.).

FAIRFAX, THOMAS FAIRFAX, 3RD BARON (1612-71). English soldier. The son of the 2nd baron, Ferdinando (1584-1648), he was born at Denton, Yorkshire, Jan. 17, 1612, and educated at St. John's College, Cambridge. In



Thomas Fairfax, English soldier. From an engraving.

1644 he was made commander-in-chief of the parliamentary armies. He was one of the judges appointed to try Charles; but refused to sit, and in 1650 resigned as head of the army. In 1659 he helped Monk to place Charles II on the throne and was elected M.P. for Yorkshire. He died Nov. 12, 1671, at Nun Appleton, his Yorkshire seat.

Thomas Fairfax (1692-1782), the 6th baron, settled in Virginia, where his successors in the title also lived. The result was that this lapsed, but in 1912 it was revived for Albert Kirby Fairfax (b. 1870), who ranked as the 12th baron.

FAIRFORD. Village of Gloucestershire. It stands on the Coln, 25 m. W.S.W. of Oxford, and has a station on the G.W.R. Its 15th century church, built by John Tame, a London merchant, contains some of the most wonderful stained glass in the country. The 23 windows depict the story of the Creation and the work of Christ. Pop. 1,347.

FAIRING. In aeronautics, any streamline-shaped cover or casing, or any part so shaped that it provides a streamline form and lessens wind resistance. See Aeronautics.

FAIR ISLE OR **SHEEP ISLE.** One of the Shetland Is. It is 3 m. long and 2 m. broad, rises to 480 ft. in Sheep Craig on the E. coast, and has two lighthouses. Pop. 130.

FAIR TRADE. Term much used during the latter part of the 19th century by opponents of free trade, who demanded that the United Kingdom should only admit goods of other nations on reciprocal terms. See Free Trade; Safeguarding; Tariff Reform.

FAIR WAGES CLAUSE. A clause in agreements with any contractor undertaking work paid for from public money. It provides that he "shall pay his workmen the wages usually deemed fair in the district in the trade to which they belong, i.e. the trade union rate of wages, under a penalty of £— or under pain of forfeiting the contract at the option of the employer."

Fairway. Navigable part of a river or other channel. It is continually under supervision, as it must be kept free from obstruction.

FAIRY. Legendary or mythical being common to folklore. Fairies are manifested in varied forms; sometimes they are friendly, sometimes mischievous.

Since fairy originally meant enchantment, and then fairy people collectively, a single fairy is better called fay. The vivid green fairy rings in fields fancifully ascribed to fairies dancing in a circle at night, are caused by certain species of fungi—notably the fairy-ring champignon (Marasmius oreades). The term fairy stories is applied to all tales introducing earthly beings of an extra-natural character. See Brownie; Cinderella; Elf; Folklore; Gnome; Goblin; Puck; Sylph.

FAITHFULL, EMILY (1835-95). British publicist. Born at Headley Rectory, Surrey, daughter of Rev Ferdinand Faithfull, and educated at Kensington, she devoted the greater part of her life to advocating the claims of women to remunerative employment. In 1860, in Great Coram Street, London, she founded a printing-office in which women were employed as compositors. Later, in Farringdon Street, she formed the Victoria Press. In 1863 she started the Victoria Magazine. In 1868 she issued a novel, Change upon Change. Her lectures in the U.S.A., 1872-73, were described in her Three Visits to America, 1884. She died May 31, 1895.



Emily Faithfull, British publicist. Downey

FAITH HEALING. Cure of disease by faith in the healing power of God. Such cures are usually effected in functional and nervous complaints, not in cases of organic lesion; and medical science attributes them to the power of suggestion upon the minds of persons in a state of strong religious emotion.

FAITHORNE, WILLIAM (1616-91). English engraver. Made prisoner by the Roundheads in the Civil War, he pursued his art in Aldersgate prison. In 1650 he set up as a print-seller near Temple Bar, London, retiring in 1680. He died in Blackfriars May 13, 1691. Faithorne engraved portraits of most of the conspicuous figures of the Commonwealth and Restoration after Van Dyck, Lely, Dobson, and others.

FAKENHAM. Market town of Norfolk. It stands on the Wensum, 24 m. by rly. from King's Lynn. It has two stations, one on the L.N.E. and the other on the L.M.S. Rly. Pop. 2,966.

FAKIR (Arab faqir, beggar). Religious devotee, especially in India. The Mahomedans are orthodox members of the marrying dervish orders or unorthodox celibate mendicants. The Hindus include members of the monastic yogi orders devoted to education and poor relief, besides mendicant vagabonds



Fakir. 1. Undergoing the thirist ordeal; with the river and jars of water within reach, he abstains from drinking. 2. Lying on a bed of thorns

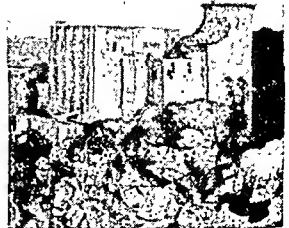
who practise jugglery and resort to mutilations and austerities.

Fal. River of Cornwall. It rises near Roche, flows for 23 m. to the English Channel at Falmouth, and is navigable for nearly 10 m.

FALABA. Town of Sierra Leone, W. Africa. It lies near the frontier of French Guinea, 170 m. N.E. of Freetown, at the junction of many trade routes. Pop. 6,000.

The Falaba, an Elder Dempster liner of 4,800 tons, was torpedoed by the German submarine U28 south of St. George's Channel, on March 23, 1915.

FALAISE. Town of France. It is 20 m. from Caen and is famous because William the Conqueror was born in its castle, of which there are some remains. There is a statue of William near the town hall. The church of S. Gervais has a fine Norman tower. This town is noted for its horse and cattle fairs. As part of Normandy, Falaise was long a possession of the English Kings. Pop. 6,856.



Falaise. The castle in which William the Conqueror was born

FALCON (Lat. *falex*, sickle). Name applied to the family of birds of prey which includes falcons, hawks, kites, and eagles; but more especially to a sub-family which includes the true falcons, the peregrine falcon and the kestrels. All these have short, curved beaks with one notch in the upper mandible, round nostrils, short pointed wings, and long toes. The peregrine falcon builds sparsely on cliffs



Falcon. Peregrine falcon, commonly trained for hawking

in the S. of England, and preys mainly on birds. Other falcons are occasional winter visitors. The birds take their name from the hook-shaped claws. See Hawking.

Falcon. Volcanic island of the Tonga or Friendly Islands. It made its appearance on Oct. 14, 1885, after a volcanic eruption.

FALCON, ORDER OF THE. Icelandic order. Established in 1921, when Iceland was separated from Denmark, it has four degrees: grand commander, commander of the star, commander, and knight. It is conferred by a committee of four.

FALDSTOOL. Portable folding stool used by bishops when occupying a seat in the sanctuary other than their throne. The term is applied to the small, low desk at which the Litany is enjoined to be sung or said, and to the stool at which a sovereign kneels at his coronation.



Faldstool or Litany desk of carved oak

Falernian. Famous wine of the ancient Romans. It was made from vines grown on the ager Falernus, part of a fertile plain in Campania.

FALIERO, MARINO (1279-1355). Doge of Venice. Member of an ancient Venetian family, he was elected doge in 1354. The unrest caused by the defeat of the Venetian navy by the Genoese aroused his ambition. He allied himself with the leaders of the populace, and a plot was hatched to murder the leaders of the nobility on April 15, 1355, and proclaim Marino prince of Venice. The Council of Ten discovered the plot, seized Faliero, who confessed his share in it and was executed April 17, 1355.

FALK, PAUL LUDWIG ADALBERT (1827-1900). German statesman. Appointed Prussian minister for ecclesiastical and educational affairs in 1872, he introduced a law declaring the right of the state to supervise all schools. The unpopularity of this law led to his resignation. He died July 7, 1900.

FALKENHAUSEN, LUDWIG VON (h. 1844). German soldier. Born Sept. 13, 1844, he entered the army in 1862 and took part in the campaigns of 1866 and 1870-71. In 1914 he was given a high command on the Western front. From April, 1917, until the peace of Nov., 1918, he was governor-general of Belgium.



Ludwig von Falkenhayn, German soldier

FALKENHAYN, ERICH VON (1861-1922) German soldier. He was born at Burg Belchau, Sept. 11, 1861, and entered the German army in 1880. In 1913 he became minister of war, and in Dec., 1914, chief of the general staff. From this post he was removed in Aug., 1916, owing to the failure of the German offensive at Verdun. In Sept., 1916, he was made commander-in-chief of the Ninth Army, and later unsuccessfully directed the Turkish operations against the British in Palestine and Mesopotamia, but was recalled in Mar., 1918. He died April 8, 1922. In 1919 he published *General Headquarters, 1914-16*, and its *Critical Decisions*, Eng. trans. 1919.



Erich von Falkenhayn, German soldier

FALKIRK. Burgh and market town of Stirlingshire. On the L.N.E. and L.M.S. Rlys., it is the centre of a busy ironworking and colliery district. A mining institute was opened here in 1930. Market days, Tues. and Thurs. Pop. 33,312.

The first battle of Falkirk was fought July 22, 1298, when the English under Edward I invaded Scotland to crush the rebellion of William Wallace. The Scots, mostly pikemen, were greatly outnumbered and beaten.

The second battle was fought between the English and the Jacobites, Jan. 17, 1746. Charles Edward's Highlanders swept away the English troops, and the English lost 700 prisoners.



Viscount Falkland, English royalist After Van Dyck

FALKLAND, LUCIUS CARY, 2ND VISCOUNT (c. 1609-43). English royalist. He was the son of Sir Henry Cary (d. 1633), a Devonshire man, who, after being lord deputy of Ireland, was made a Scottish peer as Lord Falkland in 1620. Lucius was never a bitter partisan, but, as the opposition to Charles hardened, he became more definitely on his side, and was killed at Newbury, Sept. 20, 1643, when riding alone towards the foe. He loved learning and the society of

scholars and wrote verses and philosophical tracts. Of him Clarendon said, "Whosoever leads such a life need not care upon how short warning it be taken from him."

Falkland is a small hugh in Fifeshire with a palace once a residence of the Scottish kings.

FALKLAND ISLANDS. British crown colony in the S. Atlantic. The chief islands are East Falkland (area 2,580 sq. m.) and West Falkland (2,038 sq. m.). The chief industries are sheep farming and whale fishing; horses and cattle are reared. The climate is bleak but healthy. The only indigenous mammals are the fox and mouse. Stanley, the capital, which is situated on E. Falkland, has a good harbour.

The Falklands were discovered by John Davis in 1592, and became British in 1832. Pop. 2,271.

THE BATTLE OF, 1914. Following the destruction of Cradock's cruisers at Coronel (q.v.) Lord Fisher sent the battle cruisers *Invincible* and *Inflexible* under Vice-Adm. Sturdee secretly from England on Nov. 11. They were joined off Brazil by three old armoured cruisers, two light cruisers, and two armed ships. They reached Port William on Dec. 7, and on the following day Von Spee's squadron, including the armoured cruisers *Scharnhorst* and *Gneisenau* and the light cruisers *Nürnberg* and *Leipzig*, was wiped out, while the cruiser *Dresden* was destroyed in Chilean waters on March 14, 1915. The Germans lost 2,100 men. The victory is commemorated by a memorial unveiled at Stanley, Feb. 26, 1927.

FALL, THE. In the Eden story Adam and Eve's wilful disobedience to God at the instigation of the serpent. From this theology has deduced the doctrine that all men are born in a state of sin. But the assumption that the human race started in a state of perfection is in conflict with the theory of evolution, and the account of the Fall in Genesis does not contain the doctrine, which is difficult to reconcile with a true conception of Divine justice and human responsibility. See Sin.

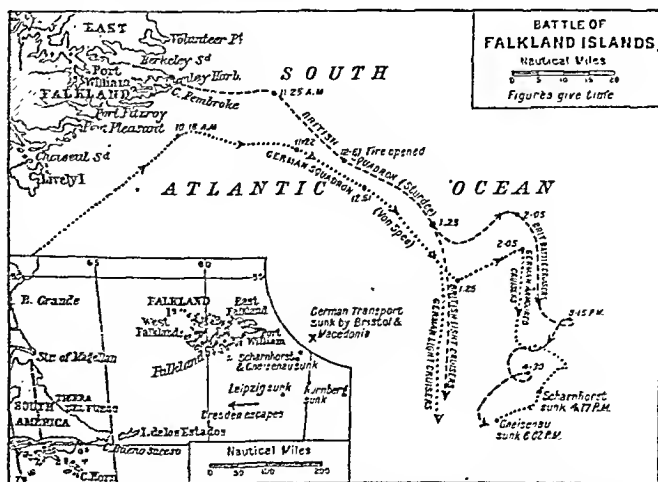
FALLACY (Lat. *fallax*, likely to deceive). Term meaning in general a mistaken belief or opinion; in logic, a process of reasoning at variance with the recognized rules. Fallacies may be verbal, material, formal. The commonest verbal fallacies arise from the use of ambiguous terms.

Among material fallacies are hegging the question or arguing in a circle, an attempt to prove or disprove something irrelevant to the question at issue. Formal fallacies consist in violating the rules of the syllogism. See Induction; Syllogism.



Armand Fallières, French statesman

FALLIÈRES, CLÉMENT ARMAND (h. 1841). French statesman. Born at Agen, Lot-et-Garonne, Nov. 6, 1841, he studied law in Paris, and became a barrister at Nérac, for which he was elected republican deputy, 1876. After holding various cabinet



Falkland Islands. Chart illustrating the course of the naval battle of Dec. 8, 1914. Inset, map showing the relative position of the Falkland Islands

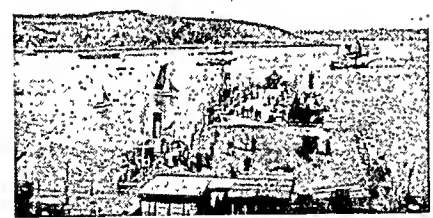
offices he was president of the republic Jan. 17, 1906, till Jan. 7, 1913. The chief event of his presidency was the cementing of the Franco-Russian Alliance. Pron. Falli-yare.

FALLOPIUS OR **FALLOPIO**, GABRIELLO (1523-62). Italian physician and anatomist. He discovered the functions of the two tubes, one on each side of the uterus or womb, which convey the ova or eggs from the ovary to the uterus. Born at Modena, he died at Padua Oct. 9, 1562. He published in 1561 his *Observationes Anatomicae* at Venice, where his *Opera Genuina Omnia* appeared in 1584.

FALLOW. Saxon word meaning reddish or buff-coloured, used to describe ploughed land without a crop. Before root-crops were known and artificial manures in use, land exhausted by the growth of crops was given a rest and said to be in bare fallow. In modern agriculture fallowing is replaced by the growth of root-crops or kale or rape, which do not interfere with cleaning operations, and allow of replenishment of plant-food by suitable manuring. See Agriculture.

FALLOW DEER. Small group of deer, characterised by having antlers round at the base and palmed above. They have small heads, rather large ears, and comparatively long tails, and usually stand about 3 ft. high. The hair is generally fawn colour, more or less dappled with white. This is the deer kept in the parks of Britain. See Deer.

FALL RIVER. City of Massachusetts, U.S.A., in Bristol co. It has a commodious barbour, is among the leading producers of cotton goods in the country, and manufactures calico, woollens, boots and shoes, hats, pianos, and machinery. There are also brass and iron foundries, and granite is largely worked in the neighbourhood. Abundant water-power is obtained from Fall River. Forming part of Freetown down to 1803, it was called Troy until 1834, and received a city charter in 1854. Pop. 128,993



Falmouth. Prince of Wales pier, opened in 1905, from which steamers start

FALMOUTH. Borough, seaport, and market town of Cornwall. It stands at the mouth of the Fal, 11½ m. by rly. s. of Truro, on a branch of the G.W.R. It is an important port of call, and has an excellent harbour and three deep dry docks with pneumatic plant, electric welding apparatus, and an oil depot. Shipbuilding and engineering, brewing and rope-making are prominent industries, and there is a considerable pilchard fishery. Its mild and equable climate and the scenery of the Fal valley make it a favourite watering place. Market day, Sat. Pop. 13,322.

The title of Viscount Falmouth has been borne by the family of Boscawen since 1720. The family is an old Cornish one, members of it having possessed Boscawen-Rose in the time of King John. Evelyn Hugh (b. 1887), the 8th viscount, succeeded to the title in 1918. The family seat is Tregothnan, Truro.

FALSE ACACIA (*Robinia pseudacacia*) OR **LOOUST TREE**. Tree of the order Leguminosae, native of N. America. It attains a height of 60 ft. to 80 ft. Its long, narrow leaves are broken up into 5-12 pairs of oval leaflets. The fragrant white flowers are produced in long, pendant sprays, like those of the laburnum. The seed-pods, too, are like those of laburnum, but dark red in colour.

FALSE PRETENCES. Term used in English law. It is a misdemeanour at common law to obtain or attempt to obtain money or property by false pretences with intent to defraud. The pretence may be made otherwise than by words. False pretences must be distinguished from larceny by trick. Falsification, as that of accounts, is punishable by penal servitude. See Forgery; Larceny.

FALSETTO (Ital.). Term applied to a kind of high voice of men, who disregard the natural pitch of speaking and singing in order to cultivate extreme high notes and sing an alto part. See Tenor; Voice.

FALSTER. Island of Denmark. It lies to the S. of Zealand. Stock-raising, dairy farming, and agriculture are the principal occupations. Sugar beet and fruit are the chief crops. The largest towns are Nykjöbing and Stubbekjöbing, connected by rly. Area 133 sq. in. Pop. 51,392.

FAMILIAR (Lat. *familiaris*). In the Roman Catholic Church, a person who belongs to the household of a pope or bishop. The council of Trent decreed that a familiar could not be ordained by his bishop unless he belonged to the same diocese and had lived with him three years. Familiars of the Holy Office were officials of the Inquisition. The name is explained by reference to their admission to the confidence of the Holy Office as members of the family. See Inquisition.

Familiar was also the term applied to the spirit supposed to be in the service of necromancers and witches. See Demonology.

FAMILY (Lat. *familia*). Group comprising father and mother, with their offspring and relations. The first modern attempt to elucidate the origin of family life was Maine's patriarchal theory (1861) that the primitive father possessed uncontrolled power over his household. This view was supported by Darwin (1871) and Westermarck (1891).

A movement for the payment of wages according to the number in family has won much support since the Great War in England, France, Germany, Belgium, and other European countries. It has been put into operation in one or two directions, for instance, in the public services of Australia.

In zoological classification the term family is used for a group of genera



False Acacia. Flower of the Locust tree of N. America

Bourbon kings of France and Spain for the maintenance of an alliance between them. The first was signed on Nov. 7, 1733, directed against Austria; this alliance was renewed in Oct., 1743. The third was made in 1761, when the Seven Years' War was raging.

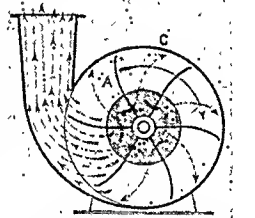
FAMINE (Lat. *fames*, hunger). Period of want or scarcity of food supplies. Its chief primary cause is deficiency of rainfall, but floods, frosts, storms, visitations of insects or other pests, inadequate agricultural methods, ill-directed labour, deficient transport, and the

ravages of war are contributory causes. Neglect in the storage of food frequently brings famine among primitive peoples, but it is sometimes to be accounted for by wholesale deforestation, which gives rise to local conditions of drought, and the dependence of a race upon one kind of food, as maize in S. America, rice in China, or the potato in Ireland. See Black Death.

FAN (Lat. *vannus*). Implement for agitating the air, especially used for cooling the face. Fans have been used from the earliest ages in hot countries, especially on ceremonial occasions. The folding fan, a Japanese invention, was adopted in Europe toward the end of the 16th century. Fan painting became an art in the middle of the 17th century, Antoine Watteau and François Boucher in France and Charles Conder in England being among those who have practised the art.

The Fanmakers' Company of London was incorporated in 1709. It is one of the City livery companies.

FAN. A revolving wheel to remove air or gas for ventilation or industrial purposes. To an axle, usually horizontal, is attached a series of vanes or blades, which may be flat or curved, the whole being enclosed in a casing of volute shape having a central opening for admission of the air or gas, and an opening in the circumference for its delivery.



Fan. Diagram of centrifugal ventilating fan. A, fan wheel; B, air inlet; C, casing; arrows indicate course of air

FANFARE (Fr.) OR **FLOURISH**. Properly, a short passage for trumpets in unison, performed on state occasions. Some composers have used fanfares in opera.

FANG. In poisonous snakes teeth by which the venom is conveyed into the wound caused by the bite. In the viper tribe the fangs are channelled.

FANNING. Coral island in the Pacific Ocean, due S. of Hawaii. Administratively it is annexed to the Gilbert and Ellise Islands Colony. It is a station of the submarine cable between Australia and Vancouver. Its area is 15 sq. m. Pop. 150.

FAN PALM (*Livistona*). Genus of trees of the natural order Palmae. They have large, fan-shaped, plaited leaves, and are natives of



Fan Palm. Foliage of *Livistona chinensis*, from S. China

FANSHAWE, SIR RICHARD (1608-66) English diplomatist and writer. Born at Ware Park, Hertfordshire, he became secretary to the prince of Wales, and in 1648 was made treasurer of the navy. He was created a baronet in 1650. After the Restoration he sat in Parliament for Cambridge University, and undertook various missions to Spain and Portugal. He translated the *Lusiad* of Camoens, 1655, and died at Madrid, June 26, 1666.

FAN TAN. Chinese gambling game. The implements are a bowl full of beans or counters and an oblong card, the corners of which are numbered from 1 to 4. Bets made upon these corners are decided by the hanker taking a handful of beans or counters and dividing them into fours: the number of odd pieces over deciding the win. If there is no remainder, No. 4 wins.

FANTASIA (Ital.). Musical composition in which strict form is not exacted, and everything is left to the "phantasy" of the composer. Examples are the naïve contrapuntal string trios of Orlando Gibbons (early 17th cent.), the monumental organ fantasias of J. S. Bach (early 18th cent.), and much worthless pianoforte music of the 19th century.

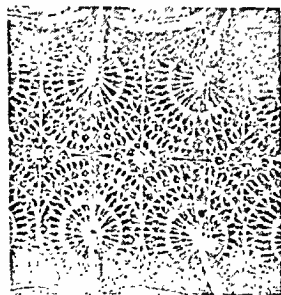
FANTI (cabbage-eaters). Negro people in the Gold Coast colony, W. Africa. They are allied to the Ashantis, and their number is estimated at 1,000,000. They are of medium stature, and live in small village communities and on the coast. Their tribal scars are three lines on each side of the jawbone. Their Tshi dialect is the dominant speech round Cape Coast Castle. They were formerly cannibals. See Ashanti.

FANTIN-LATOURE, IGNACE HENRI JEAN THÉODORE (1836-1904). French painter. Born at Grenoble, Jan. 14, 1836, son of the painter Théodore Fantin-Latour, he studied under Boissaudran and at the Beaux-Arts. He began to exhibit at the Salon in 1861, and obtained his first award in 1876. At first an unsurpassed painter of flowers, he achieved a striking triumph with a portrait of Manet: an even higher achievement is the portrait of Mr. and Mrs. Edwin Edwards in the National Gallery, London. He died at Bure, Orne, Aug. 28, 1904.



Fantin-Latour, French painter. Self-portrait in *Offizi Gallery, Florence*

FAN TRACERY. Form of ornament in Perpendicular Gothic architecture. In it the tracery of a vault is created by springing the stone ribs from their various points of support in such fashion that the effect is that of a spreading fan. There are fine examples in Henry VII's Chapel, Westminster Abbey, and also at St. Stephen's Cloister, Westminster Hall. See Gothic Architecture.



Fan Tracery seen in the vaulting of Henry VII's Chapel, Westminster Abbey

FAO. Village of Iraq. It lies on the right bank of the Shatt al Arab, about 3 m. from the Persian Gulf. It was captured by the British, Nov. 7, 1914, and retained as a sort of naval base. Pop. 600.

FARAD. Unit of electrical capacity of an electrical conductor. A capacity of one farad is that which would be raised to a difference of

pressure of one volt by a charge of one coulomb. For practical purposes the farad is too large, and a smaller unit—the microfarad, one millionth of a farad, is employed. See Capacity.

FARADAY, MICHAEL (1791-1867) British chemist and physicist. The son of a blacksmith, he was born at Newington Butts, London, Sept. 22, 1791, and in 1813 became assistant to Sir Humphry Davy at the Royal Institution. His many discoveries in chlorine combination, liquefaction of gases, optical glass, electricity, and magnetism were incorporated in invaluable lectures and treatises. He laid the foundation of electrical science as it is known to-day. He died at Hampton Court, Aug. 25, 1867. The Faraday Society was founded in his honour in 1903.

Faraday's Law is the discovery by Faraday that an electrical current may be measured in terms of the quantity of an electrolyte which it decomposes.

Faradism is a term for the use of an interrupted current of electricity in medicine. See Electricity; Magnetism.

FARCE (Fr. from Lat. *farciare*, to stuff). Dramatic piece of an essentially ridiculous character to which extravagant language, caricature, and ludicrous situations may all contribute. The word originally meant an interpolation, like an actor's gag, hence a performance in which jests and humorous incidents predominated.

Farcy (Lat. *farcinum*). Disease affecting horses. It is a form of glanders (q.v.), and must be notified to the local authorities.

FAREHAM. Market town, seaport, and urb. dist. of Hampshire. It stands on a creek off Portsmouth harbour, and is a junction on the Southern Rly. The chief building is S. Mary's Church. There is trade in corn and coal. In medieval times Fareham was a prosperous port, but now it can only be reached by small vessels. Market day, Mon. Pop. 10,066.

Farwell. Cape of Greenland, on a small island off the coast, with an alt. of 1,000 ft. It is dangerous for navigators.

FARINA (Lat. meal). Starchy preparation used for food or in the industrial arts. The food-products of cereal grains and pulses, starchy stems, roots, and tubers, are farinaceous. In N. America farina is white granular maize meal, used for puddings, and in S. America starchy breadstuffs with fibrous admixture derived from cassava.

The farina used for sizing cotton textiles is principally potato starch, and is the chief source of British gum or dextrin. Fossil farina or rock-meal is a white, crumbly form of calcium carbonate.

FARINELLI (1705-82). Professional name of the Italian soprano singer Carlo Broschi. Born at Naples, Jan. 24, 1705, Broschi was a pupil of Porpora, in whose opera, *Enmene*, he made a famous first appearance in 1722. In 1736 he went to Madrid and became a favourite of Philip V. There he remained for 25 years. Farinelli died at Bologna, July 15, 1782.

FARINGDON. Market town of Berkshire, known also as Great Faringdon. A station on the G.W. Rly., it is 17 m. S.W. of Oxford. All Saints' Church is a large building with brasses and other memorials. Faringdon has a trade



Michael Faraday, British physicist

in corn, cattle, etc. Market day, first Tues. Pop. 2,758.

FARINGDON, ALEXANDER HENDERSON, 1ST BARON (b. 1850). British business man and politician. A son of George Henderson of Langholm, Dumfries, he was born in London, Sept. 28, 1850. He became a stockbroker, and in 1894 chairman of the Great Central Rly. He was Unionist M.P. for West Stafford, 1888-1906; and 1913-16 for St. George's, Hanover Square. In 1902 he was made a baronet and in 1916 a baron.

FARINGTON, JOSEPH (1747-1821). British artist. A prominent R.A., he is chiefly noted for his voluminous diaries, acquired by *The Morning Post* early in 1922, and, as edited by James Greig, first published serially in that journal.

FARM (late Lat. *firma*, a tribute). An agricultural estate; land used for raising crops, dairy and garden produce, etc. Pastoral farms, such as those in the west of England, are almost wholly utilised for the breeding of horses, cattle, and sheep. The dairy farm is for the production of milk, cheese, and butter, where the by-products are utilised in calf-rearing and pig-feeding. The upland farms of southern England, e.g. Hampshire, are almost entirely restricted to the breeding and fattening of the heavy breeds of sheep. There are few farms in England where large areas of corn are grown without the assistance of sheep as a means of manuring and consolidating light and shallow soils.

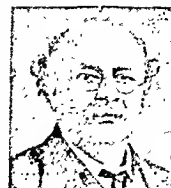
A typical mixed farm of not more than 400 acres would appear to be as much as one man can manage, especially in view of the amount of detail in modern intensive farming. The planning and erection of modern farm buildings requires as much expert advice as the erection of dwelling-houses or factories. The aspect most favoured is S. or S.E.; to facilitate drainage the buildings should be erected on rising ground. See Experiment.

FARMAN. Name of aeroplanes built by the brothers Henry and Maurice Farman. The son of an English journalist, Henry (b. 1875) was born in France and began his career as a bicycle racer, then manufactured bicycles and motor cars. He took up aeronautics in 1907, and developed and perfected an aeroplane known by his name, making his first trials at Issy-les-Moulineaux, Nov., 1907-Jan., 1908. He was the first aviator to fly from town to town (Châlons-Reims, 1908) and to fly 100 miles (Reims, 1909). He established in 1908 a school of aviation and works at Bue, near Versailles, France.

Maurice Farman established aviation works a little later, and in 1912 the two combined their resources, erecting a factory at Billancourt. Various types of their machines rendered useful service in the Great War. See Aeronautics; Aeroplane; Flight.

FARM COLONY. Name given to a settlement of persons on the land to cultivate it. General Booth established one at Hadleigh, Essex, in 1891, for the unemployed. The first farm colony for ex-soldiers was established in 1916 at Holderness, in E. Yorkshire; and one was founded at Lasswade, near Edinburgh, by Sir Robert Philip in 1910. The Small Holdings (Colonies) Act, 1916, arranged for the settlement of ex-service men at Holbeach, Patrington, and elsewhere.

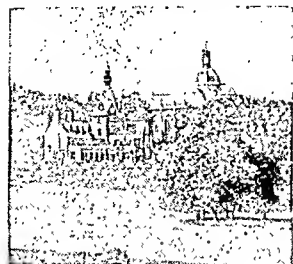
FARMER, JOHN (1835-1901). British musician. Born at Nottingham, Aug. 16, 1835, he studied music at Leipzig and Coburg, and afterwards taught it at Zürich. In 1862 he settled at Harrow, and in 1864 was made



John Farmer, British musician. Elliott & Fry

music master at the school. From 1885 until his death he was organist of Balliol College, Oxford. He died July 17, 1901.

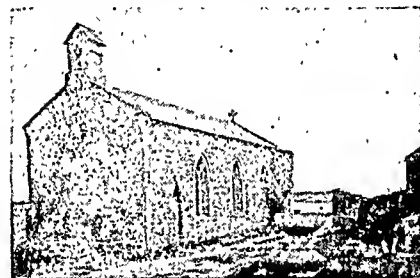
FARNBOROUGH. Urban dist. and parish of Hampshire. It is 33 m. S.W. of London, on the Southern Railway. A mausoleum



Farnborough. Mausoleum in which Napoleon III, the Empress Eugénie, and the Prince Imperial are buried 1881-1920.

On Farnborough Common is the Royal Aircraft Factory. Here, too, is a large aerodrome. Pop. 15,720.

Another Farnborough is a village in Kent, 4 m. S.E. of Bromley, and there are Farnboroughs in Berkshire and Warwickshire.



Farne. S. Cuthbert's church, Inner Farne, on the site of the hermitage where the saint died in 687
Valentine

FARNE, FEARNE, OR FERN ISLANDS, OR THE STAPLES. Group of seventeen rocky islets and rocks off the coast of Northumberland. Farne or House, the largest (16 acres), was the retreat of S. Cuthbert (q.v.) in the 7th century, and Longstone with its lighthouse is famous for its association with Grace Darling (q.v.).

FARNESE. Name of the Italian ducal family of Parma. They became prominent by the election as Pope Paul III of Alessandro Farnese, 1534. In 1545 Pope Paul gave the duchy of Parma to his natural son Pierluigi (1503-47), whose son Alessandro (1520-89) completed the Farnese Palace in Rome, one of the finest examples of later Renaissance architecture. The third duke Alessandro (1596-1642) was a famous soldier in the Spanish service.

Elizabeth Farnese (1692-1766) married in 1714 Philip V of Spain. The direct Farnese succession ended with Antonio (1679-1731) when the Farnese Palace passed to the king of Naples.

FARNHAM. Market town and urban district of Surrey. On the Wey, 38 m. S.W. of London, on the Southern Rly., it is the centre of an important hop district. The castle, till 1926 the seat of the bishops of Winchester and now used as a church house, dates mainly from the 17th century. The park was bought for the town. Near are Moor Park, the residence of Sir W. Temple, where for a time Swift lived, and the ruins of Waverley Abbey. Cobbett's birthplace is now an inn, The Jolly Farmer. Market day, Mon. Pop. 18,000.

FARNOL, JOHN JEFFERY (b. 1878). British novelist. Born Feb. 10, 1878, he went in 1902 to America, where he painted theatrical

scenery, and published his first volume, *My Lady Caprice*, 1907 (reissued as *Chronicles of the Imp*). In 1910 he returned to England, and by the publication of *The Broad Highway* achieved popularity as a writer of healthy romance. Later stories included *The Money Moon*, 1911; *The Amateur Gentleman*, 1913; *Beltane the Smith*, 1915; *Our Admirable Betty*, 1918; *Black Bart's Treasure*, 1920; *Sir John Dering*, 1923; *The Loring Mystery*, 1925; *The Quest of Youth*, 1927; and *The Shadow*, 1929. He wrote *Some War Impressions*, 1918.

FARNWORTH. Urban district of Lancashire. It is 3 m. S.E. of Bolton, on the L.M.S. Rly. It has cotton spinning mills, engineering works, machinery shops, and brick and tile works, while around are coal mines. Market day, Mon. Pop. 27,894.

FARO. Gambling card game. A full pack of 52 cards is put into a dealing box with an open top, one card being released at a time. The first card in sight at the beginning of each deal is called soda and the last card left in the box is in boc. The dealer or banker withdraws soda and places it some distance away; the next card, termed the loser, he lays by the side of the box. The third card taken out is the winner, which he places on the soda; thus, each alternate card is a winner or loser, eventually forming two separate piles, with soda and loser for foundation. The object of the players is to forecast correctly which particular card of any suit will win or lose.

FAROEES OR FAEROES (Dan. Færøerne, sheep island). Group of 21 islands in the N. Atlantic, belonging to Denmark. They lie about 195 m. N.W. of the Shetlands, and are hilly with lofty cliffs and deep fiords. The rainfall is heavy, and the climate mild. The chief industries are sheep raising, cattle-breeding, wild-fowling, whaling and fishing. The largest island is Strömø, which contains the capital, Thorshavn.

Colonised by the Norwegians in the 9th century, the islands became a Danish possession in 1380. The people have a local parliament and are represented in the Danish parliament. The area is 540 sq. m. Pop. 22,835.

FARQUHAR, GEORGE (1678-1707). English dramatist. Born in Londonderry, and educated at Trinity College, Dublin, he started



George Farquhar, English dramatist

Lady Bountiful and Boniface, the innkeeper, have passed into the language as types. The Recruiting Officer, 1706, contains the well-known song *Over the Hills and Far Away*.

FARRAGUT, DAVID GLASGOW (1801-70). American sailor. Born July 5, 1801, he entered the navy, and is specially remembered for his brilliant capture of New Orleans and his defeat of Buchanan at Mobile during the Civil War. Died Aug. 14, 1870.



Jeffery Farrar, British novelist Elliott & Fry

FARRAR, FREDERIC WILLIAM (1831-1903). British divine and writer. Born in Bombay, Aug. 7, 1831, he was educated at London University and Trinity College, Cambridge, and became in 1855 an assistant master at Harrow. He was headmaster of Marlborough College 1871-76, when he became canon of Westminster and rector of S. Margaret's. He was made dean of Canterbury in 1895, and he died March 22, 1903.

Farrar's Life of Christ, 1874, enjoyed a remarkable success, and he also wrote popular, if somewhat sentimental, books for boys, of which *Eric*, or *Little by Little*, was one.



F. W. Farrar, British divine Elliott & Fry



Elizabeth Farren, British actress After Sir T. Lawrence

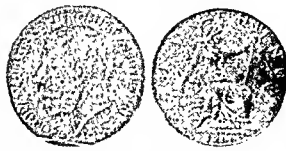
Farren married the actress Helena Faucit, and their two sons, William (1825-1908) and Henry (1826-60), were both actors. Henry was the father of Ellen or Nellie Farren (1848-1904), who was so successful in boys' parts in the burlesque at the old Gaiety. She retired from the stage in 1892.

FARREN, WILLIAM (1786-1861). British actor. He made his debut on the London stage, Sept. 10, 1818, as Sir Peter Teazle at Covent Garden, and took leave of the public at The Haymarket, July 10, 1855, in his favourite part of Lord Ogleby in *The Clandestine Marriage*. He died in London, Sept. 24, 1861. As the old man of 18th century comedy he was unrivalled.

Farren married the actress Helena Faucit, and their two sons, William (1825-1908) and Henry (1826-60), were both actors. Henry was the father of Ellen or Nellie Farren (1848-1904), who was so successful in boys' parts in the burlesque at the old Gaiety. She retired from the stage in 1892.

FARROW'S BANK. Former British bank. Founded in 1904 by Thomas Farrow, it had in 1907 a capital of £1,000,000 and 75 branches. In 1920 it failed and in 1921 Farrow was sentenced to imprisonment for frauds.

FARTHING (A.S. feorþa, fourth). Name of the smallest British bronze coin, value one quarter of a penny. It became a bronze coin in 1860, has a standard weight of 43.750 grains, and is legal tender to the number of four at one time. See Coinage.



Farthing. Obverse and reverse of George V farthing

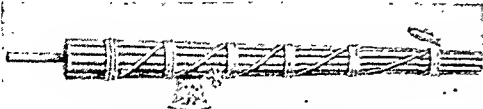
FARTHINGALE (Span. verdugado, hooped). Hooped framework supporting and extending a wide skirt. The fashion was introduced from Spain into England in the time of Elizabeth, and continued until about the middle of the 17th century. The fardingale, as it was then called, was revived in rather a different form in the time of Queen Anne. Abolished in George IV's reign, it reappeared later as the crinoline.



David G. Farragut, American sailor

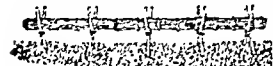
FASCES (Lat. bundles). Bundles of rods with an axe bound up in the middle. They were symbols of higher magisterial authority in ancient Rome.

FASCINE (Lat. fascina, lagot). Name for a long fagot of thin boughs or brushwood, tightly packed and securely bound, used in military engineering.



Fascine. Roman symbol of magisterial authority

A cradle of trestles is arranged at a uniform height, the lengths of brushwood are placed thereon and tightly packed by means of a choker, which consists of a length of chain, the two ends of which are secured to stakes. After being compressed the fascine is secured by withes.



Fascine. A fagot of brushwood on its cradle of trestles

FASCISTI, THE (Lat. fascia, bundle). Movement started in Italy in 1919. Its leader was Benito Mussolini, then a journalist, and its place of origin Milan. Its rise was due to the discontent of those who had fought in the Great War with the Government policy and economic and social conditions in general, to which was soon added the desire to combat the activities of the communists. Fascism soon dropped its early republican ideas and became national and patriotic.

At the election of 1920 Fascist candidates failed everywhere to secure election to the Chamber of Deputies, but they were more successful in obtaining representation on the town councils. More decisive, however, was the formation of a military organization which openly challenged the communists and must share the responsibility for riots in Bologna (Nov., 1920) and several other places; indeed for a time there was something like civil war.

In May, 1921, another general election was held, and 38 Fascists were returned to the Chamber. Now a political party, its members held a congress in Rome and adopted a programme. In Oct., 1922, after another congress at Naples, occurred the march of 200,000 Fascists on Rome, the result of which was that the existing government was overturned and Mussolini was appointed premier, or, more correctly, dictator. In April, 1924, having altered the electoral law, he secured a majority in the Chamber, and since then the history of Fascism has been the history of Italy.

The uniform of the movement is a black shirt. There is a Society of British Fascists at 99, Buckingham Palace Road, S.W.1. See Italy; Mussolini, B.

FASHODA, now KODOK. Town of the Anglo-Egyptian Sudan. It is on the W. bank of the White Nile, 470 m. S. of Khartoum.

On Sept. 7, 1898, a small French expedition under Major (afterwards General) Marchand occupied Fashoda, which since 1895 had been declared within the sphere of British influence. Sir Herbert Kitchener, then sirdar, went to Fashoda and asked Marchand to withdraw. The French officer refused, but on Nov. 5 his government ordered him to retire. By an agreement of March 21, 1899, France undertook to withdraw from the Nile valley, and a new boundary was outlined.

FASTING (A.S. faestan, to hold fast, observe). Total or partial abstinence from all or special kinds of food and drink for religious or other reasons. The Church of England makes no distinction between fasting and abstinence, and leaves the manner of fasting or abstinence to the individual. In the Roman Catholic Church all baptized persons who have completed their 21st year are

bound to observe the days of fasting, on which they may not eat more than one full meal, this meal to be without flesh meat and to be eaten after midday.

In the Eastern Church 226 days in the year are set apart for fasting; and it is an important religious duty and observance among the Hindus and Mahomedans.

FASTNET. Rock off the S.W. coast of Cork, Irish Free State. There is a lighthouse on the rock, erected in 1907 to replace one built in 1854. Its light can be seen for 18 miles.

FAT. Chief constituent of fatty or adipose tissue in the body. Chemically, fat consists of carbon, oxygen, and hydrogen, and its function in the animal economy is to provide a reserve of combustible material which is drawn upon to maintain the heat of the body.

FATA MORGANA. Form of mirage seen in the straits of Messina between Sicily and Calabria. The name is due to the fact that it was supposed to be the work of a fata or fairy named Morgana. The term is in general use to describe a mirage (q.v.).

FATES. In classical mythology, the three-goddesses who presided over the destinies of men. By the Greeks they were called Moirai, by the Romans Parcae. Clotho, the youngest, hold the distaff which spun the thread of life; Lachesis mixed good and evil fortune with it; Atropos cut the thread at the allotted moment. In art the Fates are generally represented as aged women, but sometimes as maidens of grave mien: Clotho with a distaff or book of fate; Lachesis pointing with a staff to a globe; Atropos with a pair of scissors or a pair of scales.

FATHERHOOD. Theological term for one aspect of the relationship of God to the universe generally and to man particularly. In Christian theology the term father is applied to the First Person of the Trinity, both as expressing a special relationship to the Son and an attitude as Creator, sustainer and benefactor of the human race. See Trinity.

The Fathers of the Church are the early Christian writers pre-eminent for learning and sanctity whose works are regarded as having authority next after that of the Bible.

FATHOM. Nautical measure 6 ft. in length. Cables, etc., are measured by the fathom, and lead lines are marked off in fathom spaces.

FATIGUE. Condition produced by prolonged or excessive muscular activity. It is due partly to consumption of energy-producing materials and partly to the accumulation in the tissues of the waste products formed during these efforts which leads to exhaustion of the central nervous system. The scientific study of fatigue in workers has received a great impetus in recent years.

In metallurgy it has been shown that a continued vibratory stress, even well within the limits of elasticity of a metal, will in time "fatigue" it and cause a rearrangement of the molecules, a crystallisation in fact, or a change in the original crystalline structure, which will result in fracture; or a microscopical flaw may by such stressing be developed into a plane of rupture. See Steel.

In military parlance fatigue embraces work performed by soldiers in connexion with the administration of the troops, but not personal service for officers.

FATIMA (c. 606-632). Daughter of Mahomet by his first wife Kadijah. She bore her husband Ali three sons, Al-Hassan, Al-

Hussein, and Al-Muhsin. From the first two are descended the Fatimate caliphs of N. Africa and Syria.

Another Fatima was the heroine of Perrault's story of Bluebeard (q.v.). The name also occurs as that of an enchantress in the Arabian Nights story of Sindbad the Sailor.

FATSHAN. City of China, in the prov. of Kwang-tung. It lies in the Si-Kiang and Pe-Kiang delta, 7 m. S.W. of Canton. It has iron and steel industries and a trade in cereals, oil, and timber. Pop. est. 500,000.

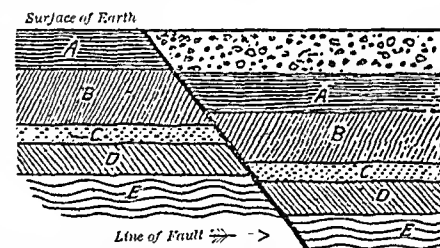
FAUCIT, HELENA SAVILE (1820-98). A British actress. She made her first London appearance at Covent Garden, Jan. 5, 1836, as Julia in Sheridan Knowles's *The Hunchback*, and achieved conspicuous success as Juliet, Portia, Constance, Desdemona Imogen, and Hermione. In 1851 she married Sir Theodore Martin, who wrote her *Life*, 1900. She died Oct. 31, 1898.



Helena Faucit, British actress

FAULDHOUSE. Town of Linlithgowshire. It is 7 m. S.W. of West Calder, on the L.M.S. and L.N.E. Ryds. Coal and ironstone are worked, and there is a paraffin industry. Pop. 4,889.

FAULT. In geology, a dislocation of rockbeds due to movements of the earth's crust. Three main types are recognized: normal, reversed, and transcurrent. In normal faults the displacement is more or less inclined, rarely vertical. Reversed faulting is usually



Fault. Diagram illustrating a fault in the earth's surface. The relative positions of the letters A, B, C, etc., show the extent of dislocation.

associated with highly inclined or folded strata, and may lead to development of overthrusts. With transcurrent faulting the movement has been in an horizontal direction, and there are

neither upthrows nor downthrows. Friction is set up along the planes of all faults, and results in the crushing and polishing of the opposite rock surfaces.

FAUN (Lat. favere, to favour). In Roman mythology, originally an Italian nature god. He was the patron of agriculture and (as Lupercus) of flocks and herds. The festival of Lupercalia (Feb. 15) was celebrated in his honour. In art he is sometimes represented as a bearded man, with goatskin cape and bearing a club and a horn.



Faun. The Dancing Faun, a statuette from Pompeii, Naples Museum

FAUNA. Term used by naturalists for the collective animal life of any special locality or period, just as flora is used for the plant life growing naturally in any country or district. See Animal.

FAURE, FRANÇOIS FÉLIX (1841-99). French statesman. Born in Paris, Jan. 30, 1841, he made a fortune as a shipowner in Havre. He fought as a volunteer officer in the war of 1870-71, and entered the chamber as republican deputy for Havre in 1881. He was elected president Jan. 15, 1895. An unsuccessful attempt on his life was made, July 14, 1896. The chief events marking his tenure of office were the visit of the tsar of Russia and the negotiations for a Franco-Russian alliance, 1896, and the opening stages of the Dreyfus affair. Faure died suddenly, Feb. 16, 1899.

FAUST. German scholar of the 16th century, whose name has become the centre of a great body of legend and poetry in European literatures. Marlowe's drama, 1604, is the first appearance of the story in serious literary form in England. In Goethe's Faust, the greatest version of all, Faust, inspired by a fierce desire for knowledge and pleasure, sells himself to Mephistopheles; but ultimately decides that only a life of useful activity can satisfy the soul, and is thus saved from perdition.

Faust has been used as the basis for operas by Spohr, 1818, Berlioz, 1846, and Gounod, 1859; and for a tragedy by W. G. Wills, produced by Irving at the Lyceum, London. Dec. 19, 1885. Pron. Fowst. See Goethe.

FAUSTINA (d. A.D. 141). Wife of the Roman emperor Antoninus Pius. His daughter of the same name (d. A.D. 175) married Marcus Aurelius, successor of Antoninus. Mother and daughter were noted for their profligacy, yet their memory was held in honour after their death by their husbands, who founded institutions for the educating of orphan girls called after them Faustianae.



Faustina, wife of Antoninus Pius
Bust in Naples Museum

FAVERSHAM. Borough and market town of Kent. It stands on a branch of the Swale, 9½ m. N.W. of Canterbury, on the Southern Rly. In 1147 Stephen and Matilda founded here a Clunia abbey. The cruciform church of S. Mary of Charity contains some superb brasses. Faversham has a trade in fruit, hops, and agricultural produce, and an oyster industry. Market day, alternates Tues. Pop. 10,870.

Favonius. In Roman mythology, the name of the W. or S.W. wind which blew in spring, identified with the Greek Zephyrus.

FAVRE, JULES CLAUDE GABRIEL (1809-80). French statesman. Born at Lyons, March 21, 1809, he entered the legal profession, and, an ardent republican, was elected deputy for Lyons to the constituent assembly, 1848. In the government of national defence, 1870, Favre was foreign minister and vice-president, but mismanaged the armistice negotiations, Jan. 28, 1871, and as foreign minister under Thiers, 1871, was easily out-manoeuvred by Bismarck. The treaty of Frankfurt brought about his resignation, July 23, 1871. He was elected to the senate in 1876, and died Jan. 20, 1880.

FAVUS (Lat. honeycomb). Disease caused by a parasite fungus, the *Achorion Schoenleinii*, which most frequently attacks the scalp, but may affect any part of the skin. Favus is common in Eastern Europe and Asia, but is rare in Great Britain. The contagion may be derived from rabbits, dogs, fowls, and other animals. Exposure of the patch to X-rays, followed by vigorous treatment with antiseptics, gives the best results.

FAWCETT, HENRY (1833-84). British politician and economist. Born at Salisbury, Aug. 26, 1833, he graduated at Cambridge in 1856, distinguishing himself in mathematics.

He was accidentally blinded at a shooting party in 1857, but, taking up his fellowship at Trinity Hall, devoted his time to the study of political economy, of which he became professor in 1863. M.P. in turn for Brighton and Hackney, he was made postmaster-general in 1880 and introduced many reforms. Fawcett died at Cambridge, Nov. 6, 1884.

FAWCETT, DAME MILLICENT GARRETT (1847-1929). British writer and leading advocate of women's suffrage. Born June 11, 1847, she was the daughter of Newson Garrett and sister of Mrs Garrett Anderson. In 1867 she married Henry Fawcett. Her *Political Economy for Beginners*, 1870, and *Tales in Political Economy*, 1875, had great popularity. She received the G.B.E. in 1925, and died Aug. 5, 1929. Her daughter, Philippa, was senior wrangler in fact (though not in name) in 1890.



Millicent G. Fawcett,
British feminist
Elliott & Fry

FAWKES, GUY (1570-1606). English conspirator. Born at York, April 16, 1570, he served for some years in the Spanish armies in Flanders. When a small group of Roman Catholic zealots, finding they had nothing to hope for from James I, formed a plot to blow up king, ministers, and parliament, Fawkes was entrusted with its execution on Nov. 5, 1605. But a warning was conveyed by one of the conspirators (Francis Tresham) to Lord Montague. On the night of Nov. 4 Fawkes was arrested at his post and seized after a desperate struggle. With the surviving conspirators he was executed Jan. 31, 1606. See Gunpowder Plot.

FAYOLLE, MARIE ÉMILE (1852-1928). French soldier. Born at Le Puy, Loire, May 14, 1852, he entered the French army as a lieutenant of artillery in 1877, and became general 1910. In the Great War he commanded the 139th brigade, the 33rd army corps, the French Sixth and First Armies in the battle of the Somme, 1916, and the Army of the Centre. In 1919 he commanded the French Army of Occupation in Germany, and in 1920 was made French military representative on the armaments commission of the League of Nations. He died Aug. 27, 1928.

FAYUM or **EL FAIYUM** (Coptic, lakeland). Prov. of Upper Egypt. It is fertile and well irrigated. In it are Lake Moeris (Birket Qarun) and the town of Medinet-el-Faiyum. The chief products are rice, cotton, flax, hemp, figs, olives, and oranges. The prov. abounds in ancient remains, its sites having been dug by Flinders Petrie mainly between 1888-90. Area, 669 sq. m. Pop. 552,581.

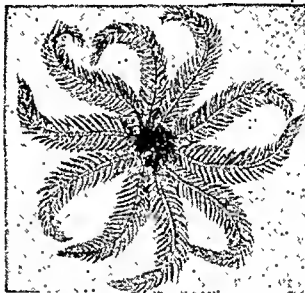
FEAST. Term applied to days on which notable events in Church history, giving occasion for solemn joy, are commemorated. From this has developed its use for occasions of rejoicing in public or private: for public dinners, e.g. mayoral or civic feasts, etc. See Festival.

FEATHER. Outgrowth from the skin in birds, forming an external protective covering. Feathers are of a horny character, and are

composed structurally of an axis and a large number of barbs. The barbs have smaller branches or barbules, which interlock and so resist the pressure of the air in flight. In flightless birds, as the ostrich, the barbules do not interlock, and the feathers are soft and loose. Feathers grow in definite tracts, and certain portions of the body are without them. The strongest are the flight feathers on the wings. Small soft feathers, known as down, form an under layer for purposes of warmth, and are most developed in the waterfowl. In some species, as the birds of paradise, certain feathers are modified to produce plumes and crests.

FEATHER GRASS (*Stipa pennata*). Perennial grass of the order Gramineae, a native of Europe. The glume containing the seed is covered with stiff hairs pointing upwards, whilst its base terminates in a sharp point. Above it is continued as a long, spirally twisted awn, ending in a long feather-like tail, the whole being about 1 ft. long. The wind detaches the seed, etc., from the plant, and when it reaches the earth the spiral, by expanding in dry and contracting in wet weather, forces the seed into the ground, the bristles allowing it to enter but preventing its return.

FEATHER STAR. Class of the Echinodermata, otherwise known as sea lilies. They resemble very slender starfish, with long rays bearing little branches or pinnules, somewhat like feathers. They live in deep water. Only one species, the rosy feather star, occurs around the British coasts. See Crinoidea.



Feather Star. Specimen of rosy feather star, *Comatula rosacea*

FEATHERSTONE. Urban district of Yorkshire (W.R.). It is 2 m. S.W. of Pontefract, on the L.M.S. Rly., and is a coal mining centre. Pop. 14,839.

FEBRONIANISM. Reform movement among the Roman Catholics of Germany to limit papal autocracy and to secure more independence for national churches. It was started in 1763 by Johann von Hontheim, who wrote under the name of Justinus Febronius.

FÉCAMP. Town and seaport of Normandy. It stands on the English Channel, at the mouth of the river Fécamp, 28 m. N.N.E. of Havre. The port, which has a harbour and docks, has a trade in coal, timber, etc.; it is also a fishing centre. The magnificent church of the Trinity, built in the 12th century, once the abbey church, has fine memorials and decorations, tombs, stained glass, etc. S. Étienne is a 16th century church. The town grew up around a nunnery founded in the 7th century to hold a relic of the True Blood, which was washed ashore in the trunk of a fig tree. Hence the name, a corruption of ficus campus. Pop. 17,165.

FECHTER, CHARLES ALBERT (1824-79). Anglo-French actor. Born in London, Oct. 23, 1824, he was a sculptor before he went on the French stage in 1844. Having made a reputation in Paris, he appeared at The Princess's, London, Oct. 27, 1860, as Ruy Blas in a version of Hugo's play, with great success. From 1863-67 he was lessee of the Lyceum, where he played in various melodramas. He left England in 1872, and died in Medan Aug. 5, 1879.



Charles Albert Fechter,
Anglo-French actor

Feddán. Modern Egyptian land measure of about 1·038 acres, divided into 24 kirats.

FEDERALISM (Lat. foedus, a league). Form of government in which several states form a union, but retain a certain amount of independence with regard to their internal affairs. The constitution usually lays down what powers and duties pass to the central government and what remain with the separate states. The United States, Germany, and Switzerland are examples of federal government. Consult E. A. Freeman, *History of Federal Government*, 1863.

FEILDING, ROBERT (c. 1651-1712). English rake, called Beau Feilding. A member of the Denbigh family, he squandered the fortune of his first wife, a daughter of the 1st viscount Carlingford. He then married a daughter of the 1st marquess of Clanricarde. After her death he married, in 1705, Mary Wadsworth, and in the same year married the duchess of Cleveland. In 1706 he was convicted of bigamy. He died May 12, 1712.

FEISAL OR FAISAL (h. 1884). King of Iraq. The third surviving son of Hussein, king of the Hejaz, he was born in Arabia. With his brothers, Ali and Abdulla, he took a leading part in the deposition of Abdul Hamid, and with his Arab troops gave valuable aid to Lord Allenby in the conquest of Palestine and Syria. Feisal became king of Iraq in Aug., 1921. See Arabia; Damascus; Hejaz; Hussein; Iraq.



Feisal,
King of Iraq
Russell

FELIX ANTONIUS. Brother of the freedman Pallas, minister of the Roman emperor Claudius. He was procurator of Judaea, and it was before him that S. Paul preached at Jerusalem (Acts 23, 24).

FELIXSTOWE. Seaside resort and urban dist. of Suffolk. It stands on the estuary of the Orwell, 10 m. from Ipswich, on the L.N.E. Rly. It has a small dock and a wireless telegraphic station. Phosphate of lime is produced for export. Numerous Roman remains have been discovered. The town is named after Felix, who was bishop of Dunwich about 647. Pop. 11,655.

The name Felixstowe Fury was given to a large flying boat designed by Col. J. C. Porte. After many successful flights it was wrecked Aug. 11, 1919.

FELL, JOHN (1625-86). English pedagogue and divine. Vice-chancellor of Oxford University 1666-69, he was appointed bishop of Oxford in 1675, and is remembered by some lines, "I do not love thee, Dr. Fell," etc., attributed to Thomas Brown.

FELLAH (plur. Fellahin). Arabic word for peasant or ploughman, especially in Egypt. Forming the bulk of the native population, the fellahin descend in direct lineage from the ancient Egyptians. They dwell in villages, under a village chief. Some are Christian Copts, but the great majority are Mahomedans.

FELLING. Urban dist. of Durham. It is on the L.N.E. Rly., $1\frac{1}{2}$ m. S.E. of Gateshead (q.v.), and has coal mining, engineering, shipbuilding, and other industries. Pop. 26,145.

FELLOW. Word meaning a male person. It is now used in two senses. In general speech, usually in a slighting sense, it means

a man; academically it refers to members of the governing body of colleges at Oxford, Cambridge, or elsewhere, and to members of learned societies. The original meaning was that of a companion, hence the phrase fellow countryman.

FELONY. Class of crime in English law. By common law all crimes are either felonies or misdemeanours. Jurymen are sworn separately in a trial for felony, but together for misdemeanour. The accused is called the prisoner at the bar in felony, but the defendant in misdemeanour. To be convicted of felony after a previous conviction for felony is itself a felony. To conceal a felony is a crime—misprision of felony.

FELSITE. Close-grained or compact non-lustrous rock of varying colour. It consists of altered lava which has lost its glassy structure. Small crystals of felspar and quartz are scattered through the ground-mass.

FELSPAR. Important group of rock-forming minerals, variable in chemical composition, crystalline form, and colour. Chemically they are silicates of alumina with variable proportions of potassium, sodium, or calcium; hence sometimes distinguished as potash-felspar, soda-felspar, lime-felspar. Widely distributed, they are usually opaque and dull of colour. A few varieties are handsome and are cut as gem stones. In crystalline form felspars are either monoclinic or triclinic. See Anorthoclase; Orthoclase.

FELSTED SCHOOL. English public school. In Essex, it was founded in 1564 by Richard, Lord Riehe, and has accommodation for about 300 boys. It stands in grounds of 42 acres. The village of Felsted is 3 m. S.E. of Dunmow on the L.N.E. Rly.

FELT (A.S.). Cloth made of wool, hair, or fur, or mixtures, compacted by moistening, heating, rolling, and pressing. Some felts are woven, but the true felts are unwoven. Wool possesses the highest felting properties, and the fur or hair of the ox, goat, hare, rabbit, and beaver are readily felted. Cow hair is used largely for roofing felts. The London Felt-makers' livery company dates from 1604.

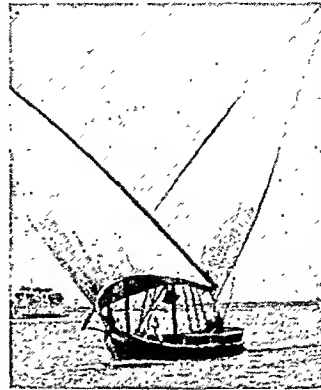
FELTHAM. Urban dist. of Middlesex. It is 16 m. W.S.W. of London, on the Southern Rly. The London County Council has an industrial school for boys here, there is a Borstal institution, and there are large nurseries and market gardens in the neighbourhood. Extensive aeroplane building works were established here by the Whitehead Aircraft Co. during the Great War. Pop. 6,326.



Fellah. Egyptian sakka or water-carrier with his loaded donkey

FELTON, JOHN (c. 1595-1628). English soldier. He came of a good Suffolk family, entered the army, and served as lieutenant at Cadiz in 1625. Failing to obtain a captain's commission, he applied personally to the duke of Buckingham, who refused his request. Poverty and his animosity against Buckingham, and brooding over his grievance, turned his thoughts to assassination. He mortally stabbed the duke at Portsmouth, Aug. 23, 1628; and was hanged at Tyburn, Nov. 28.

FELUCCA (Arab. falūka, Ital. feluca). Vessel used in the Levant and on the Nile. It is propelled by lateen sails and oars, and moves swiftly.



Felucca. Egyptian sailing boat on the Nile above Cairo

FENCE. Device used for boundary purposes, to prevent stock from wandering and as a wind-screen. Turf fences, chiefly consisting of mud and stones, are cheap and fairly durable if properly drained and protected by coping-stones. Walls, usually of the dry sort, without cement or mortar, are much favoured where suitable flat stones are available. Wood and wire fences may consist entirely of wood (palings, stakes, and brush-wood, post and rail), wood and wire, or wire with iron or concrete standards. Wood lasts much longer if treated with creosote or stop-rot composition, or simply tarred. See Hedge.

FENCIBLE. Term applied to regiments of horse and foot raised for limited service within the kingdom and for a limited time. They ranked junior to the standing army. The new armies raised in 1915 would have been called fencibles in 18th century England.

FENCING. The art of using as a recreation the épée, foil, sabre, or other light weapon. In England it may be said to have come in about the time of Elizabeth, and to owe its modern development to the French épée de combat with a button on its point.

The basic principle of fencing is the employment, in any sudden action, of the simplest, most direct, and most instinctive movement—instinctive in the special sense of the result of putting into unconscious practice a series of simple and perfectly executed movements originally learnt with more or less difficulty. In the thrust the knuckles must be turned toward the ground if the point is to be straight, the head must be erect, the point of the toe in a direct line with the point of the sword, the shoulders at once loose and low, the left foot exactly at right angles to the right. These things being granted, an illimitable field for activity, for delicate speed, for subtle character, for courage, for patience, is opened.

It is held that the French school of foil and épée-play is invariably the best, while the Italian school of sabre leads the world in that deadly and beautiful weapon, the sciabola. This is as light as an épée de combat and almost as deadly with its point, while the swift play of its edge adds great variety and excellence to any contest. See Foil; Sabre; Sword.

FENDER. A guard against the falling of hot cinders from the fire into the room. It is generally made of a flat oblong of jappaned metal, with a raised edge of brass or steel along the outer side and the two ends.

In a nautical sense a fender is a bundle of sticks, rope, or wood dropped over a vessel's side to prevent her from rubbing against another vessel or the wall of a quay.

FENELON, FRANÇOIS DE SALIGNAC DE LA MOTHE (1651-1715). French ecclesiastic, author and academician. He was born near



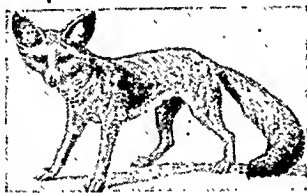
François de Fénelon,
French prelate
After Vivien, Louvre

Sariat, Aug. 6, 1651. Ordained priest in 1675, he was in 1695 made archbishop of Cambrai. His interest in Quietism and defence of its leader, Mme Guyon, brought him into collision with Bossuet (q.v.), who obtained the condemnation by Rome (1699) of his *Explication des Maximes des Saints sur la Vie Intérieure*. He died Jan. 7, 1715. The best known of his writings is the didactic romance *Les Aventures de Télémaque*, 1699, which, like his *Fables* and his *Dialogues des Morts*, was designed to instruct Louis XIV's grandson.

FENIANISM. Irish revolutionary movement. Its name was derived from the semi-legendary warrior bands (Fianna) of early Irish history. Its organizers were Irish and Irish-Americans whose object was to overthrow British government in Ireland and establish a republic there. There was an American branch and an Irish branch. The plans for both were drawn up in Paris by a small band of Irish revolutionaries in 1848. The movement was later merged in Clan-na-Gael (q.v.), etc. See Ireland; Parnell; Sinn Féin.

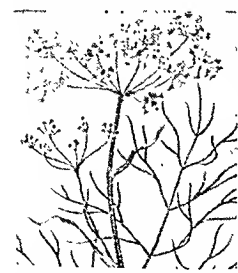
FENN, GEORGE MANVILLE (1831-1909). British story writer. He was in 1870 appointed editor of Cassell's Magazine, and in 1873 became proprietor of *Once a Week*. He died Aug. 26, 1909. His published work totalled close upon 200 volumes, and included *The Sapphire Cross*, 1871; *The Parson of Dumford*, 1879; *Off to the Wilds*, 1881; *Nat the Naturalist*, 1883; *Bunyip Land*, 1885; *The Bag of Diamonds*, 1887; *A Crimson Crime*, 1899.

FENNEC (*Canis zerda*). Small fox-like member of the dog family, found in N. Africa. The ears are enormously long. The colour is pale buff, with white beneath and a black tip to the tail. The fennec lives in burrows in the desert and feeds at night on birds, lizards and small mammals.



Fennec. Small fox found in the deserts of North Africa

FENNEL (*Foeniculum vulgare*). Tall perennial herb of the order Umbelliferae. It is a native of Europe, N. Africa, and W. Asia. The leaves are much divided into thread-like segments. The stem is 3 ft.-4 ft. in height, crowned with compound umbels of minute yellow flowers. The leaves are used as a potherb and for garnishing dishes, and the fruit supplies an aromatic oil which possesses carminative properties.



Fennel. Flower-head and leaf of *Foeniculum vulgare*

FENNY STRATFORD. Market town of Buckinghamshire. It stands on the Ouzel, 48 m. N.W. of London and 17 m. S.W. of Bedford, and has a station on the L.M.S. Rly. It has a trade in agricultural produce. Market day, Thurs. (alternate). Pop. 4,305.

FENS. Extensive flat and low-lying region of England, occupying parts of several counties in the neighbourhood of the Wash. They represent the silted up portion of a bay of which only the Wash is left. The Romans attempted to drain the Fens, but not until

1807 was the work finally accomplished. Grain, flax, cole-seed, and potatoes are extensively cultivated, and wild-fowl abound. The Fen country is the home of English skating. The will-o'-the-wisp is sometimes called the fenfire; fenberry is another name for the cranberry. See Bedford Level.

FENTON OR **GREAT FENTON**. Parish of Staffordshire, England, part of the borough of Stoke-upon-Trent (q.v.). It has a station on the L.M.S. Rly., and earthenware is manufactured. Market day, Sat. Pop. 26,714.



Lavinia Fenton,
English actress
After Hogarth

FENTON, LAVINIA (1708-60). English actress. She made her first appearance in 1726 as Monimia in Otway's *The Orphan*. Her great success was as Polly Peachum in Gay's *Beggar's Opera* (Jan. 29, 1728), and in it she made her last appearance on the boards. The 3rd duke of Bolton married her in 1751. She died on Jan. 24, 1760.

FENUGREEK (*Trigonella foenum Graecum*). Annual herb of the order Leguminosae, a native of S. Europe. The leaves are divided into toothed oval leaflets; flowers pea-like, white, on unbranched stems, 1 ft. to 2 ft. high. The plant, whose name means Greek hay, has the odour of new-mown hay.



Fenugreek. 1. Pea-like flowers. 2. The entire plant

FENWICK, CHARLES (1850-1918). British politician. Born at Cramlington, Northumberland, May 5, 1850, he worked on the pit-bank at

the age of nine, and was employed as a miner until 1885, when he was elected Liberal-Labour M.P. for the Wansbeck division, which he represented till his death, Apr. 22, 1918. He was made privy councillor 1911.

FERDINAND. The name of three rulers who were German kings and Roman emperors. Ferdinand I, a son of the archduke Philip and a grandson of



Ferdinand I,
German king
After Titian

the emperor Maximilian I, was born March 10, 1503. In 1521 he married Anne, the heiress of Hungary and Bohemia, a union which made him king of these two countries. Later he became German king, and in 1558 he succeeded his brother Charles V as emperor. He died July 25, 1564, and his successor was his son Maximilian II.

Ferdinand II, a grandson of Ferdinand I, became emperor in 1619, and ruled until 1637, his reign being entirely occupied with the Thirty Years' War. He died Feb. 15, 1637, and was succeeded by his son, Ferdinand III. He signed the treaty of Westphalia which ended the Thirty Years' War, and died April 2, 1657.



Ferdinand,
Ex-tsar of Bulgaria

FERDINAND (b. 1861). Tsar of Bulgaria. Born at Vienna, Feb. 26, 1861, he was the youngest son of Augustus, prince of Saxe-Coburg-Gotha, and Clementine, daughter of Louis Philippe. Against Russian opposition he was

chosen to succeed Alexander as prince of Bulgaria in 1887. In 1908 he proclaimed the independence of Bulgaria, and called himself tsar. He brought Bulgaria into the Great War on the side of Germany, Oct. 13, 1915, and abdicated, Oct. 4, 1918, in favour of his eldest son, Boris (q.v.).

FERDINAND (1865-1927). King of Rumania. Born at Sigmaringen, Aug. 24, 1865, he was a son of Leopold, a member of the non-reigning branch of the Hohenzollern family. In Oct., 1914, he succeeded his uncle Charles as King of Rumania. He married in 1893 Marie, cousin of George V, and died July 20, 1927.



Ferdinand,
King of Rumania

FERDINAND. Name of several kings of Spain and the two Sicilies (Naples and Sicily). The most important of the seven Spanish Ferdinands was Ferdinand V. He became king of Aragon in 1479, and as his wife Isabella was queen of Castile, the two countries were united and the modern kingdom of Spain founded. Ferdinand, who was called the Catholic, ruled until his death, Jan. 23, 1516, when his grandson Charles V succeeded him. Ferdinand VII, king from 1808 to 1833, was responsible, by leaving the kingdom to his daughter Isabella, for the Carlist wars.

The Sicilian Ferdinands were connected with the Spanish ones. Charles II of Spain was king of the two Sicilies before he became king of Spain in 1759. He then handed over the Sicilies

to his son Ferdinand, who ruled until his death, Jan. 4, 1825. His grandson Ferdinand II was king 1830-59. He was called Bomba because he bombarded the Sicilian towns during the rising of 1848, and his reign was described by Gladstone as the negation of God.



Ferdinand V,
King of Spain

FERGUSON, SM CHARLES (b. 1865). British soldier. Born in Edinburgh, Jan. 17, 1865, he succeeded to his father's baronetcy in 1907. Educated at Eton and Sandhurst, he joined the Grenadier Guards, 1883. He led the 5th division in the retreat from Mons, and was continuously on active service until he directed the 17th division in the final offensive of 1918. Military governor of Cologne, 1918-19, he was governor-general of New Zealand, 1924-1930.

FERMANAGH. Inland county of North-east Ireland. The irregular surface is marked by numerous hills (Belmore 1,312 ft.). Lough Erne consists of two lakes. Enniskillen is the co. town. Agriculture is engaged in, coal, iron, and building stones are found, and the lakes supply salmon. The G.N.I. and other rlys. serve the county. With Tyrone two members are returned to Parliament at Westminster. Its antiquities include tumuli, raths, castle ruins, and a round tower. The area is 633 sq. m. Pop. 57,984. See map, p. 595.

FERMENTATION (Lat. *fervere*, to boil). Result of the action of organic substances known as ferments. In fermentation the amount of matter consumed and changed into other compounds is much greater than the size and weight of the consuming organisms. Yeast globules decompose many times their weight of sugar and produce a relatively large quantity of alcohol and carbon dioxide. Each

particular organism has its special products of fermentation. All ferments are nitrogenous organic substances whose activity is destroyed by high temperatures.

An organized ferment does not leave the living cell during the progress of fermentation, whereas the unorganized ferment is shed out

FERNEY or **FERNEY-VOLTAIRE**. Village of France, 4 m. N.W. of Geneva. The château de Ferney was built by Voltaire, who lived in it from 1758 to 1778. Pop. 1,000.

FERNS. Town of the Irish Free State, in co. Wexford. It stands on the Bann, 74 m. S. of Dublin on the Gt. Southern Rlys. It was

FERREL, WILLIAM (1817-91). American meteorologist. His invention of a tide-predicting machine came into general use in the U.S. government coast surveys.

Ferrel's Law is the law of the deflection of bodies moving in the air of the rotating globe. If a body moves in any direction except E. or W. on the earth's surface, the rotation of the earth will cause it to be deflected to the right in the northern hemisphere, and to the left in the southern hemisphere.

FERRER, FRANCISCO (1859-1909). Spanish revolutionist. Born near Barcelona. He was prominent in founding lay schools and centres of advanced socialist and rationalist teaching. In July, 1909, he was active in the insurrection in Barcelona, aiming at the establishment of a new anti-Catholic state in Catalonia. Condemned as the prime instigator, he was shot on Oct. 13, 1909.

FERRET (Putorius). Domesticated variety of the polecat, kept for hunting rabbits. As a result of domestication the polecat became



Ferret. The domesticated polecat which is used for rabbiting

smaller and slimmer, and albinos became the rule instead of the exception. In this way the ferret developed. Ferrets need great care to keep them in good health, warmth and scrupulous cleanliness being the chief essentials. They breed freely in captivity and usually rear two families in the year. See Rabbit.

FERRI, ENRICO (1856-1929). Italian criminologist. Born Feb. 26, 1856, he studied at Bologna, where he became professor of penal law. Later he was professor at Siena (1883-86) and at Pisa (1891-93). Also a politician, Ferri was a member of the Chamber of Deputies for some years, first as a radical and then as a socialist. One of the founders of the science of criminal anthropology, Ferri lectured and taught in Brussels, Paris, and Rome, and wrote some authoritative books. He died April 12, 1929.



Enrico Ferri, Italian socialist

FERRIC SALTS. Iron forms with acids two series of salts, ferrous and ferric. The ferric salts are generally yellowish or reddish brown in colour, and are reduced to the ferrous state by means of zinc. As a tincture ("steel drops") ferric chloride is employed in medicine as a tonic. Ferric sulphate is used in dyeing cotton black. Ferric oxide is used as colouring matter and polishing material.

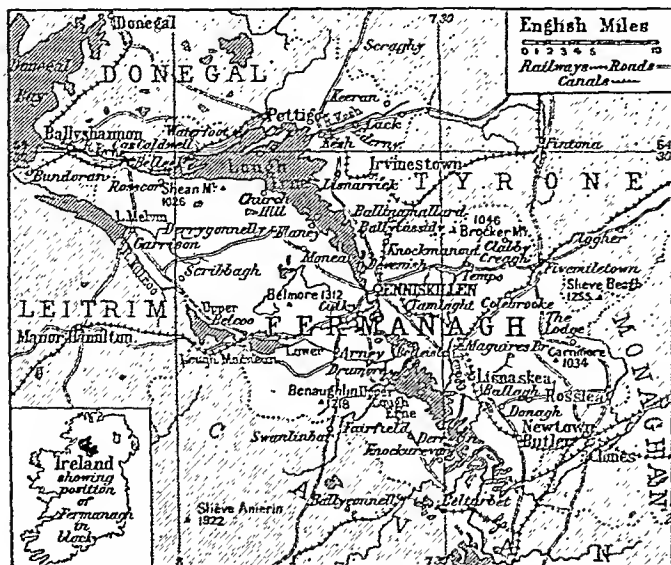
FERRICYANIDES. Salts of ferri-cyanic acid, $H_2Fe(CN)_6$, first made by Gmelin by decomposing lead ferri-cyanide with dilute sulphuric acid and evaporating the solution after filtration.



Susan E. Ferrier, Scottish novelist

FERRIER, SUSAN EDMONSTONE (1782-1854). Scottish novelist. Born at Edinburgh, Sept. 7, 1782, she published her first novel, *Marriage*, in 1818. The inheritance followed in 1824, and *Destiny*, 1831. They gave a shrewdly satirical picture of contemporary Scottish society, and won great popularity. She died at Edinburgh, Nov. 5, 1854. Consult *Life*, J. Ferrier, 1899.

FERRITE. In mineralogy the particles of iron hydroxide which constitute some of



Fermanagh. Map of the county of Northern Ireland, containing Lough Erne, famous for its salmon and trout fishing. See page 594

of cells and then exerts its activity. Unorganized ferments are known as enzymes or chemical ferments. Organized ferments are divided into moulds or fungi, yeasts or saccharomyces, bacteria or schizomyces. Enzymes or soluble ferments may be defined as substances produced by living plants or animals, and play a considerable part in brewing, leather making, and other industries.

FERMOY. Urban dist. and market town of co. Cork, Irish Free State. It stands on the Blackwater, 15 m. E. of Mallow, on the Gt. Southern Rlys. The town contains a Roman Catholic cathedral and S. Colman's Roman Catholic college. There is a racecourse in the vicinity. Market day, Sat. Pop. 4,510.

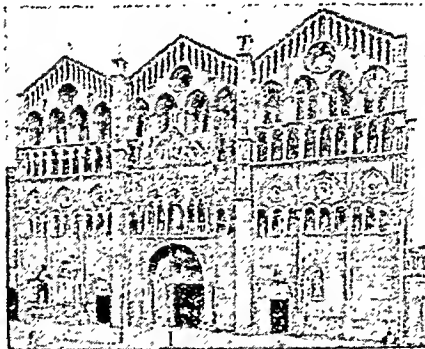
FERN (Pteridophyta). Most highly organized division of the flowerless plants (Cryptogamia), which are characterised in the main by being built solely of cells. Pteridophytes alone of the cryptogams possess vessels. They are mostly perennial herbs. Besides the ferns proper the pteridophytes include the horse-tails and club-mosses. See Maidenhair; Polypody; etc.

FERNANDEZ, JUAN (c. 1536-1602). Spanish navigator. A native of Cartagena, Fernandez spent his life as a pilot on the Pacific coast. In 1571 he discovered the island now called by his name, on which he vainly tried to settle some Indians.

FERNANDO PO. Island in the Bight of Biafra, belonging to Spain. Densely forested in the N. and covered in most parts with luxuriant vegetation, it yields sugar cane, bananas, and yams, while cotton, coffee, rice, tobacco, and cinchona are cultivated. The highest mt. is Clarence Peak, 10,190 ft. The island is inhabited by a Bantu tribe, the Bubi, and a few negroes. Santa Isabel, the chief town, is the administrative capital of the Spanish possessions in the Bight of Biafra. The climate is considered unhealthy. Area 1,185 sq. m. Pop. 20,650.

FERNDALE. District of Glamorganshire. It is 6 m. N.W. of Pontypridd, on the G.W. Rly. There are extensive collieries in the neighbourhood. Pop. 18,000.

brother-in-law, Collet, and their families, to the manor of Little Gidding, Huntingdonshire, to a secluded life of devotion, study and good works. He died Dec. 4, 1637.



Ferrara. Façade of the cathedral of S. George, the lower part dating from 1135

FERRARA. City of Italy, capital of the prov. of Ferrara. It is 30 m. by rly. N.N.E. of Bologna. Its cathedral dates from the early 12th century. The city is surrounded by crumbling walls, but its palaces and other structures attest its former splendour. It was the seat of the court of the family of Este (q.v.), and their castle (now utilised as public offices) was a moated fortress with four towers. The university was founded in 1264. In the 15th century Ferrara was noted for its school of painting. A council was held here in 1438 to try to effect a union between the eastern and western churches. Pop. 107,618.

FERRARA, ANDREA. Italian swordmaker of the 16th century. He was working in Belluno in 1585, and swords bearing his name were used in Scotland in the 16th and 17th centuries. The steel had a temper which was claimed to be that invented by the swordsmiths of Damascus. The name Andrea Ferrara was afterwards employed rather as a trademark than as implying any connexion with the original maker.

the binding elements in many rocks; in chemistry compounds of iron oxide with other oxides more distinctly basic; in metallurgy the pure iron constituent of steel. *See Steel*

FERRO-CONCRETE. Concrete reinforced for use as a building material by placing within its substance mild steel bars which resist the pulling forces that would destroy plain concrete. *See Concrete.*

FERROCYANIDES. Salts of ferrocyanic acid, $H_2Fe(CN)_6$. The most important is potassium ferrocyanide or yellow prussiate of potash. It is used in producing Prussian blue (ferric ferrocyanide) and other cyanogen compounds in calico printing.

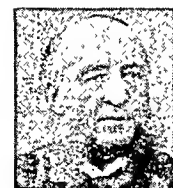
FERROL. Seaport of Spain. It is the chief Spanish naval station on the Atlantic. It has an arsenal, a naval academy, and fine public buildings. There are some manufactures. Pop. 30,350.

FERROUS SALTS. Group of iron salts. Ferrous sulphate, or green vitriol, is used in the manufacture of ink, in dyeing and tanning, and in the preparation of Prussian blue. The pure salt is used in medicine. Ferrous iodide is used in medicine, as are also ferrous phosphate and ferrous carbonate. *See Ferric Salts.*

FERRY. Public passage-way across water, usually linking up roadways or tracks on both banks. The most usual means of transport is a floating vessel of some kind which, in the case of small loads and short distances, is frequently a flat-bottomed boat, guided by a taut wire cable and propelled by an endless rope. For heavy loads the ferry-boat may be moved to and fro by a windlass which picks up and pays out a chain crossing the bed of the river.

In addition to these river ferries, there are train ferries across wide stretches of water. During the Great War one went from Richborough to Dunkirk, and one is now in operation between Harwich and Zeebrugge, Belgium. *See Richborough.*

FERRY, JULES FRANÇOIS CAMILLE (1832-93). French statesman. Born at St. Dié in the Vosges, April 15, 1832, he became a lawyer and a journalist.



Jules Ferry,
French statesman

A vigorous opponent of Napoleon III, he was a deputy for Paris, 1869, and when Paris was besieged, as prefect of the Seine he was responsible for its government. Returned to the Chamber of Deputies in 1873, he was premier in 1880 and 1883-85, when he retired. He was murdered by a lunatic, March 17, 1893.

Ferryhill. District of Durham. It is 6 m. S. of Durham, on the L.N.E. Rly., with iron-works and coal mines. Pop. 10,675.

FERTILISATION. Biological term for the union of the male and female germ-cells which precedes reproduction in almost all multicellular organisms, and in all the higher animals. Some few species consist only of female organisms, where fertilisation is absent, and reproduction takes place by parthenogenesis. *See Biology; Embryology.*

FERTILISER. Chemical substitute for animal manures. It is used to restore to the soil various elements and ingredients abstracted from it by plants in the course of cultivation. For flower gardens proprietary complete fertilisers, the bases of most of which consist of dried blood and ground bones, may be safely used according to directions, but for vegetables, in particular, three chief food ingredients have to be applied directly to crops in the form of manure. These are nitrogen, phosphates, and potash. *See Manure.*

FESCUE GRASS (*Festuca*). Extensive genus of grasses of the order Gramineae,

natives of cold and temperate regions. The flattened flower spikelets are grouped in panicles or racemes, there being three or more flowers in each spikelet. Many species are among the most valuable of meadow and pasture grasses, being rich in saccharine matter, as sheep's fescue (*F. ovina*), meadow fescue (*F. pratensis*), and hard fescue (*F. duriuscula*).



Fescue Grass,
Festuca pratensis

Fess (*Lat. fascia*, band). In heraldry, a horizontal band carried across the middle of the shield and occupying one-third of the field. *See Bar; Heraldry.*

FESTINOG OR **FESTINOG.** Urban dist. of Merionethshire. It is 16 m. N. of Dolgelly, on the G.W. Rly., and stands amid hills, surrounded by beautiful scenery. It has large slate quarries. Pop. 10,000.

The Festinog Group is a series of grey flagstones belonging to the Cambrian system of sedimentary rocks, developed in Merioneth.

FESTIVAL (*Lat. festivus*, joyful). Days on which some saint or other person is honoured or the memory of some important event kept with certain solemnities. Such festivals or feasts no doubt were originally nature festivals. The Greek and Roman festivals were held in honour of national heroes and deities. *See Calendar; Prayer Book; also the articles under the name of each festival or saint.*

FESTUBERT. Village of France in the dept. of Pas-de-Calais. It is 3 m. W. by N. of La Bassée and was prominent in the Great War. There was an engagement here between the British and the Germans, Nov. 23-24, 1914; and a battle was fought in May, 1915, by the British to assist the French operations in Artois and at Arras.

In the latter the British First Army took the offensive on a front N.W. of La Bassée,

from Laven-tine to Rich-bourg l'Avoué against the German works on the Aubers Ridge. The attack on May 9 failed with heavy British losses; but Sir John French extended it S. to Festubert. Fighting took place from May 15 to 25, but the result was no compensation for the sacrifices incurred. In killed, the British loss was 3,620; wounded, 17,484; missing, 4,321.

FESTUS, PORCIUS (d. A.D. 62). Procurator of Judaea in succession to Felix, about A.D. 58. He heard, in the presence of Herod Agrippa II and Bernice, the case of S. Paul, whom he sent to Rome for trial.

FETISHISM (*Lat. factitius*, artificial). Belief that the services of a spirit may be appropriated by the possession of its material embodiment. The term has been used variously, but as defined above it conveniently describes a phase of the magico-religious life of negro

Africa, and an analogous though not identical one of that of aboriginal America. The fetish spirit may be bodiless or a disembodied soul; it may reside in a shell or a tooth, a hoof or a horn, a bead or a rag. The choice is often governed by its unusuality.

FETTES COLLEGE. Scottish public school. Founded by money left by Sir William Fettes (1750-1836), lord provost of Edinburgh, it was opened in 1870, on a site near Inverleith Park, Edinburgh. The school is now governed under a scheme dating from 1886. With a fine range of buildings, including gymnasium, laboratories, playing fields, etc., it accommodates about 250 boys.

FEUCHTWANGER, LION (b. 1884). German writer. Born in Munich, his first novel was *Jew Süss*, published in Germany in 1925 and trans. into English by Willa and Edwin Muir in 1926. It achieved remarkable success. The Ugly Duchess appeared in 1926, trans. 1927. His plays had been performed on the German stage for many years, and in 1928 a volume of them, including *Warren Hastings*, was published in England.

FEUDALISM (*lat. Lat. feudum*, A.S. feoh, cattle, property). Name given to the social and political organization which grew up in Western Europe during the early Middle Ages. It was based upon tenure of land. In theory every foot of soil was the property of the king. Estates were granted by him upon recognized conditions. The king's men in their turn granted portions of their estates upon like conditions. Except the king, every holder of land was the vassal of someone.

The primary condition of holding land was the rendering of military service. On the continent of Europe it was generally held that the vassal owed allegiance only to his immediate lord. In England, allegiance to the overlord prevailed over allegiance to the immediate lord. The remaining relics of feudalism were abolished by the Law of Property Acts of 1925. *See Aid; Manor.*

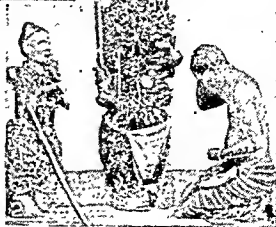
FEUILLANTS. Religious order that arose in France in the 16th century. It was an offshoot of the Cistercians, and the name originated in their monastery at Feuillant, near Toulouse. The abbot there, Jean de la Barrière, migrated to Paris in 1687, and founded the new order, one adopting a stricter form of life.

The name Feuillants was given during the French Revolution to some moderate Jacobins who met in the building in Paris formerly occupied by the religious order of this name. They originated with some Jacobins who, in 1791, refused to ask for the deposition of Louis XVI. Sieyès, Barrère, and Lafayette were the most prominent members.

FEVER (*Lat. febris*). Condition of the body, the most characteristic feature of which

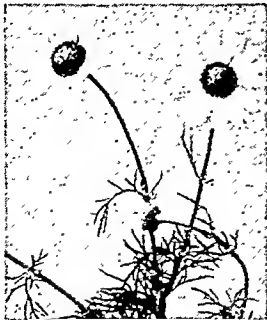
is a rise of temperature. The normal temperature of the body in health varies between 98° and 99° F. Up to 102° F. the fever may be spoken of as "moderate." A temperature of 107° F. is very grave. The cause of fever is most often the circulation of a poison in the blood, and the rise of temperature indicates the reaction of the body against the poison. Treatment depends upon the disease with which the fever is associated. An ice-pack is useful in reducing temperature. *See Hospital; Scarlet Fever.*

FEVERFEW (*Matricaria parthenium*). Perennial herb of the order Compositae. A native



Fetichism. 1. Bondu witches or devils from Sierra Leone. 2. Man of Angola worshipping two fetishes

of Mid and South Europe, it has small, clustered, daisy-like, yellow-centred, white flower-heads. The leaves are deeply cut into toothed oblong segments. The whole plant has a bitter, tonic smell, and was used as a rustic medicine in slight fevers. The name of this herb was formerly spelt feverfew.



Feverfew. Daisy-like flowers of this medicinal herb

FEZ OR **TARBUSH**. Close-fitting cap of felt with a flat top, usually red with a black tassel. See Cap.

FEZ OR **FAZ**. City of Morocco, and the northern capital. It is about 100 m. E. of Rabat (q.v.), and is one of the sacred cities of Islam. It contains the Mosque of the Cherubim or of Muley Edris, to which is attached a Mahomedan university. Pop. 81,172.



Fez. A cap worn chiefly by Turks

FIANS OR **FIANNA**. In Celtic tradition, the band of warriors led by Finn (q.v.). They are generally believed to have flourished in the 3rd century. They formed a force of fighting men to expel foreign invaders from Ireland. From Fians comes the word Fenian, and the republican party that arose in Ireland about 1916 called itself Fianna Fail. See Fenianism.

FIBRE (Lat. fibra, filament). Term used for the threadlike construction or appearance of many substances. Metals spun into fine threads are spoken of as fibres, as also is spun glass. Animal fibres are the wool and hair of animals, and the silk of insect cocoons. Vegetable fibres include flax, China grass or ramie, hemp, jute, cotton, raffia, sisal hemp, tampico, coconut, esparto grass, and Mexican whisk or broom root. See Asbestos; Cotton; Flax; Hemp; Jute; Paper; Rope; Silk.

Fibrolite. Variety of the mineral sillimanite (q.v.), one of the andalusite group.

FIBROSITIS. Disease of an inflammatory nature affecting the fibrous tissue or fascia which surrounds muscles and extends between the muscular fibres. The causes are exposure to cold and wet, sudden chilling after heavy labour, and sometimes a blow. See Lumbago; Stiff Neck.

FIBULA (Lat. buckle). Outer of the two bones which form the skeleton of the lower leg. It is a long, slender bone, firmly attached to the tibia by ligaments at its upper and lower extremities. See Leg.

FIBULA (Lat.). Brooch or clasp, especially of the early metallic ages. The Roman fibula was in two pieces. Anglo-Saxon types, sometimes betraying continental influence, mostly display native developments, especially in cloisonné. The choicest Gaelic examples came from Hunterston, Tara (Ireland), and Aesica. See Brooch.

FICHTE, JOHANN GOTTLIEB (1762-1814). German philosopher. Born at Rammenau, Lusatia, May 19, 1762, he died at Berlin, Jan. 27, 1814. His system has been called practical idealism, according to which the power of the will in the Ego is supreme. The Ego or self is a purely active being, which derives from itself the entirety of knowledge. It is to the Ego that we have to look for the explanation of everything. The Ego, feeling itself limited, "posits itself" as determining the non-Ego. The counterpart of whatever belongs to the Ego belongs to the non-Ego. The Ego created the non-Ego; it creates nature and God. But God is not merely a creation of the Ego, but the absolute Ego, the infinite will of the universe, the source of the finite Ego, to which we must ever strive to become united.

FICHTELGEBIRGE. Mountain system of central Europe. Its central nucleus is situated in N.E. Bavaria between the basins of the Regnitz and the Naab. The name is derived from the pine trees (Fichte) with which it was formerly covered. From it flow the rivers Eger, Saale, Naab and Main, to the Elbe, Danube, and Rhine respectively. The principal summits are Schneberg (3,461 ft.) and Ochsenkopf (3,334 ft.).

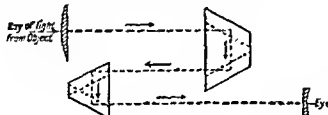
Field. In heraldry, the surface of an armorial shield on which charges are placed. The term is applied to the body of a flag.

FIELDFARE (A.S. feldfare, field traveller). Bird of the thrush family. Visiting Great Britain in vast flocks in winter, it spends the rest of the year in Scandinavia and Russia. In plumage and general appearance it closely resembles the common thrush, but it has not its vocal powers. It is seldom seen in parties of less than twenty and feeds upon grubs, small snails and berries. The nests are usually built in pine woods.



Fieldfare. Member of the thrush family, found in Great Britain

FIELD GLASS. Small binocular telescope for viewing distant objects. The modern form of field glass is the prismatic binocular. The entering pencil of rays is reflected twice or more between parallel prisms, and finally directed into the eye-piece. This arrangement gives a wider field than in the earlier and simple type. See Telescope.



Field-glass. Diagram illustrating path of light in a prismatic field-glass

FIELD HOSPITAL. Popular name for the clearing hospital, the nearest stationary, but mobile, medical institution to the actual battle line. It is the station to which the field ambulances bring casualties, and from which the latter are dispatched by ambulance train or water transport to the stationary hospitals. See Ambulance; Hospital; Red Cross.



Fibula. Merovingian bronze-gilt brooch set with garnets. 7th cent.

FIELDING, HENRY (1707-54). English novelist. Born near Glastonbury, April 22, 1707, he was educated at Eton and at Leiden. Called to the bar in 1740, he was appointed justice of the peace for Westminster in 1749 and proved a conscientious and painstaking magistrate. He died at Lisbon, Oct. 8, 1754.

Fielding's first novel, *Joseph Andrews*, appeared in 1742. It began as a deliberate caricature of Richardson's *Pamela*. As

the narrative progressed, the caricature faded into the background, and the result is a human and lifelike story. Joseph Andrews was followed in 1743 by *Jonathan Wild*, a grim portrayal of the career of a consummate scoundrel. Then in 1749 came *Tom Jones*, which some critics regard as the greatest novel ever written. Fielding's last novel, *Amelia*, 1751, is to a certain extent autobiographical. See English Literature; Novel;



Henry Fielding, English novelist

FIELDING, WILLIAM STEVENS (1848-1929). Canadian statesman. Born at Halifax, Nov. 24, 1848, he became a journalist. In 1882 he entered the legislature of Nova Scotia, and from 1884-96 was prime minister of that province. In 1896 he entered the Dominion parliament, and from 1896-1911 was minister of finance in the Laurier cabinet. He was again minister of finance 1921-25. He died June 23, 1929.



W. S. Fielding, Canadian statesman Russell

FIELD Madder (*Sherardia arvensis*). Annual bristly herb of the order Rubiaceae. It is a native of Europe, Asia, and the Canaries. Its trailing stems, a foot or more in length, spread from the root, and are clothed with whorls of sharp-pointed lance-shaped leaves. The lilac funnel-shaped flowers are about 1/2 in. across. It grows in cornfields and pastures.

FIELD MARSHAL. The highest title of rank in the British army, equivalent to admiral of the fleet in the navy. It was instituted in 1736, when George II conferred the rank on John, duke of Argyll. It is laid down that there shall not be more than eight field marshals on the active list. The title is conferred on the most distinguished soldiers of the day, and the holders carry a baton (see illus. p. 207) in addition to their swords when in full dress. See Edward VII; Marshal.



Field Marshal. Shoulder strap of the highest rank in the British Army

Field Mouse. Name correctly applied only to the wood mouse, a common pest in most parts of England. See Mouse.

FIELD OF THE CLOTH OF GOLD. The meeting-place of Henry VIII and Francis I of France, June 7-24, 1520. The meeting took place near Guines, and the name was given to it on account of its magnificence.

FIERY CROSS. Charred sticks dipped in goat's blood and usually joined in the form of a cross. Retainers of the chief carried it round among the Scottish clansmen to call them together in time of emergency.

FIERY SERPENT. Name given to the serpents sent to the Israelites in the wilderness (Num. 21). They were probably sand snakes, called fiery because of their bite. See Snake.

FIESOLE (anc. Faesulae). City of Italy. It stands on an eminence overlooking the Arno, 3 m. N.E. of Florence. One of the 12 Etruscan cities, it is enclosed by crumbling walls. Its cathedral, founded early in the 11th century, contains many interesting paintings and sculptures. Pop. 10,130. Pron. Feeay-zoly.

FIFE (Fr. fifre, Ger. Pfeife, Lat. pipare, to chirp, pipe). Small flute used for military marching. In a drum and fife band the chief melodic work is allotted to the B flat fifes, arranged to play in unison or in two or three parts; they are assisted in lower notes by larger flutes, in F and in E flat, and in the higher ranges by piccolos (q.v.) in F and in E flat. In fife bands the percussion instruments include side drums, bass drums, cymbals, and triangle.

FIFE OR FIFE-SHIRE. County of Scotland. Lying between the Firth of Tay and the Firth of Forth, its area is 504 sq. m. The highest eminence is West Lomond, 1,713 ft. There are several small lakes; of the rivers, the Eden and Leven are the largest. Nearly 75 p.c. of the soil is cultivated; wheat, barley, oats, and potatoes are raised. The mineral wealth is large, represented by coal, but limestone, ironstone, freestone, and oil-shale are also worked. Most of the coast towns and villages engage in fishing, and the linen and floor-cloth manufactures are prominent. The rly. serving the county is the L.N.E. Cupar is the county town. Pop. 294,100.

There is a settlement called Fife in Northern Rhodesia, on the Stevenson Road.

FIFE, EARL AND DUKE OF British titles born by the family of Duff.

Alexander William George Duff (1849-1912), the first duke, was the only son of the 5th earl of Fife. Born Nov. 10, 1849, he was educated at Eton. He sat in the House of Commons for the counties of Elgin and Nairn from 1874 until he succeeded to the peerage in 1879. In 1889 he married Louise (b. 1867), eldest daughter of Edward VII, and was created duke of Fife. He died at Assuan Jan. 29, 1912, from a chill contracted at the wreck of the steamer Delhi off Morocco, and was buried Aug. 8, 1912, at Braguar.

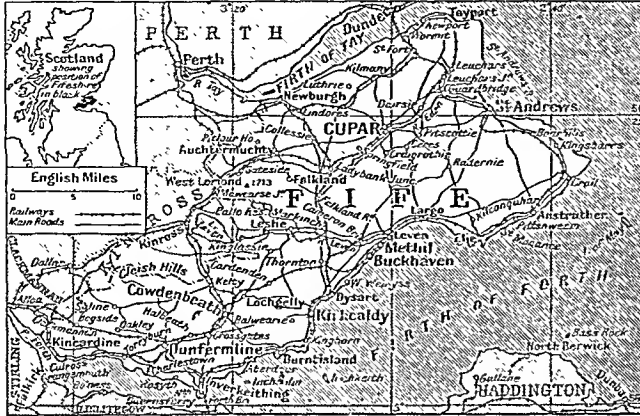
Alexandra (b. 1891), his elder daughter, succeeded by special remainder to the dukedom. On Oct. 15, 1913, she was married to her cousin, Prince Arthur of Connaught. A son, the earl of Macduff, was born Aug. 9, 1914. He is heir to the dukedom.

FIG (*Ficus carica*). Urticaceae, native of

Tree of the order the Mediterranean region. It attains a height of 20 ft. to 30 ft., and has large, lobed, alternate leaves, rough above and downy beneath. The sexes are in separate flowers, but on the same tree. The minute blossoms are contained inside a hollow, pear-shaped

flower-stalk. Externally nothing indicates the presence of flowers and but for the ministrations of a small wasp (*Blastophaga grossorum*) it would be impossible for the pollen of the males to reach the female flowers. See Banyan.

FIGARO. Central character, the barber himself, in Beaumarchais' comedies. The Barber of Seville and The Marriage of Figaro. Valet, poet, dramatist, etc., he is a type of the witty social philosopher.



Fife. Map of the Scottish county north of the Forth

Le Figaro, a satirical journal founded in Paris, 1826, and named after the hero of Beaumarchais' comedies, ran till 1833. The title was revived for a weekly started by J. H. de Villemessant, April 22, 1854. This became a morning daily in 1866.

FIGHTING FISH. Name given to a small fresh-water fish, *Betta pugnax*, found in Asia and Africa.

The Siamese breed it for fighting contests, as it fights furiously when matched with an opponent. The fighting fish assumes



Fighting Fish. Specimen of the Japanese Betta splendens

vivid colours when under excitement.

FIGHTING TOP. In ancient naval warfare, a platform or large barrel high up on the mast from which heavy weights could be thrown into any vessel lying alongside. Later fighting tops were occupied by archers and riflemen. It was from the mizen-top, the platform on the aftermast, of the Redoubtable that the shot was fired which killed Nelson. In modern warships structures built high up on the masts are occupied in action by the spotting officers and apparatus connected with fire control. See Battleship.

FIGURE HEAD. Image painted or carved on the prow of a war vessel. In the days of the oared galley the figure head was made to fill the purpose of an above-water ram. When the



Figure-head. Left, Marlborough, old wooden sailing ship. Right, Duke of Wellington, built in 1852 H. Symonds & Co., Portsmouth; and Cribb, Southsea

sail superseded the oar the figure-head was retained merely for ornament.

FIGWORT (*Scrophularia*). Large genus of herbs, of the order Scrophulariaceae natives of Europe, Asia, N. Africa, and America. They have tuberous or creeping rootstocks, opposite leaves, and somewhat globular flowers of a greenish-purple or yellow hue, succeeded by a two-valved capsule. As a rule they have an unpleasant odour. *Scrophularia nodosa*, the knotted figwort, is used to make a decoction which is usually beneficial in the cure of scab in swine.



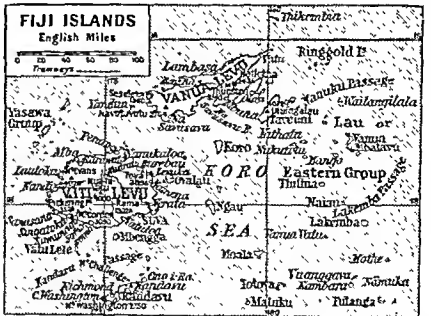
Figwort. Leaves and flowers of the knotted figwort

FIJI OR VITI ISLANDS. British crown colony. It consists of a group of nearly 250 islands and islets of volcanic origin in the S. Pacific.

About 80 are inhabited, but only three are of large size, viz. Viti Levu (4,053 sq. m.), Vanua Levu (2,130 sq. m.), and Taviuni (217 sq. m.). The larger islands are mountainous, densely forested in parts, and abound in valuable woods, but sandalwood is almost exhausted. There are many good harbours and a few navigable rivers. The climate is healthy and agreeable, the rainfall plentiful. The islands are subject to hurricanes between Dec. and April.



Fiji. War dance of the Fijians, in which the dancers wield clubs



Fiji. Map of the group of South Pacific islands ceded to Great Britain in 1874

The soil is fertile, the products being coconuts, sugar, cacao, yams, etc. The capital of Fiji is Suva on Viti Levu. There are several wireless stations. In 1929 the legislative council was altered to consist of 13 nominated members and 12 elected ones—six Europeans, three Indians and three natives. The Indians had not previously sent representatives to the council. Total area, 7,083 sq. m. Pop. 173,836, of whom 90,263 are Fijians, 69,403 Indians, 4,480 Europeans, the remainder being Chinese, Polynesians, etc.

FILAMENT. Term generally meaning a thread or thin fibre. Specifically it is applied to the fine wire of an electric glow lamp, which is heated to incandescence by the current.

In the thermionic valve the filament when heated sends out a stream of electrons, which are attracted to the anode, or plate See Grid; Thermionic Valve

FILARIA (Lat. filum, thread) Genus of nematode or threadlike worms, many of which are parasitic in the bodies of man and other animals. Filariasis is a disease caused by infection with a nematode worm belonging to the family filariidae See Elephantiasis

FILBERT. Fruit of the cultivated hazel (q.v.) In it the leathery husk is greatly extended so as to conceal the nut. Its proper name is Philibert nut, so called from S. Philibert, whose day is kept Aug. 22.

FILDES, Sir LUKE (1844-1927). British artist. Born at Liverpool, he began with black and white work for The Graphic, 1869, and illustrated Dickens's Edwin Drood. The Doctor, 1892 (Tatè Gallery), set the seal on his reputation as a painter of pathetic subjects. In 1901 he painted the official portrait of King Edward VII, and in 1905 that of Queen Alexandra. He was elected A.R.A. in 1879 and R.A. in 1887. Knighted in 1906 he died Feb. 27, 1927.



Sir Luke Fildes,
British artist
Russell

FILE. Hand tool used largely in the metal industries. Its purpose is to smooth down, by means of sharp edges or points formed upon its surface, a rough or irregular surface or remove a film or excreescence. Files are also used to sharpen saws. There are many varieties: flat, taper, round, square, three-square or triangular, half-round, and rat-tail. In flat files both faces and edges may be cut. If one edge is left smooth the file is said to have one "safe-edge." Standard files are single cut or double cut. The best files are made of the finest crucible cast steel.

FILE (Lat. filum, thread). Military term for soldiers formed up behind one another. In the British army men fall in in two lines; those abreast form the ranks; each man in the front rank with the man immediately behind him forms a file.

The term filing is used for any method, by which correspondence and other records are kept for reference See Card Index

FILEY. Urban dist. and seaside resort of Yorkshire (E.R.) It is 9 m. S.E. of Scarborough on the L.N.E.R., and is pleasantly situated on the cliffs overlooking Filey Bay. Filey Brigg, on the N. part of the Bay, is a ridge stretching ½ m. out to sea Pop. 4,549.

FILIBUSTER. General term for a freebooter. It is now used for individuals who wage unauthorised warfare against a foreign state. In the U.S.A. obstructive legislators are called filibusters. The word was originally applied to the buccaneers or 17th century pirates of the West Indies, and is used specifically for the adventurers who, after the Mexican war, organized expeditions in the U.S.A. to fight in Spanish-American revolutions.

FILIGREE (Lat. filum, thread; granum, grain). Form of decorative work carried out with fine wire of gold, silver, or copper. It has been used for jewelry and ornament from prehistoric times, sometimes alone, sometimes in combination with solid metal, enamel, and precious stones. Filigree decoration was largely used in mediæval times for embellishing reliquaries, and, from this detached lacework in Gothic architecture is sometimes called filigree work.

There are two types of filigree glass: (1) interwoven or spirally twisted clouded or coloured threads embedded in the glass; (2)

surface decorations or other ornaments carried out in glass threads

Filipinos. Name applied generally to the native inhabitants of the Philippine Islands (q.v.) They are of Malayan stock

FILLAN (d. c. 777). Early Scottish saint. According to the Aberdeen breviary, he was the son of S. Kentigern. He lived for some years in a cell near St. Andrews and founded a church at Glendochart in Perthshire. He was buried at Strathfillan, Perthshire.

FILLET (Old Fr. filet, little thread). In architecture, a narrow moulding or flat band in a moulding; also the flat ridge between the flutes of a shaft. The term is applied to a flat band for binding the hair.

FILLMORE, MILLARD (1800-74). American president. Born Feb. 7, 1800, he became a teacher and later a successful lawyer at Aurora, New York. In 1829 he was elected to the New York legislature, and from 1833-35 and 1837-43 he was a member of the House of Representatives. In 1848 he was elected vice-president, and he succeeded in 1850 to the presidency on the death of Zachary Taylor. He was badly beaten, however, on offering himself for election in 1854. Fillmore died at Buffalo, March 8, 1874.



Millard Fillmore,
American president

FILM. System of photography in which a flexible material is used in place of glass plates as the support of the sensitive emulsion in the making of negatives. Celluloid is the material almost exclusively employed. The modern use of films dates from 1891, when the so-called "daylight-loading" film was introduced commercially by the Eastman Co. in the U.S.A. Edison used the Eastman film for his kinetoscope, or moving picture peep show, patented in 1893.

The film-producing industry has developed more fully in the U.S.A., where the capital invested in the production, distribution, renting and exhibiting of cinematograph pictures amounts to £400,000,000, and 250,000 people are employed in various capacities. In Great Britain the figures are about one-fifth of those for the U.S.A. Europe has 27,500 picture theatres, compared with 20,500 in the U.S.A.

Taking an average annual production of 1350 "feature" films, 750 would be produced in America, 200 in Germany, 140 in Gt. Britain, 130 in Russia, 60 in France, and 70 in all other countries. Ninety per cent of the American film plays are produced at Hollywood. In Gt. Britain important studios have been established at Welwyn, Elstree, Cricklewood, and Worton Hall. Until 1929 most film plays were of the silent variety and of American origin. European countries are rapidly increasing their output, however, and the fundamental change brought about in the industry by the advent of the talking film has provided an opportunity for British producers to regain ground lost during the Great War.

Cinematograph films entering Gt. Britain are subject to the following import duties: raw stock (blank film) one-third of a penny per linear foot; positive film, 1d. per foot; negative, 5d. per foot. An Act passed in 1927 made it compulsory for every film renter trading in Great Britain to provide a quota of British films in his output, the proportion increasing year by year from 7½ p.e. in the year ending March 31, 1929, up to 20 p.e. in 1933. Exhibitors were required to show a quota of British films, increasing from 5 p.e. in 1928 up to 20 p.e. in 1936.

Films are censored by a board appointed by the renters' organizations. Certificates are issued denoting that a picture is licensed for universal exhibition, or, on the other hand, that it may be shown to adults only. See Cinematograph; Eastman, G

FILTER (late Lat. filtrum, felt). Mechanism designed to act as a strainer and to arrest solid suspended matter, even down to germs and microbes in the case of potable water.

The filter bed ordinarily used by water companies is formed either by bricks or paving slabs laid in cement, or of fine concrete finished with a layer of asphalt or bitumen, the aim being to secure a water-tight surface. On this floor will be laid either coarse gravel to a thickness of about 6 ins., or two layers of bricks or pipes, the lower one having the bricks spaced an inch or so apart, and the upper one having them placed close against one another. Upon the latter will be spread fine gravel to the depth of about 6 ins., and over this a mass of clean, sharp sand to a depth of from 2 ft. to 4 ft. This combination of bricks, gravel, and sand constitutes a filter bed.

When the filter has been working for some time a film of mud, produced by the life-processes of innumerable bacteria, which destroy organic matter and are an essential feature of the filter, forms on the sand, and the filter is then in its most efficient condition.

The best forms of household filter are those in which unglazed porcelain or biscuit china is the medium. To use a neglected filter may be more dangerous than not using one at all.



Filter bed in London waterworks. The construction comprises three depths of pipes, gravel, and sand

A filter press is an appliance much used in a variety of industries, including the manufacture of chemicals, dyes, sugar, paints and colours, pottery, yeast, starch, and many pharmaceutical preparations. To some limited extent it is also used in the treatment of sewage. It expedites filtration by pressure.

A filter pump is a pump used in laboratories to facilitate the filtering process.

FIN (Lat. penna, wing, fin). Expansion of the skin or body wall in aquatic animals, by means of which they swim. In the fishes they are paired and unpaired. The paired correspond to the limbs in the higher animals; the unpaired are folds of skin more or less supported by fin-rays.

In aeronautics a fin is any fixed subsidiary plane or surface set vertically to the rear part of the fuselage of an aircraft. See Aeroplane

FINALE (Ital. end). Closing movement of a composition of extended character, such as a sonata, symphony, or concerto; or the last portion of one of the acts of an opera, in which as a rule the performers assemble on the stage.

Finance Act. Name given to the annual Act of Parliament that legalises the proposals contained in the Budget (q.v.)

FINCH (Lat. Fringilla). Name applied to a large family of small birds, distributed over most of the temperate zone except Australasia. They are characterised by hard conical beaks with smooth edges. The sexes are differently coloured or marked. Finches are in the main seed-eaters. See Brambling; Bullfinch

FINCHLEY. Urban dist of Middlesex, A suburb of London, it has stations on the L.N.E. and L.M.S. Rlys. The assembly of the Guards here in 1745 is commemorated in Hogarth's picture, *The March to Finchley*. Finchley gives its name to a co. div. returning one member to Parliament. Pop. 46,716.

FINCK, HERMAN (b. 1872). British conductor and composer. Born in London, Nov. 4, 1872, he studied at the Guildhall School of Music. From 1900-21 he was musical director of the Palace Theatre. In 1922 he was appointed musical director at Drury Lane. He has written over 50 light operas and hundreds of songs.

FINDHORN. River of the counties of Elgin (Moray), Nairn, and Inverness, Scotland. It issues from the Monadhliath Mts., and enters Moray Firth 2 m. N. of Forres through Findhorn Bay. Findhorn, a fishing village and watering-place, is on the E. shore of the bay.

FINDON. Village of Kincardineshire. It is on the coast, 6 m. S. of Aberdeen, and gives its name to the Findon or Finnon haddocks, which were first cured here.

FINE (Lat. finis, the end). Term common in English law. It is a sum of money imposed by way of penalty for a crime or breach of some law or regulation. As a rule, the amount imposed is in the discretion of the judge or magistrate. The lines must not be excessive, a maximum in most cases being fixed by statute.

FINEDON. Urban dist of Northamptonshire. It is 3 m. N.E. of Wellingborough on the L.M.S. Rly. Boot and shoe making is the chief industry. Pop. 4,185.

FINGAL'S CAVE. Cavern in the island of Staffa. Hollowed out of the basalt, the grotto is 228 ft. long, 48 ft. wide, and 60 ft. high. It is remarkable for its regular basaltic columns, for its wonderful and varying colours revealed as the light plays upon it, and for its stalactites. On the E. of the island, it was discovered by Sir Joseph Banks in 1772.



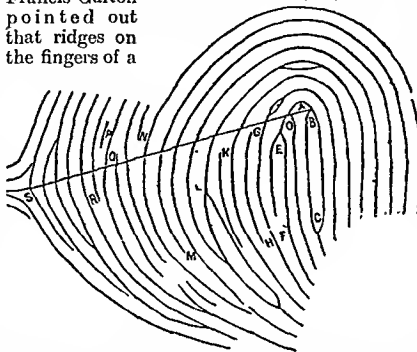
Fingal's Cave. Of basalt, it is the haunt of sea birds and seals

FINGER. Terminal member of the hand. The bones or phalanges of the fingers are three in number in each finger, except the thumb, which has only two. The fingers articulate with the metacarpal bones of the palm. Along the backs of the fingers pass the tendons of the extensor muscles, which straighten the fingers, and along the fronts the tendons of the flexor muscles, which close the hand. The blood supply of each finger is derived from two digital arteries, which run along each side of the finger and unite at its extremity. The nerves which supply the skin of the fingers are derived from the ulnar, radial, and median nerves.



Finger. Bones of human finger

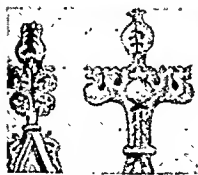
suggested a system of classification, and in 1858 Sir William Herschel laid the foundations of the present system in Bengal. Henry Faulds (1844-1930), a Scotchman with much experience of medical work in India and Japan, also did much to establish the system, and some claim him as its founder. In 1890 Sir Francis Galton pointed out that ridges on the fingers of a



Finger Print. Two diagrams illustrating (above) the actual thumb print in blood left by a murderer, and (below) the lines of the ridges of this thumb print drawn to facilitate examination. The letters from A to S indicate the various characteristics which distinguish the print, e.g., L is the highest ridge, S B is the line joining the two terminal points of the print, to enable the number of ridges to be counted and compared with a known finger print of the murderer, who was caught and sentenced on the evidence furnished by these two diagrams.

new-born infant were absolutely identical to the day of death.

The full value of Purkenje's, Herschel's, and Galton's work was only recognized when Sir Edward Henry devised a numerical formula for classifying the impressions. The Henry system has been widely adopted by the police organizations of the world, and at New Scotland Yard alone the number of cards registered is a quarter of a million, involving some 2,500,000 finger prints. See Identification.



Finial. Examples from Canterbury Cathedral

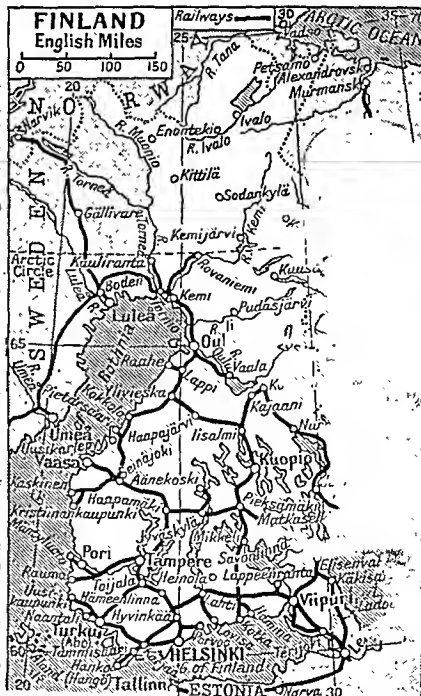
Finland on the S. The area is 149,041 sq. m. including Petsamo. The capital is Helsinki (Helsingfors). The coastline, entirely on the Baltic, is fringed with islands, of which the Aaland Islands are the most important.

The country consists of a plateau, at an elevation of 300 to 500 ft., with lowlands round the coast. The southern half contains thousands of shallow lakes. There are numerous short rivers broken by rapids, but useful for floating timber. Finland has a short, hot summer and a long, cold winter. Rivers and lakes are frozen from Dec. to May. Abo (Turku), Hanko (Hango), and Helsinki are the only ports open in winter. Coniferous forests cover 60 p.c. of the country. Wild animals include reindeer, bear, wolf, and lynx. Mosquitoes are a plague. The population of 3,526,000 includes a few thousand Lapps

The language is Finnish, but Swedish is understood in the larger towns. Finnish literature may be said to have begun in 1835 with the collection by Elias Lönnrot of the national songs in the Kalevala (q.v.). Other Finnish writers include A. Stenvall, poet and dramatist, P. Paiviranta, noted for *His Life*, and J. Aho. Several Finns, including A. E. Nordenskjöld, have been distinguished in Arctic exploration.

The Finns reached Finland from their Asiatic home in the 7th and 8th centuries. Finland was conquered by Sweden and Russia and in 1809 became an autonomous grand duchy of Russia. She declared her independence Dec. 6, 1917. War followed with Soviet Russia, but with the signing of the treaty of Dorpat, Oct. 14, 1920, Finland became an independent republic. Government is by a single chamber of 200 members elected by universal suffrage. The president is chosen for six years. Army service is compulsory, and there is a small navy. There are three universities, and except in remote areas education is good. About 90 p.c. of the population belong to the Lutheran Church. Except in the N. and E. there is little real poverty; prohibition is in force.

Oats, barley, and rye are the chief crops, and potatoes are important. Cattle are kept for dairy purposes. Manufactures are well developed, mainly by help of water power. The main exports are timber, butter, paper, pulp, and textiles, and the imports include cereals and other foods, cotton, machinery, and coal. The southern half of the country is well served by rlys. Canal transport is highly developed, as are the telegraph and telephone systems. The unit of currency is the mark, worth 1/4d. See Aaland Islands; Helsingfors; consult also Finland To-day, G. Renwick, 1911; Finland and the Finns, A. R. Reade, 1915; Peace Handbooks, No. 47.



Finland. Map of the North European republic, formerly part of the Russian Empire

Finland; No. 48, Aaland Islands, 1918; The Red Insurrection in Finland, 1918, H. Söderhjelm, Eng. trans. A. I. Fansholl, 1919.

FINLAY, ROBERT BANNATYNE FINLAY, 1st Viscount (1842-1929). British lawyer and politician. Born July 11, 1842, he qualified

as a doctor, but he became a barrister in 1867. Success quickly came to him, and, entering Parliament, he was solicitor-general 1895-1900, attorney-general 1900-6, and lord chancellor 1916-18. He was made a viscount in 1919. He was British member of the permanent court of arbitration at the Hague in 1920, and lord rector of Edinburgh University, 1902-3. Viscount Finlay died March 9, 1929.



Viscount Finlay,
British lawyer
Russell

His son William, who became the 2nd Viscount (h. 1875), was made a

judge of the high court in 1924.

FINN, FIONN, FIND, OR FINGAL. Warrior hero of Celtic tradition. He was the son of Cumhal (pron. cool) of Leinster and Moran of the White Hand, and was called Finn, the Fair One, from his appearance. He took over the leadership of the warrior band known as the Fians or Fianna from his life-long enemy Goll MacMurna. One of the chief episodes in his career was the pursuit of Diarmid, who eloped with Grania, Finn's betrothed. In Scottish legends Finn is known as Fingal, and was king of Morven, in Argyll. He was slain in the defeat of the Fians (q.v.), probably in 283.

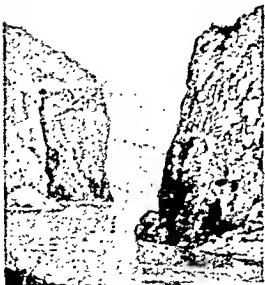
FINSBURY. Borough of the county of London. Bounded S. by the City, it was once a residential quarter and includes Clerkenwell. Within its area are the Charterhouse, the headquarters of the H.A.C., Bunhill Fields, Northampton Institute, and S. John's Gate. At Finchbury Park is an important station on the L.N.E. system which is here linked up with the underground railways. Finsbury Park is a recreation ground of 115 acres, opened in 1899. Pop. 75,995.

The London thoroughfare known as Finsbury Pavement, which ran N. from London Wall, was incorporated with Moorgate Street in 1922 as Moorgate.

FINSEN LIGHT. Form of treatment for lupus, invented by the Danish scientist Niels Ryberg Finsen (1860-1904). The rays from a powerful electric arc lamp are passed into an absorbent medium which allows only the actinic or chemically active rays to pass through it. These rays, having been concentrated by means of lenses of rock crystal and cooled by being passed through a continuous current of cold water, are directed on to the affected area.

FINSTERAARHORN. Mt. of Switzerland. It lies between the cantons of Berne and Valais, in the Bernese Oberland and its height is 14,025 ft. The summit was first reached in 1812.

FIORD (Scand.) Type of inlet found on the coasts of regions which have been greatly glaciated. It is usually very deep. Fiord coasts are found in British Columbia, Scotland, and Norway.



Fiord. Steep cliff walls of this type of coastal inlet

FIR. Cono bearing tree of the natural order Coniferae. A native of Britain, N. Europe, N. America, Japan, and the Himalayas, its height varies from 10 ft. to 200 ft. Firs thrive in any deep, rich loam, may be planted in autumn or spring, and are propagated by

seeds sown in a cold frame in spring. It is now generally accepted that the true fir means Abies, the silver fir. The genus Picea embraces the spruces, and Pinus the pines. See Forestry.

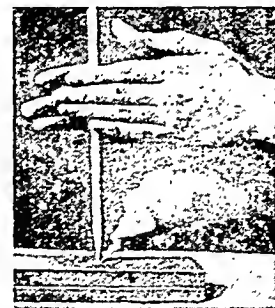


Fir. Foliage of the silver fir,
Abies pectinata

subdued by the Milesians, Goidelic Celts.

FIRE (A.S. fyr). Word embracing in its widest sense any manifestation of glowing heat. It commonly denotes the visible effect of the combustion of substances by means of the chemical combination of atmospheric oxygen with one or more of their constituents. The incombustible residue being called ash. Flame is formed when glowing gas is produced. There may also be non-luminous vapours called smoke or fume.

The process of raising the temperature of combustible or inflammable substances to the point at which self-sustaining combustion proceeds is called ignition. This may be brought about by solar radiation, terrestrial heat, molecular action, electrical discharge, friction, pressure or percussion. In the domestic and industrial arts heat and light are commonly obtained from substances—solid, liquid, or gaseous—which are called fuels, mostly derived from carbonaceous materials of vegetable origin.



Fire drill for producing
flame by wood friction

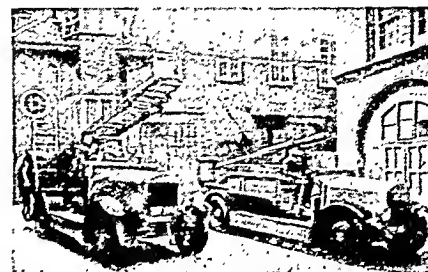
expression of reverence for fire as a natural element affecting human welfare. See Sun-worship; Zoroastrianism.

The Great Fire (q.v.) of London in 1666 was one of the greatest fires on record, but still costlier fires have occurred in Moscow, 1812; Paris, 1871; Chicago, 1871; Boston, 1872; Baltimore, 1904; and San Francisco, 1906.

A fire alarm is a mechanical contrivance for making known the fact that a fire has broken out. It may be electric, mercerial, pneumatic, metallic, or take the form of a loud speaker.

FIREBRICK. Bricks intended for use in the building of structures to be exposed to high temperatures, particularly furnaces for the melting of metals. Common firebricks are made from special clays; other materials used comprise ganister, a sandstone with just sufficient clay to permit the ground material to be moulded; Dinas rock, flints, and other siliceous sands and stone; lime; magnesia; graphite; chromite, an iron ore containing chrome; "bull-dog," a mixture of iron oxide

and silica used for lining puddling furnaces; and, in addition, some other special compounds. See Brick; Furnace.



Fire Brigade. Above, old style turn-out with horse-drawn engines. Below, latest pattern escape and motor pump as used by the L.C.C. Fire Brigade

FIRE BRIGADE. Organization for combating outbreaks of fire. In England we owe the development of the fire brigade to the early fire insurance companies, though an Act of Parliament of 1774 obliged the churchwardens of the London parishes to maintain a proper engine for putting out fires in their own areas. In 1866 the Metropolitan Board of Works took over the entire London organization, which in 1888 came under the L.C.C.

A modern fire engine consists of a special type of tubular steam boiler, capable of raising steam to a pressure of from 100 to 200 lb. per square inch in a few minutes, and one or more steam-driven pumps, all mounted on a light but strong wheeled carriage. Usually propelled by a petrol motor tractor, such an engine will throw from 500 to 1,400 gallons of water per minute to a height of 150 feet.

A fire escape may be a simple knotted rope attached at one end to a window frame, or an elaborate



Fire-worship. Fire-altar from
a frieze at Khorsabad, Assyria

external staircase or balcony built of iron. Of portable appliances the chief is the wheeled ladder with supplementary or extension ladders, which when joined permit a height of 60 feet and over to be reached. This form of escape is provided with a chute or shoot of copper wire netting attached to the under side of the ladders and rising with the extension. A person may slide down this shoot to the ground without injury. For the same purpose shoots of stout canvas are kept ready for use in large establishments.

FIRECLAY. Material so called from the high refractoriness of the articles made from it, i.e. its quality (when manufactured) of resisting intense heat, and its freedom from splitting when exposed to rapid changes of temperature. The minimum fusion point for a fireclay is usually taken at about 1,600° C. Fireclays abound in the British coalfields.

FIREDAMP. Name given by miners to the marsh gas which appears in coal mines. When diluted with air in certain proportions it forms a mixture which will explode with great violence if lighted either by a flame or by contact with an incandescent surface. *See* Mining; Safety Lamp.

FIREFLY. Name applied generally to beetles which are luminous in the dark. In Europe they are represented by the family Lampyridae, of which the glow-worm is a familiar example. *See* Beetle

FIREPROOFING. The treatment of a material normally inflammable (paper, fabric, or wood), so that it will not take fire. The idea is a very old one, but the most that has been achieved is to render materials less inflammable than they are in their natural condition. The substances proposed as fireproofing agents include common salt, alum, sulphate of zinc, sulphate of ammonia, sulphate of soda, sal ammoniac, borax, sulphate of lime and of baryta, lime water, ammonium phosphate, ferric sulphate, and silicate and tungstate of soda, the two latter probably being those most generally and successfully employed. Certain paints employed for coating wood assist to prevent wood from catching fire, but are liable to peel off. Brushing timber with common limewash two or three times will render it to a great extent non-inflammable.

FIRESHIP. Wooden vessel filled with combustibles that used to be set on fire and made to drift down upon an enemy fleet when it was at anchor or in harbour. The fireships were sent in thus to create panic or set on fire enemy vessels as they came in contact with them. The coming of steel and steam made the fireship obsolete. *See* Armada.

FIREWORKS. Inflammable and explosive contrivances for producing entertaining effects in fire. The science of pyrotechny is of great antiquity in the East, where, however, little progress has been made except in Japan. Probably introduced to Europe by the Crusaders in the 13th century pyrotechny had greatly developed by about the middle of the 17th century and gained great impetus in the 19th by the display of Messrs. Brock at the Crystal Palace.

Broadly speaking, the same principle governs the composition of all fireworks. A substance which readily takes up oxygen is put in close contact with one which readily supplies it. Of the latter the most frequently used are nitrate of potash (saltpetre) and chlorate of potash, and of the former, sulphur and charcoal, or other carbon compounds, such as gums, resins, starch, etc.

Many of the metals are used either in the form of salts, as those of copper, lead, or mercury, or pure, in the form of powder or filings, as iron, steel, magnesium, and aluminium. The pure metals are generally added

to produce glowing sparks or eoruscations, or to add brilliance to the burning. Colours are produced by the addition of metal salts, strontium producing red, sodium yellow, copper blue, barium green. The salts most commonly used are the nitrates, chlorates, carbonates, and perchlorates. The usual method of construction is to charge the composition into a case of strong paper, the end which is to be ignited being covered with priming which usually contains mealed gunpowder.

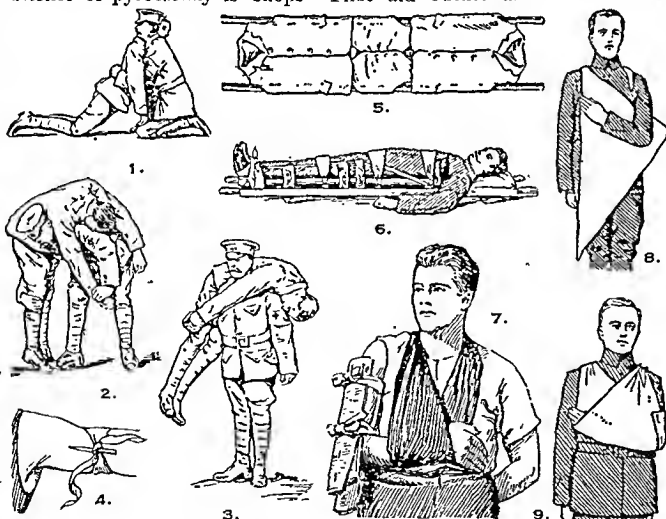
Besides their spectacular value, fireworks have many utilitarian uses, as in life-saving rockets for carrying lines between shore and ship or ship and shore, and are used for signalling and other purposes in war. *See* Gunpowder; Rocket.

FIRKIN. Old English ale measure, the fourth of a barrel, or 9 galls. Originally it varied from 7½ to 8 galls., and now it would equal 9½ imperial galls. As a small wooden cask to hold butter, a firkin contains 56 lb.

FIRMAN (Pers.). Passport issued to favoured travellers by the Turkish government. The term is also applied to a licence to carry out some enterprise or undertaking, or to engage in a particular trade.

FIRST AID. A term for assistance which may be given in cases of accident or sudden illness before medical advice can be obtained. A knowledge of the principles of first aid has been promulgated widely in Great Britain by the operations of the St. John Ambulance Association, St. John's Gate, Clerkenwell, E.C.; the British Red Cross Society; the St. Andrew's Ambulance Association, the Boy Scouts and Girl Guides organizations, and various educational authorities.

Large numbers of railway employees are trained in first aid work and provision for it is made in all up-to-date factories and workshops. First-aid outfits are obtainable at



First Aid: some emergency methods and devices. 1-3. Fireman's lift, one method of carrying a helpless person. The patient is laid on his face and the bearer raises him first to his knees and then to his feet, as shown; in the final stage the bearer has a free hand with which to steady himself. 4. Tour-niquet for brachial arteries improvised from a handkerchief and a pencil. 5. Stretcher made by passing poles through the inverted sleeves of jackets. 6. Splint for a fractured thigh improvised from a broom-handle; sacking or some soft material should be interposed. 7. Emergency splints for a fractured arm made from tightly-folded newspapers. 8 and 9. Method of making an arm sling from a triangular bandage or a large handkerchief folded cornerwise

most chemists, often with instructions for use. It is as important to know what not to do as to know what to do in an emergency; for example, no alcohol or any other liquid should be given to an unconscious person, while a golden rule is to get skilled medical or surgical help as soon as possible. *See* Ambulance; Dressings; Hospital; Medicine; Red Cross; Surgery.

FIRSTBORN. Technical term among the Jews. In commemoration of the deliverance from Egypt, all firstborn human males were consecrated to God, but every child that lived more than one month could be redeemed. The Jews, who are referred to as the firstborn among the nations, still solemnise the redemption of the firstborn on the 30th day after birth. In the N.T. the term firstborn is used in relation to Christ, the dead, and the Church (Ex. 4, 13, 22, 34; Num. 3, 8, 18; Col. 1; Heb. 12; Rev. 1). *See* Birthright.

FIRST EMPIRE. Name given in France to the period between May, 1804, when Napoleon I became emperor, and April, 1814, when he abdicated. *See* France.

FIRST FRUITS. Ancient religious practice of offering to God a portion of the first fruits of a crop or of the first profits of any commercial undertaking. Prescribed by the law of Moses, among the Hebrews it was usually one-sixtieth, but might be as much as one-fortieth. In the early Christian Church the practice was regarded as a work of devotion and not of obligation. The Apostolic Constitutions direct that the first fruits of cattle and crops should go to the clergy, and that other first fruits should be devoted to the relief of widows and orphans. *See* Annates; Tithes.

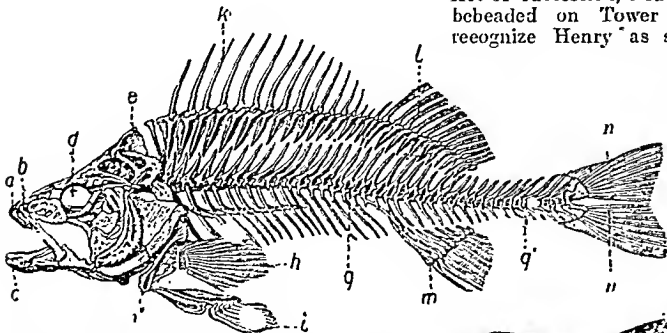
FIRST OFFENDER. Term used in England for an offender bound over to be of good behaviour. The First Offenders Act, 1887, gave all courts of criminal jurisdiction power to bind over first offenders. The Probation of Offenders Act, 1907, extends this power to all cases, whether first offences or not; and gives the court power to order the first offender to be placed under the supervision of some person named (generally the probation officer) for a period. *See* Borstal System; Child.

FIRST REPUBLIC. Name given in France to the period from Sept. 21, 1792, when the convention declared the country a republic, and May, 1804, when Bonaparte was declared emperor. *See* France.

FIRTH, MARK (1819-80). British manufacturer. Born at Sheffield, April 23, 1819, he was the son of an artisan in the steel industry, in which his father, brother, and himself built up a great business. He built almshouses at Rammoor, and founded Firth College, the nucleus of the university of Sheffield. He died Nov. 28, 1880.

FISH. One of the phyla or sub-kingsdoms of the animal world. They are cold-blooded, live in water, and breathe by means of gills. The limbs, when present, are modified into paired fins; there are also unpaired fins which consist of folds or outgrowths of the skin. The body is specially adapted for rapid passage through water. With few exceptions fishes reproduce their kind by eggs. Fishes are found in all waters and at almost all temperatures. Something like 2,300 species of freshwater fishes are known. Fishes breathe by extracting the air contained in water. Most species have well-developed eyes, can hear well, and their sense of touch is highly developed. In colour fishes vary greatly, from the most sombre tones to the most brilliant hues. The silvery appearance is due to the presence of minute crystals in the scales. Protective coloration is often present, notably in the flatfish. Small crustaceans and molluscs form the most important item in the food of most fishes; but many prey on smaller fish, and others browse on the aquatic vegetation. Nearly all fish are edible, but fresh-water fishes, with the exception of salmon and trout, are, as a rule, of insipid flavour. *See* Angling; Animal; Cod; Fisheries; Halibut; Herring; Zoology.

In the sale of fish a special measure of capacity is used. Four fish make 1 warp; 33 warps, a long hundred; 10 long hundreds, a long thousand; 10 long thousands (13,200



fish), a last. In addition to this 500 herrings make a code, 600 herrings a mease, and 615 herrings a maze; 37½ gallons of fresh herrings equal a cran, and 26½ gallons of cured herrings a barrel. A barrel of anchovies is 30 lb.

FISH CULTURE. This is the art or industry of artificially increasing stocks of food fish by means of hatcheries, etc. France possesses fresh waters devoted to fish farming, of a total area of nearly 500,000 acres. In the U.S.A. the government has established salmon hatcheries on a large scale on the Pacific Coast.

Flat fish, such as plaice, sole, and turbot, are being reared by the Scottish Fishery Board at Nigg, near Aberdeen, and elsewhere. The Norwegian government liberates yearly hundreds of millions of young eod hatched in salt water ponds. On the W. coast of France there are a number of brackish ponds, where salt-water fish are not only hatched but raised to maturity.

FISH CURING. Curing, drying, pickling, or otherwise preserving fish. The curing of cod, mackerel, and herring are the most important branches of the industry in Great Britain. As soon as the fish have been brought ashore, the heads are cut off and the fish carefully cleaned, gutted, and bled. After being washed in salt water they are pickled in covered vessels. One barrel of salt is usually necessary to cure three barrels of herrings.

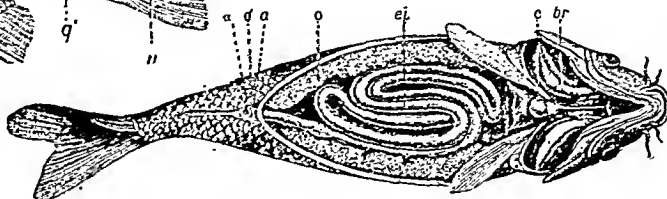
FISHER, ANDREW (1862-1928). Australian politician. Born Aug. 29, 1862, at Crosshouse, Kilmarnock, Scotland, he worked as a boy in the coal mines. In 1885 he emigrated to Queensland, and entered the Commonwealth parliament as M.P. for Wide Bay in 1900. In 1904 he became minister of trade and customs, and in 1907 leader of the labour party. As such he was prime minister in 1908-9, in 1910-13, and 1914-15, when he became high commissioner in England resigning in 1921. He died Oct. 23, 1928.



Andrew Fisher,
Australian politician

FISHER, HERBERT ALBERT LAURENS (b. 1865). British historian and politician. Born in London, March 21, 1865, he had a brilliant career at Winchester and New College, Oxford. As president of the board of education, 1916-22, he was responsible for the Education Act of 1918. He entered Parliament as M.P. for Sheffield in 1916, and in 1918 and 1923 was returned as a member for the newer English universities. He became warden of New College, Oxford, in 1925, and president of the British Academy in 1928. His historical books include *Studies in Napoleonic Statesmanship*, 1903; and *Napoleon*, 1913.

in 1504 was made bishop of Rochester. He was a keen opponent of Henry VIII's divorces from Catherine of Aragon, was imprisoned in the Tower in 1534 for refusing to swear to the Act of Succession, and on June 22, 1535, was beheaded on Tower Hill for refusing to recognize Henry as supreme head of the Church. He had been created a cardinal on May 20. He was instrumental in bringing Erasmus to Cambridge. He was beatified on Dec. 9, 1885.



Fish. Diagrams illustrating the structure of fishes. Above, skeleton of common perch: a, premaxillary bone; b, maxillary bone; c, under jaw; d, palatine arch; e, cranium; f, inter-operculum; g, g, vertebral column; h, pectoral fin; i, ventral fin; k, l, dorsal fins; m, anal fin; n, n, caudal fin. Below, internal anatomy of carp: b, branchiae or gills; c, heart; ei, intestinal canal; o, ovaries; a, a, anus; o, oviduct.

FISHER, JOHN ARBUTHNOT FISHER, 1ST BARON (1841-1920). British sailor. Born Jan. 25, 1841, at Rambodde, in Ceylon, he entered the navy on June 12, 1854, on board the *Victory* at Ports mouth, "penniless, friendless, and forlorn." After distinguished service afloat he became first sea lord, 1904-10, and again in 1914-15. He was knighted in 1894, and took the title of Lord Fisher of Kilverstone when made a baron in 1909.



Lord Fisher,
British sailor
Russell

Fisher was the creator of the Dreadnought and battle-cruiser type, and the introducer of oil fuel and submarines into the British navy. His work in improving the shooting of the navy was of the utmost importance. He died July 10, 1920, when his title passed to his son. His letters to *The Times* in 1919-20 were memorable for the refrain "sack the lot," and he always spoke of himself as "ruthless and relentless." Consult *The Life of Lord Fisher of Kilverstone*, Admiral Sir R. H. Bacon, 1929.

FISHERIES. An important branch of the world's commerce, embracing the culture, preservation, catching, and marketing of fish.

Since the opening of the 20th century the industry has seen the disappearance of the fishing smack in favour of the powerful and fast steam trawler, together with improvements in the gear and machinery employed, and the introduction on a large scale of ice for preserving the fish. Thus fish can now be brought from far greater distances than was formerly the case, and trawlers can remain at sea for one or two weeks before returning to land their catch.



John Fisher,
English prelate
After Holbein

The enormous figures given in the official returns suggest either that the quantity of fish must seriously diminish as time goes on, or else that the supply is inexhaustible. The latter is probably the truth, provided that the fish get fair treatment. The reason is biological, their extraordinary power of

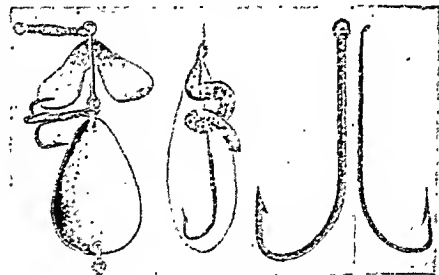
reproduction. A herring produces from 20,000 to 30,000 annually; turbot, cod, and some others produce millions. How complicated the question of distribution is, may be realized from the fact that (as F. G. Affalo says), "a slice of turbot eaten in a London club may have been caught in the Bay of Biscay, then brought on ice to Plymouth Barbican, sent by rail to Waterloo, thence by van to Billingsgate, and finally by cart to the Bond Street shop from which the club buys it."

FISHERY BOARD. In Gt. Britain a body of men whose work it is to foster and protect the fishing industry. Scotland has a separate

board. In England and Wales the fisheries are looked after by the ministry of agriculture and fisheries. In Nov., 1919, the fisheries department of the board of agriculture was placed under the direct control of the parliamentary secretary, who acts as deputy-minister of fisheries.

FISHGUARD OR ABERGWAEEN Urban

seaport, and market town of Pembrokeshire. It stands on the Gwaen near its entrance into Fishguard Bay. A terminus of the G.W.R., Fishguard has an excellent harbour and a fine breakwater (2,500 ft.), a coastguard and lifeboat station. There is regular steamer communication with Rosslare, Ireland. Market day, Thurs. Pop. 2,999.



Fish Hook. 1. 14-in. beetle spinner. 2. Insect bait. 3. Hollow-pointed Limerick hook. 4. Pennell turn-down eye hook.

By courtesy of S. Alcock & Co

FISH HOOK. Apparatus for catching fish. Hooks vary greatly in size and shape, from the huge hook with swivel and chain attachment used for catching sharks, down to the tiny eye hook on which the smallest trout flies are dressed. See Angling.

FISHMONGERS' COMPANY. London city livery company with a charter dating from 1364. It examines all fish brought into Billingsgate. The hall, in Upper Thames Street, E.C., was built in 1831-33.

FIT (A.S. *fitt*, struggle). Popular term for a sudden seizure, accompanied by loss of consciousness, with or without convulsions. See Convulsion; Epilepsy; Hysteria; Rickets.



Fishmongers'
Company arms

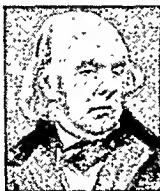
FITZGEORGE. Name taken by the three sons of the duke of Cambridge and his morganatic wife, Miss Louisa Fairbrother, the actress, whom he married in 1840. Sir Adolphus Augustus Frederick FitzGeorge (1846-1922) became rear-admiral in 1904; he was knighted, as was Sir Augustus Charles Frederick FitzGeorge (b. 1847), who entered the Rifle Brigade and retired as a colonel.

FITZGERALD, LORD EDWARD (1763-98). Irish rebel. Son of the 1st duke of Leinster, he joined the United Irishmen in 1796 and took an active part in the plans for the French invasion. The plot was discovered, and Fitzgerald died in prison, June 4, 1798, from wounds inflicted by one of his captors. His wife Pamela was generally, but wrongly, believed to be a daughter of Madame de Genlis by Philippe Egalité, duke of Orleans. She, who was probably born in Newfoundland, married Fitzgerald in 1792 and lived until Nov., 1831.



Lord Edw. Fitzgerald, Irish rebel
After O. Humphry, R.A.

FITZGERALD, EDWARD (1809-83). English poet and translator. He was born March 31, 1809, at Bredfield House, near Woodbridge, Suffolk, and was educated at Bury St. Edmunds and Cambridge. In middle age he married Lucy, daughter of Bernard Barton.



Edward Fitzgerald,
English poet

Fitzgerald is best remembered by his translation of The Rubáiyát of Omar Khayyám, first published in Jan., 1859. A second, greatly revised, edition appeared in 1868, and its subsequent popularity has been world-wide. He also published Six Dramas of Calderon, 1853; a version of the Agamemnon, 1876; two Oedipus Tragedies, 1880-81; and Readings in Crabbe, 1882. He died June 14, 1883.



Mrs. Fitzherbert,
wife of George IV
After R. Cosway

FITZHERBERT, MARIA ANNE (1756-1837). Wife of George IV. A daughter of Walter Smythe, of Brambridge, Hampshire, she married in 1775 Edward Weld, of Lulworth Castle, Dorset. Her second husband was Thomas Fitzherbert (d. 1781). In 1785 she met the prince of Wales, who married her privately on Dec. 21, 1785. According to the Royal Marriages Act, 1772, the union was illegal. In 1795 George married Caroline of Brunswick. Mrs. Fitzherbert, who had an allowance of £6,000 a year, died at Brighton, March 29, 1837. Consult Mrs. Fitzherbert and George IV, W. H. Wilkins, 1905.

FITZPATRICK, SIR CHARLES (b. 1853). Canadian politician. Born in Quebec, Dec. 19, 1853, he became a barrister. From 1890-96 he was a member of the legislative assembly of Quebec, and in 1896 he entered Dominion politics as M.P. for Quebec. In the same year he was made solicitor-general in the Laurier administration, and in 1901 he became minister of justice. He was chief justice of Canada 1906-18, and lieutenant-governor of the province of Quebec 1918-23. In 1907 he was knighted and from 1908-10 was a member of the Hague Tribunal.



Sir C. Fitzpatrick,
Canadian lawyer

FITZROY. River of Queensland, Australia. It is formed by the union of the Dawson with the Mackenzie, and discharges into Keppel Bay. Another river of this name in W. Australia rises in King Leopold range, and empties into King Sound. The name Fitzroy is given to a north-eastern suburb of Melbourne, Victoria.

FITZROY, EDWARD ALGERNON (b. 1869). British politician. Born July 24, 1869, he was educated at Eton and Sandhurst, and joined the 1st Life Guards, serving in the Great War. He was Conservative M.P. for S. Northamptonshire (now the Daventry Division) 1900-6 and was re-elected in 1910, and at all subsequent elections. He was deputy-chairman of committees 1922-24, and 1924-28, when he succeeded J. H. Whitley as Speaker.



E. A. Fitzroy,
Speaker since 1928
Russell

FITZSIMMONS, ROBERT (1862-1917). British pugilist. Born at Helston, Cornwall, June 4, 1862, he went to New Zealand at the age of nine, and was trained as a blacksmith. After several local successes as a boxer he entered the ring as a professional, and in 1897 obtained the heavy-weight championship. Retiring in 1912, he died Oct. 22, 1917.

FITZWILLIAM, EARL. Title held by the Irish family of Fitzwilliam since 1716. William, the 3rd baron (1643-1719), was created an earl in the Irish peerage in 1716, and William, the 3rd earl, was made earl in the British peerage in 1746. From him the present peer, William (b. 1872), is descended. The earls own large estates in Yorkshire and Wicklow, also Milton Hall, Peterborough, which has been in the family since about 1500. His eldest son is called Viscount Milton, and his chief seat is Wentworth Woodhouse, near Rotherham.

The Fitzwilliam Museum is an art and archaeological museum in Cambridge. It was founded by Richard Fitzwilliam (1745-1816); 7th Viscount Fitzwilliam, an Irish peer. He bequeathed to the university his collection of books, illuminated MSS., pictures, drawings, engravings, etc., together with certain dividends, for the creation of a gallery to accommodate them. The money was allowed to accumulate, and when £40,000 had been amassed the Fitzwilliam Museum in Trumpington Street, Cambridge, was erected. The original bequest has been increased by other donors, and the museum possesses a valuable library. See illus. p. 343.

FIUME. Italian seaport. It is on the river Rēfina, at the N.E. extremity of the Adriatic, and has several harbours. Much of the shipping trade of Hungary passes through the port, and the fisheries are of great importance.

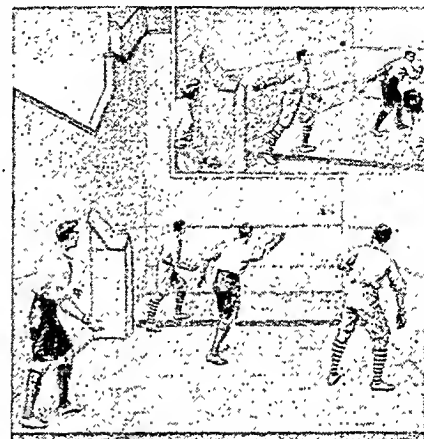
The town possesses distilleries, petroleum refineries, and mills, while there is trade in fruit, barrels, staves, furniture, tobacco, paper, chemicals, fertilisers, and soap. The pop. is largely Italian, but the suburb of Sushak across the river, and the surrounding area, is inhabited by Yugoslavs, chiefly Croats. Pop. 49,199.

On Sept. 11, 1919, Gabriele d'Annunzio seized Fiume and set up a provisional government. On Nov. 12, 1920, the treaty of Rapallo established it as an independent state, but by a treaty of Jan. 27, 1924, the town and harbour works were acquired by Italy together with a strip of hinterland, while Yugoslavia acquired Porto Barros and the Delta. See Italy; Yugoslavia.

FIVE-POWER NAVAL TREATY. Part of the naval treaty of London (q.v.). It was signed, April 22, 1930, by Great Britain, U.S.A., Japan, France and Italy, and embodied agreements reached on limitation and scrapping of warships, rules for submarine warfare, etc.

FIVES. Game of handball. It is played either with the bare hand or with gloves. The Eton game is played by four players, and demands the highest skill and quickness of movement. Both the Rugby and Winchester games can be played either by one or two players a side.

In both games the service is given by one player throwing the ball on to the wall. His adversary can refuse any service, but if he does not refuse it, he must hit the ball on to the right-hand side wall, and then on to the front wall above the ledge or line. The rally then proceeds in the ordinary way, i.e. the ball is returned on the volley or the first round above the line. The player who first fails to do this loses the rally, and either yields the service to another player or loses a point. A game consists of 15 points. The ball used in fives is made like a racket ball. Its weight in Eton fives is 1½ oz. and in Rugby 1¼ oz. Apart from its vogue in public schools, the game is popular in the north of England.



Fives. An Eton game in progress, illustrating the construction of the court. Above, about to volley for the pepper-box or buttress

FIXTURE (Lat. figere, to fix). In English law a tenant is entitled to remove all fixtures that have been put up by him for ornament or convenience which can be removed without damage to the premises. In the case of trade fixtures, the tenant may remove them, unless in so doing he causes damage to the property. Similarly agricultural fixtures can always be removed, but the tenant must make good any damage he does. A tenant must remove his fixtures before his tenancy expires. See Landlord; Tenant.

FLACCUS. Name of a notable Roman family. (1) Quintus Fulvius Flaccus, Roman general in the second Punic War; (2) Marcus Fulvius, one of the commissioners appointed to carry out the agrarian measures of Tiberius Gracchus; (3) Marcus Verrius, a grammarian in the reign of Augustus. The poet's Horace and Valerius belonged to the family. See Horace; Valerius.



Flag. Yellow flag, Iris pseudacorus, showing the tall sword-like leaves

FLAG. Popular name given to plants of the genus iris, especially to I. pseudacorus, the yellow flag of ditches and marshes. The species form two groups: one in which the rush-like foliage dies down each autumn, and the life of the plant is continued by a long bulb-like tuber; the other in which the thick, sword-shaped leaves arise from stout, slightly creeping rhizomes. The term flag is generally applied to members of the second group, the others being spoken of by the name iris (q.v.).

FLAG. Piece of fabric flown from a staff, lance, mast, or halyard. It may be national or personal. The British national flag is the Union Jack. The white ensign, with the red cross of S. George and the Union Jack in the upper quarter, is reserved for the Royal Navy and certain privileged yacht clubs. The blue ensign, with a plain blue field and the Jack in the upper corner, belongs to the Royal Naval Reserve, certain national service ships and privileged yacht clubs. The red ensign is the merchant flag.

Regimental flags are similar to the above, the field being of the colour of the regimental facings. The flags of the British Dominions are the blue and red ensigns, with Union Jack supplemented by national emblems or armorial shields placed in the fly. See Colours.

A flag officer in the British navy is one of admiral's or flag rank.

His aide-de-camp, who wears an aiguillette or golden cord on the left breast, is called a flag lieutenant. The ship which carries the admiral is called a flagship (q.v.).

A flag day is a day set apart for the raising of money for charitable purposes by selling small emblems, usually flags, in the streets. The origin of the scheme was due to the success attending the sale of artificial roses on Alexandra Day (q.v.).

FLAGELLANTS (Lat. flagellum, little whip). Name given to various ascetic bodies in the Roman Catholic Church that practised flogging as a means of discipline. The flagellants arose in Italy in the 13th century, and continued to break out sporadically for about 150 years. See Asceticism.

FLAGEOLET (Fr.). Wind instrument of flute tone, played vertically through a mouth-tube. The modern one has a separate mouth-piece, but those of the 17th century had the blowing hole on a sloped end of the main tube.

FLAGSHIP. Vessel in which a flag officer is accommodated, and in which he flies a distinctive flag to indicate the ship to which others must look for signals. At the principal home naval stations the flag of the local commander-in-chief is flown in an old warship, e.g. the Victory, but the officer lives in an official residence ashore. See Battleship; Navy.



Flail. The threshing implement in use

FLAIL (Lat. flagellum, little whip). Hand implement for threshing. It is now little used, except on a small scale for flax or when securing

peas and beans for seed purposes. It consists of a shaft or handle, commonly made of ash, and a swingle (swiple) of some hard, non-splitting wood.

FLAMBOROUGH HEAD. Promontory on the E. coast of Yorkshire, to the N. of Bridlington Bay. The lighthouse has a flashing light visible for 21 m.

FLAMBOYANT (Fr. flaming). In architecture, a development of late French Gothic. It owes its name to the flame-shaped openings in tracery which were its chief characteristic. The period of Flamboyant was the late 15th and early 16th centuries.

FLAME. Gaseous matter raised to a temperature at which it becomes self-luminous by combustion. Ordinary flames are hollow. "Solid" flames occur where the complex molecule of a gas is by combustion broken up into simpler forms, e.g. in burning nitrogen trichloride. Berzelius pointed out that a candle or hydrocarbon flame shows four distinct regions: (1) the dark central region, (2) the yellow region, (3) the blue region, and (4) the faintly luminous portion. The dark portion consists of unburnt gases, whilst the yellow portion, occupying the greatest part of the flame, is the luminous portion. The temperature of a flame depends upon the heats of combination of the constituents and the specific heats of the products of the combination. See Fire; Heat.

FLAME FLOWER or **REDHOT POKER** (Kniphofia aloides). Perennial herb of the order Liliaceae. It is a native of S. Africa. The leaves, which grow in a compact tuft from the root, are long, narrow, and of tough consistence. The brilliant red, tubular flowers are disposed in a close oval spike at the summit of a stem which is from 3 ft. to 4 ft. high.

FLAMINGO (Phoenicopterus). Order of large birds, nearly related to the ducks. They have extremely long legs and necks, rosy or scarlet plumage with black on the wings, and beaks sharply bent down at an angle. One European species, four or five American, and one African are known. Flamingoes are wading birds and are found in great flocks by the margin of lakes and rivers, feeding on molluscs and vegetation. The nests are of mud.

FLAMINIUS, TITUS QUINCTIUS (d. c. 175 B.C.). Roman general. Having become consul, he overthrew Philip V of Mace-

don and conquered Greece. In 196 at the Isthmian games he proclaimed the independence of Greece, really the exchange of a Roman for a Macedonian master.

FLAMINIUS, GARUS. Roman statesman. During his censorship in 220 B.C. he built the great Circus Flaminius, and extended the Via



Flanders. Map of East and West Flanders, indicating the area recovered from the Germans during the great battles of Sept.-Nov., 1918. See p. 608

Flaminia to Ariminum, making it the first Roman road to cross Italy.

FLAMMARION, CAMILLE (1842-1925). French astronomer. Born Feb. 26, 1842, he entered the Paris observatory in 1858. From 1863 onwards he edited *Cosmos* and *L'Astronomie*. He carried out numerous observations, especially on Mars, at his private observatory at Juvisy, won fame as a popular writer on astronomy and founded the astronomical society of France in 1887. In Oct., 1920, he married Gabrielle Renaudot, his collaborator in some of his works. Among his books translated into English are *Popular Astronomy* and *Astronomy for Amateurs*. He died June 4, 1925.



Camille Flammarion French astronomer

FLAMSTEED, JOHN (1646-1719). English astronomer. Born at Denby, Derbyshire, Aug. 19, 1646, his chief work was the great catalogue of the fixed stars, the origin of all later catalogues. This was incomplete at his death on Dec. 31, 1719, but was published with his other observations in 1725. He was the first astronomer royal, and from 1684 till 1719 was vicar of Burstow, Surrey.

FLANDERS. That part of the Netherlands which is bounded roughly by the lower reaches of the river Schelde, the Lys valley, and the coast from Calais to the Schelde estuary. Its political frontiers have varied considerably, but most of it lies in Belgium, and the old name is retained in the two provinces of W. Flanders and E. Flanders. These provs. are mainly peopled by peasant Flemish stock. Ethnologically, a large part of the French dept. of Nord is Flemish, and is often referred to as French Flanders.



Flame-flower. Specimens in bloom



Flamingo. Adult specimens of the European flamingo

BATTLE OF FLANDERS. Fought Sept.-Nov., 1918, this was part of the Allied offensive extending from Dixmude to the S. of the Ypres salient. The attacking force under King Albert consisted of the Belgian army, the 6th French army with three divisions in line and one in reserve, in the centre, and the 2nd British army (Plumer), with the 2nd and 19th British corps, on the right. The attack opened on Sept. 28, coincident with the assaults by the British on the Hindenburg line, and by the French and American armies. By Oct. 1 the German front had been penetrated to a depth of over 8 m. On Oct. 17 the last Germans quitted Ostend. See map, p. 605.

FLANDRIN, JEAN HIPPOLYTE (1809-64). French painter. Born at Lyons, March 23, 1809, son of a miniature painter, he was employed in the mural decoration of S. Séverin, 1841. In portrait-painting, his best works included the full-length portrait of Napoleon III, at Versailles. He died at Rome, March 21, 1864.

Of his brothers, Jean Paul (1811-1902) did his best work in landscape painting, Auguste (1804-43) worked under Ingres.

FLASH. Bow of broad black silk ribbon with long ends, which is attached to the back of the tunic collar of the Royal Welch Fusiliers.

FLASH POINT. Temperature at which an inflammable liquid gives off vapour which takes fire when a flame is passed over the surface, or at which the vapour that collects forms an inflammable mixture with the air in the closed vessel of a test apparatus. The test is specially applied to petroleum products. See Oil.

FLAT. In music, a sign (♭). It indicates that the note to which it refers is to be a semitone lower in pitch than the ordinary note of the same alphabetical name or in the same position on the staff. It was first applied to the note B. See Natural; Semitone; Sharp.

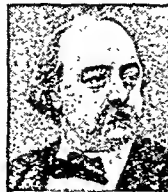
FLATFISH (Pleuronectidae). Large group of fishes of flattened shape, in which the two sides are unlike in colour and the two eyes are on one side. The plaice and sole are examples. Flatfish are marine in habit, though flounders often ascend rivers. Most are good table fish.

FLAT FOOT. In man, a condition in which the arch of the foot is reduced, or in bad cases nearly abolished, so that almost the whole extent of the sole comes in contact with the ground. Flat foot is most common in young persons whose occupation has necessitated their standing for long periods, or frequently carrying heavy weights. See Foot.

FLATFORD. Village in Suffolk, near East Bergholt. It is associated with the name of Constable (q.v.), who painted the mill here. In 1928 Mr. J. R. Parkinson presented the mill and the adjoining house (now a guest house for artists and students) to the nation.

FLATULENCE (late Lat. flatulentus, full of wind). Gas in the stomach or intestines. It is due partly to air which is swallowed with food, and partly to the fermentation of food in the alimentary canal. The condition is often associated with disorders of digestion, due to imperfect mastication. See Dyspepsia.

FLAUBERT, GUSTAVE (1821-80) French novelist. Born at Rouen, Dec. 12, 1821, the son of a surgeon, he went to Paris to study law in 1840, but spent a number of years in travel, visiting the East in 1849-50. Returning to Paris in 1850, he began his first novel, *Madame Bovary*. It took six years of constant labour to complete, and made his name famous. Others followed including one published after his death at Croisset, near Rouen, May 8, 1880. He



Gustave Flaubert, French novelist

was the dominant figure among French novelists of the last epoch of Romanticism.

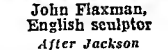
FLAVINE (Lat. flavus, yellow). Antiseptic discovered in 1916 by the Bland-Sutton Institute for Clinical Pathology. The drug itself was discovered by Prof. Ehrlich, who treated cases of sleeping sickness with it. Flavine is a yellow dye official name acriflavine. See Antiseptics; Surgery.

FLAX (*Linum usitatissimum*). Annual herb of the natural order Linaceae. It is a slender plant, with erect stems, about a foot and a half high, and narrow, lance-shaped alternate leaves. The numerous flowers (1 inch across) are purplish-blue. The fibres of which linen is woven are obtained by macerating the skin of the stems. Flax seed, from which linseed oil comes under pressure, leaving oilcakes as a valuable residue, is obtained from this species.

Flax is little grown in the United Kingdom, except in Ulster and some parts of Yorkshire. A board of trade committee report of 1920 referred to substitutes such as ramie, the main difficulty in preparing which for spinning was the elimination of the gum which holds the fibre together. Germany before the Great War discovered a process of degumming. This was transferred to England, and ramie yarns are now produced in Yorkshire.

New Zealand flax (*Phormium tenax*) is a perennial herb of the natural order of Liliaceae, native of New Zealand. Purging flax (*L. catharticum*), a wild plant of heaths and meadows, has small white flowers. Narrow-leaved flax (*L. angustifolium*) found in southern England, has pale blue flowers. See Linen.

FLAXMAN, JOHN (1755-1826). English sculptor. Born at York, July 6, 1755, he was the son of a maker of plaster casts. In 1770 he entered the Academy schools, and in 1775 began to be employed by the Wedgwoods in designing classical friezes and medallions for their ware. Elected A.R.A. in 1797 and R.A. in 1800, in 1810 he was appointed professor of sculpture. He died Dec. 7, 1826.



John Flaxman, English sculptor After Jackson

Flaxman's most notable monumental works are in Westminster Abbey and S. Paul's, his classical figures and groups at Petworth, Woburn, and other country seats, and his characteristic memorial reliefs are numerous in the British cathedrals and churches. Collections of his drawings are in the British and other museums. See Sculpture.

FLEA. Family of small wingless insects, more or less parasitic on other animals. The body is laterally compressed, and strongly encased in a coating of chitin; the last pair of legs is very long, enabling the insect to jump about 200 times its own length. The jaws are modified into a piercing instrument and a sucking tube, and the insect in the adult stage lives by sucking blood.



Flea. 1. Rat flea. 2. Common flea. *Pulex irritans*, male and 3, female 1, photographed at Nat. Hist. Mus., S. Kensington

Most of the numerous species confine their attention to some one genus of the animal world. The rat flea is a conveyer of plague, and it is probable other fleas also carry disease. The human flea (*Pulex irritans*) deposits its eggs in the dust of floors, where the white, worm-like larva feeds on decaying organic matter, taking about a month to attain maturity. See Insect; Parasite.

FLEABANE. Herbs of the order Compositae. *Pulicaria dysenterica*, a native of Europe, N. Africa, and the Himalayas, is a perennial, with creeping root-stock, erect stems, and heart-shaped, oblong, woolly leaves. The daisy-like flower-heads are bright yellow. It was formerly used as a medicine in dysentery. Canadian fleabane (*Erigeron canadense*), generally distributed in warm regions, is an annual, with small, yellow-centred, white flower-heads.



Fleabane. Leaves and flowers of *Pulicaria dysenterica*

FLEET. Urban district of Hampshire. It is 6 m. N.E. of Odiham and 36 m. S.W. of London, with a station on the Southern Rly. Pop. 3,689. There is also a village of this name in Lincolnshire, 2 m. S.E. of Holbeach.

FLEET, THE. Name of the navigable part of an old London river which, rising in Hampstead, entered the city S. of Chick Lane (now Charterhouse Street) and joined the Thames at Blackfriars. Now a sewer, it gave its name to a prison which stood near the site of the Memorial Hall in Farringdon Street and where,



Fleet Prison. The inner court, with prisoners engaged in a game of racquets

From a drawing by Rowlandson & Pugin, 1807

or in the Fleet liberties, clandestine marriages, known as Fleet marriages, took place between 1614 and 1754. See London.

FLEET STREET. London thoroughfare It runs W. from Ludgate Circus to Temple Bar, and contains two churches, S. Bride's and S. Dunstan's in the West, the remains of Clifford's Inn and the second Serjeants' Inn, part of the Law Courts, entrances to the



Fleet Street looking E., showing, left, Bonverie House and the new offices of The Daily Telegraph

Temple (q.v.), and a restored timber house of 1610, the projecting upper storey of which is called Prince Henry's Room. In it are many newspaper offices, and Fleet Street is sometimes used as a synonym for the press

FLEETWOOD, CHARLES (d. 1692). English soldier. A Northamptonshire man, he joined the Parliamentary army at the outbreak of the Civil War, and in 1646 entered the House of Commons as M.P. for Marlborough. He went with Cromwell into Scotland in command of the horse, and was present both at Dunbar and Worcester. Fleetwood was commander-in-chief in Ireland 1652-1655, and was one of Cromwell's major generals. He was commander-in-chief when Monk entered London, and, although he had taken no part in the trial of Charles I, he was exempted from a complete pardon. He married, in 1652, Cromwell's daughter Bridget, the widow of Ireton, and died Oct. 4, 1692.



Charles Fleetwood, English soldier After Walker

FLEETWOOD. Urban dist., seaport, and watering place of Lancashire. It stands at the mouth of the Wyre, 9 m. N. of Blackpool, on the L.M.S. Rly. Sir P. H. Fleetwood, who built quays and rlys., planned the town in 1836. It has regular steamer service with the Isle of Man and Ireland, and carries on a brisk coasting trade. The fisheries are extensive, and salt is produced for export. In 1930 a new promenade was opened. Market day, Fri. Pop. 21,750.



Margaret Fleming After a water-colour by I. Keith

FLEMING, MARGARET OR MARJORIE (1803-11). Infant prodigy and favourite of Sir Walter Scott. A niece of Mrs. Keith of Ravelston, she read history at the age of six and wrote diaries and poems. Her story is told in Pet Margarie, H. B. Farnie, 1858, and Dr. John Brown includes an essay on her life and character in Horae Subsecivae.

FLEMINGS. Name given to the inhabitants of Flanders (q.v.). Flemish immigrants to England have frequently played a part in English and Welsh history, especially in the growth of the weaving industries.

FLENSBURG. Seaport of Schleswig, Prussia. It lies at the S. extremity of the Flensburg Fiord and has a good harbour, with shipyards, foundries, and breweries as the chief industries. Pop. 63,139.

FLETCHER, JOHN (1579-1625). English poet and dramatist. Son of Dr. Richard Fletcher, he was born at Rye, Sussex, and educated at Bene't (Corpus Christi) College, Cambridge. He collaborated with Francis Beaumont (q.v.) and others in plays which introduced tragedy to the English theatre. Independently he wrote fifteen plays, including *The Faithful Shepherdess*, a pastoral. In addition to a number of beautiful lyrics, he wrote some of the raciest dialogue in English dramatic literature. He died of the plague, and was buried in S. Saviour's, Southwark.



John Fletcher, English dramatist

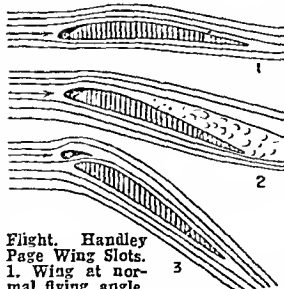
FLEUR-DE-LIS (Fr. lily-flower). In heraldry, an extremely ancient symbol. Probably a representation of the lotus, river side flag, or the iris, it was early assumed as a cognizance by the Carolingian kings, and so became identified with the royal houses of France, who bore the golden flowers on a blue shield. The French arms (azure, semée de lis d'or) was quartered with the arms of England by Edward III; Henry IV reduced the number of lis to three, and after the treaty of Amiens and the Union with Ireland in 1801 the quartering was omitted. Pron. Fleur-de-les.



Fleur-de-Lis in heraldry

FLEURY, ANDRÉ HERCULE DE (1653-1743). French statesman. Born at Lodève, Hérault, June 22, 1653, he became chaplain to Louis XIV, who made him bishop of Fréjus in 1698, and tutor to the future king Louis XV in 1715. In 1726 he became chief minister and was appointed cardinal. His administration was upright, economical, and peaceful, but failed to prevent France from being involved in the war of the Austrian Succession, 1740. He died discouraged and in ill-favour, Jan. 29, 1743.

FLIGHT. The development of the aeroplane and the airship is dealt with in the article on Aeronautics; the construction of an aeroplane is explained in that entitled Aeroplane. The first real advance in the study of flight was made by Langley, who demonstrated that a flat plate of material could be



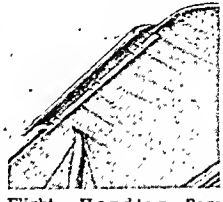
Flight. Handley Page Wing Slots. 1. Wing at normal flying angle. 2. Wing at point of stalling, the air becoming turbulent and ceasing to follow upper surface. 3. Wing at still larger angle of incidence, with slot open, the air stream introduced through slot from below smoothing out air flow and keeping it in contact with upper surface of wing, so that control is maintained

Courtesy of Handley Page, Ltd.

made to support itself if forced through the air at a certain angle and at a certain speed. Lillenthal and others discovered that curved surfaces were better than flat ones for flying purposes. The resistance offered by the air to the rapid passage of a body is less in the case of certain

of power, in the internal combustion engine, and the employment of cambered or curved planes, flying became possible.

An aeroplane flies as a result of support given to it by its wings when driven through the air. As the aeroplane moves forward, the wings, owing to their curved shape, drive downwards the air through which they pass. It is the constant falling of the air, as it were, which gives the support necessary for flight. It was early discovered that the air is forced downwards in a way depending upon the angle at which the wings are set and the speed of forward movement. With any particular angle it was found that lifting power increases as the square of the speed. With the increase of speed there comes increase of resistance to forward motion, requiring increased engine power to overcome it, and, therefore, increased weight. In any given aeroplane there is a given speed of flying for a particular angle at which the wings are set. If speed is increased, then the angle must be altered to satisfy this principle. In steady horizontal flight the lifting force on the wings is equal to the weight of the aeroplane; it is greater in climbing flight, less in diving flight.



Flight. Handley Page Auto-slot Courtesy of Handley Page, Ltd.

The problem of stability in flight is complicated in that, though the surfaces, both main and control, may be sufficient to maintain equilibrium for a particular speed of flight, they are not sufficient at some other speed. As the angle of incidence of the wing is increased there is a certain angle at which the lift is at a maximum, after which it decreases steadily. The Handley Page slotted wing and automatic slot (see illus.), fitted from 1923 to many aeroplanes, provide remarkable control at just those speeds when control is usually lost. With wing slots in use the critical angle—the stalling point—is deferred to a much greater angle of incidence. See Aeronautics; Aeroplane; Atlantic Flight, p. 153; Australian Flight; Helicopter; Johnson, Amy.

FLIGHT LIEUTENANT. In the old R.N.A.S. the rank equivalent to that of lieutenant in the R.N. and of captain in the army, and originally confined to pilot officers. In the Air Force the title has been extended to all officers of that rank. See Air Force.

FLINDERS, MATTHEW (1774-1814). British sailor. Born March 16, 1774, the son of a surgeon, in 1790 he went to transplant bread-fruit trees from the South Sea Islands to the W. Indies. After distinguished active service in the Bellerophon he won fame as an explorer of the Australian coasts. He circumnavigated Tasmania, charted the Gulf of Carpentaria, and surveyed the coast of New Holland. He wrote an account of his discoveries, and died July 19, 1814.

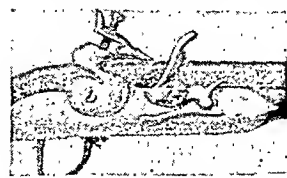


Matthew Flinders British sailor From an engraving

A river of Queensland which, issuing from the N. extremity of Lake Neelia in Rupert co., flows about 220 m. to the Gulf of Carpentaria, is named after Matthew Flinders, as is Flindersia, a small genus of evergreen trees, natives of Australasia and the Moluccas.

FLINT. Crystalline mineral composed mainly of silica; a variety of chalcedony. It is compact, somewhat harder than steel, and breaks with a shell-like fracture, forming sharp cutting edges. When first unearthed it is

brittle, becoming toughened by exposure. Chert and hornstone are coarser forms. In Great Britain and W. Europe flint occurs mainly in the middle and upper chalk formations. The cutting edge produced by flaking enabled palaeolithic man to invent edged tools, prior to the introduction of metal-lurgy.



Flint Lock. Mechanism of firing device of a 17th century musket

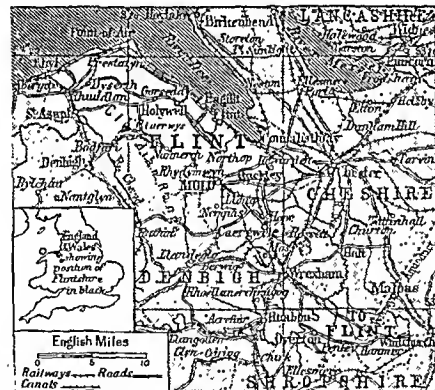
The discovery that sparks are produced when flint is struck with iron pyrites brought about

the percussive method of fire-making and led to the introduction of the flint lock, a musket common about 1630 and until the invention of percussion caps.

As road metal flint is unsatisfactory because of its readiness to pulverise. This quality is utilised for pottery and optical or flint-glass. It was largely used in E. Anglia for church building. See *Cell*; *Chalk*; *Eolith*; *Gun*.

FLINT. Borough formerly the county town of Flintshire. It stands on the S. shore of the Dee estuary, 12 m. N.W. of Chester on the L.M.S. Rly. Artificial silk is made; there are alkali and copper works and lead and coal mines. The castle, built by Edward I, after being restored, was opened to the public in 1928. Market day, Sat. Pop. 6,410.

FLINTSHIRE. County of Wales. It lies to the W. of the Dee estuary, with a detached portion situated E. of Denbighshire; area, 255 sq. m. The co. contains the lower courses of the Dee and Clwyd. Coal, lead, iron, and



Flintshire. Map of the county showing also the detached portion between Cheshire and Shropshire

other minerals are worked. There are ironworks, and artificial silk, flannel, and cement are manufactured. The L.M.S. is the chief railway. Mold is the county town. Pop. 100,617.

FLOATING DEBT. Name given in the U.K. to that part of the national debt which is not funded. It consists mainly of treasury bills, but also of advances made by the Bank of England and by government departments. See *National Debt*.

FLOATING KIDNEY. Condition in which the kidney is abnormally mobile and can be freely moved within the abdomen by manipulation. Lesser degrees of the condition are known as palpable kidney and movable kidney. See *Kidney*.

FLODDEN, BATTLE OF. Fought between the English and the Scots, Sept. 9, 1513. Flodden is a ridge of the Cheviots on the English side of the border. It is 3 m. S.E. of Coldstream. Suddenly renewing the war with England, James IV crossed the border on Aug. 22 with a large army and besieged Norham Castle. Surrey collected an army

and marched N., for Henry VIII was fighting in France. In the unequal battle the Scots suffered a crushing defeat, James IV and most of his court being killed. A monument, inscribed "to the brave of both nations," marks the spot where James is supposed to have been killed.

FLOGGING. A punishment for crime. It is applicable in English law (a) to young male offenders, by birching; (b) to persons convicted of stealing from the person with violence; and (c) to certain male offenders under the Criminal Law Amendment Act, 1912.

FLOOD. Submersion of land by overflow of water. After extra heavy or prolonged rainfall, or in spring and summer, when snow and ice fields melt, great quantities of surface water drain directly into rivers. The banks cannot contain all the water, which, overflowing, submerges the low-lying parts of the valley. The Nile floods are caused by tributaries which have their sources in regions of heavy summer rainfall. The summer water they bring down causes floods along the lower course of the main stream. See *Deluge*.



Henry Flood
Irish statesman
After Comerford

member for Kilkenny. In 1783 he was returned to the British House of Commons as one of the members for the city of Winchester. He died Dec. 2, 1791.

FLORA. In Roman mythology, the goddess of flowers. She had a temple near the Circus Maximus, and a festival called Floralia was held in her honour every year from April 28 to May 1.

Flora is a collective name for the plants growing naturally in any district or country.

Flora Day or FURRY DAY. A holiday observed at Helston (q.v.), Cornwall, on May 8.

FLORENCE (Ital Firenze). City of Italy. It was the capital of the grand duchy of Tuscany. Situated on both banks of the Arno, which is spanned by six bridges, it is in a valley amid the foothills of the Apennines. Of the bridges the Ponte alle Grazie (1237) was the scene of the Guelph-Ghibelline union in 1283, and the existing Ponte Vecchio (1362) is a successor of one dating from Roman times. Florence has silk and wool manufactories and straw-plaiting, jewelry, and mosaic industries. Pop. 277,688.

Founded in Etruscan days, in the days of the Medici family, the birthplace of the Renaissance, and still a centre of intellectual and artistic life; the city is rich in treasures of art and architecture. Of its numerous palaces the Pitti and Uffizi contain some of the most famous pictures and sculptures in the world. The Duomo (1298) is the fourth largest church in the world. Giotto's 14th century marble campanile stands near, as does the octagonal Baptistery (1100) famous for its bronze doors. The San Marco museum was once a monastery. The church of Santa Croce (1294) has monuments to Galileo, Dante, and Michelangelo, that of San Lorenzo

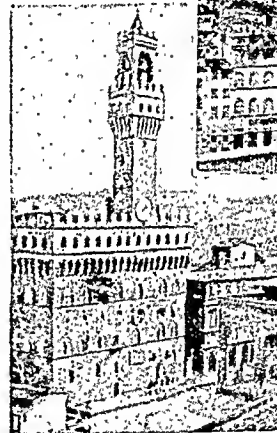
(founded 390) has a domed mausoleum added by Cosimo I, and in the sacristy by Michelangelo are that artist's wonderful statues of Day and Night, Evening and Dawn, guarding the monuments of Lorenzo and Giuliano de' Medici. The Biblioteca Laurenziana is a priceless library of books and MSS. Among the names notable in Florentine history are those of Dante, Boccaccio, Machiavelli, Guicciardini, Savonarola; the artists Botticelli, Cimabue, Masaccio, Ghiberti, the Lippis, and Andrea del Sarto; the sculptors Pisano, Luca della Robbia, Donatello, and Ghiberti; and the musicians Lully and Cherubini. See *Dante*; *Italy*; *Savonarola*.

Florentium. Variant name for the rare-earth metal illinium (q.v.).

FLORES. Island of the Azores, in the Atlantic Ocean. The soil is fertile, and fruit and vegetables are cultivated. The chief town is Santa Cruz. Off Flores, in 1591, took place the naval action between Sir Richard Grenville in the *Revenge* and several Spanish vessels. Pop. 8,250.



FLORES. Island of the Dutch East Indies, in the Sunda group of the Malay Archipelago. A dependency of Timor, it lies S. of Celebes, from which it is separated by the Flores Sea, midway between Java and Timor. Oblong in shape, it is 230 m. from W. to E., with an average breadth from N. to S. of 28 m. and an area of 5,860 sq. m. The chief products include sandalwood, cotton, edible birds'-nests, dye-woods, tortoiseshell, and beeswax, while rubber culture is making progress. Pop. about 50,000.



Florence. 1. Palazzo Vecchio, 1298-1344, used as the Town Hall since 1871. 2. View showing Giotto's campanile and the cathedral dome

FLORIDA. State in the extreme S.E. of the U.S.A. Its area is 54,861 sq. m. Of many navigable rivers the Apalachicola and Suwannee are the chief, and the largest lake is the Okeechobee. Pineapples, oranges, various cereals, cotton and tobacco are cultivated; phosphate rock is the chief mineral.

Manufactured products are tobacco, lumber, turpentine, tar, and resin. There are a state university at Gainesville, and a state college for women at Tallahassee. More than 5,500 m. of railroad are worked. Tallahassee is the capital. Pop. 1,263,549, of whom over 400,000 are negroes. In Sept., 1928, 16,000 people were rendered homeless by a hurricane near Palm Beach.

Florida Bay, an arm of the Gulf of Mexico, separates Florida state, U.S.A., from Florida Keys. Florida Keys is a curved chain of reefs off the S. coast of Florida. Florida Straits separate the S.E. extremity of Florida and Florida Keys from Cuba and the Bahama Islands. The channel is 300 m. long.

FLORIN. Name of several gold and silver coins of various European currencies. Its name is derived from a gold coin struck at Florence in 1252 and bearing, obverse, the figure of S. John Baptist, reverse, the Florentine lily. The British florin is valued at two shillings, was issued in 1849, and is minted at the present time, though the silver it then contained has been much reduced in quantity.

FLORIO, JOHN (c. 1553-1625). Author and translator. Born in London of Italian parentage and educated at Magdalen College, Oxford, he became a teacher of French and Italian. In 1598 appeared his Italian-English dictionary, *A World of Words*, and in 1603 his translation of Montaigne's *Essays*, on which his reputation rests.

FLOTILLA (Span. small fleet). In the tactical organization of a fleet, usually a number of destroyers grouped and intended to be worked as a whole. See *Destroyer*.

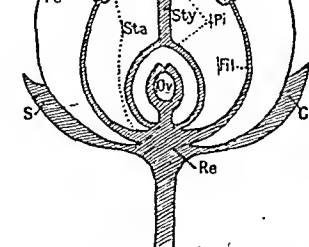
A flotilla leader is a ship between a light cruiser and a destroyer in size and intended for service as senior vessel of a destroyer flotilla.

FLOTSAM (low Lat. flottare, to float). Term that is used in English law. Goods found floating upon the sea are flotsam. Jetsam means goods jettisoned, cast overboard in a storm, or washed upon shore after a wreck. They become the property of the crown unless claimed by the rightful owners.

FLOUNDER (*Pleuronectes flesus*). Small species of flatfish, common in the sea and the lower reaches of rivers. It belongs to the same genus as the plaice, but is smaller. It has dark mottlings. Its flesh is delicate, but its small size makes it unimportant as a food fish.

FLOUR. Tho. ground contents of the wheat berry freed from its dermal envelopes. The corresponding product of other grains, e.g. maize and rice, is called corn-flour. Similar starchy meals are yielded by buckwheat, pulses, banana, sago-palm pith, tapioca, arrowroot, potato.

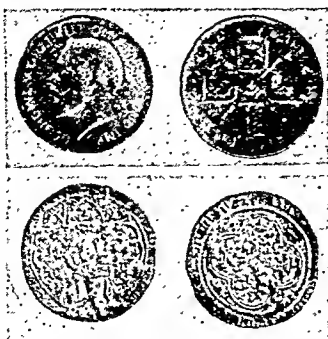
The wheat berry is composed of carbohydrates, 71.2 p.c., cellulose, 2.2 p.c., proteins, 11 p.c., fats, 1.7 p.c., mineral salts, 1.9 p.c., and water, 12 p.c. Besides its use in bread-making, wheat flour is also made into semolina, macaroni, and vermicelli. It is a thickening agent in textile printing, and the base of some violet powders.



Flower: diagrammatic section. An., anther; Fil., filament; Ov., ovary; Pe., petals; Pi., pistil; Re., receptacle; S. and C., sepals (calyx); Sta., stamen; Sti., stigma; Sty., style.

FLOWER (Lat. flos, stem, flor., flower). Part of a plant containing the organs of re-

production. It consists of four whorls which differ in different species. The outer set are the calyx leaves, which form the bud;



Florin. Gold coin of Edward III; above, silver florin minted in 1918. Actual diameter of Edward III florin, $1\frac{1}{8}$ in., of George V flor. n. $1\frac{1}{2}$ in.

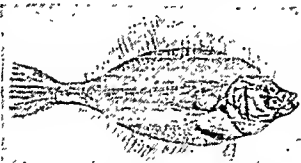
separately they are known as sepals, and are usually green. The second series are corolla leaves, mostly brightly coloured, separately known as petals. The third series are stamens, consisting of a stalk or filament and the anther, the latter containing pollen—the male element. The fourth series is the pistil, which consists of the ovary, containing ovules or seed-eggs, surmounted by a stigma or stigmas, which may be supported by stalks or styles. Grains of pollen caught by the sticky or rough surface of the stigma send out shoots which penetrate the style and fertilise the ovules, which then develop into fertile seeds. See *Calceolaria*; *Carnation*; *Daffodil*; *Geranium*; *Iris*; *Lily*; *Orchid*; *Rose*; *Tulip*, etc.

FLOWERING RUSH (*Butomus umbellatus*). Perennial marsh herb of the natural order Alismaceae. A native of Europe and Asia, it has rose-red flowers.

FLOWER OF JOVE (*Lycchnis flos-jovis*). Perennial herb of the natural order Caryophyllaceae, a native of Europe. Each branch of the stems ends in a small cluster of purple or scarlet flowers of the campion (q.v.) type.

FLÜGEL HORN. Brass instrument similar to the cornet, but of wider bore, and of mellow, horn-like tone. It is a modern improvement of the key bugle. The term means wing horn. See *Cornet*; also *illus.* below.

FLUID. Any form of matter unable to resist permanently any shear stress. Fluids are liquids or gases distinguished from solids in that they owe their shape at any particular time to a containing vessel or restraining forces.

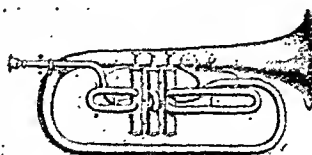


Flounder, a small flatfish found round the coasts of the British Isles

In the U.K. the gallon is the unit measure for fluids, and in countries where the metric system is standardised the litre is the unit.

FLUKE. Group of trematode worms of parasitic nature, usually leaf-shaped. One, the liver fluke (*Fasciola hepatica*), in its adult condition lives in and devours the liver of the sheep, causing the much-dreaded and incurable "rot." See *Sheep*.

FLUORESCENCE. Absorption of light of certain colour or wave-length, and radiation or emission of light of other wave-lengths by certain bodies. The light emitted by a fluorescent body is found spectroscopically to comprise light of various colours,

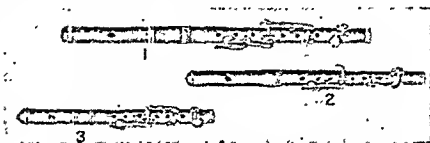


Flügel Horn. Improved model of B flat horn. See above. By courtesy of Hawkes & Son

FLUORINE. Gaseous element of greenish-yellow colour, first isolated by Moissan in 1886. Its symbol is F, its atomic weight 19, and its atomic number 9. Alcohol, ether, benzene and turpentine take fire on contact with fluorine. Fluorides are salts of hydrofluoric acid. Calcium fluoride (CaF₂) occurs native as fluor spar or "blue-john," and from it most of the preparations of fluorine are made.

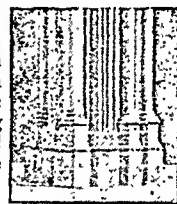
FLUORSPAR. Common mineral widely distributed in rock crevices. It is a compound of calcium and fluorine and is used as a source of hydrofluoric acid and as a metallurgical flux. When colourless and transparent it is used for lenses; amethyst, purple, green, or yellow specimens yield "false" amethysts, sapphires, etc., for cheap jewelry. Derbyshire "blue-john" is made into ornamental vases.

FLUSHING (Dutch. Vlissingen). Seaport of Holland. On the S. coast of the island of Walcheren, it lies at the mouth of the Schelde, in the prov. of Zeeland. Before the Great War it was the port for communication with Queenborough and Folkestone, with through rly. connexion to the N. of Europe generally, and had developed as a sea-bathing resort. There is some shipbuilding. Pop. 21,588



Flute. 1. Military flute, 19 $\frac{1}{4}$ ins. 2. Military flute, 15 ins. 3. Piccolo or octave flute, 12 ins.

FLUTE (Lat. flatus, blast). Family name of many wind instruments of the whistle type. Originally, its six finger-holes were the only means of obtaining a scale; but key after key has been added, until now all the semitones are producible in good tune and with even tone. Flute is also the name of an organ stop imitating the tone of the orchestral instrument of the same name. See *Fife*; *Flageolet*; *Organ*.



FLUTING. In architecture, the grooves in a column, separated by fillets. Fluting is generally vertical, but spiral fluting occurs in Norman architecture. See *Column*.

FLUX. Term used in metallurgy. In nature most metals are combined with other elements, forming an ore. These ores are smelted by the aid of fluxes. The chief fluxes are lime or limestone, common salt, sodium carbonate, clay, silica, borax, litharge, nitre, carbon, argol or bitartrate of potash, flour, starch, and potassium cyanide. Argol and nitre are used in combination to form black and white fluxes



Fly. 1 and 2. House fly, *Musca domestica*. 3. Girdled drone fly, *Volucella inanis*. 4. Gold-girdled fly, *Chrysotoxum bicinctum*. 5. Dung fly, *Scatophaga stercoraria*. 6. Humble-bee fly, *Bombylius major*.

FLY. Insect of the order known as Diptera from being characterised by the possession of

only two wings. The fore wings alone remain as flying organs, the hind ones having become reduced to two small balancers resembling drum-sticks and known as halteres, upon which depends the insect's power of balancing itself in the air. Flies are vast in number, feed on fluids, and many are carriers of disease. See Green Fly; House Fly.

FLY-AGARIC

(*Amanita muscaria*). Large toadstool of the family Agaricinae. A poisonous species, it was formerly employed for poisoning fly-papers.

FLY CATCHER (Muscicapa). Small bird of a family including nearly 300 species. All feed upon insects, which they usually catch on the wing.



Fly Catcher. The pied fly catcher, a spring visitor to Great Britain

FLY FISHING. Fishing with an artificial fly. The flies are made of feathers, silk, tinsel, fur, and other materials. Trout-flies are made to resemble as closely as possible some form of fly or other aquatic insect. It is essential in fly fishing for the angler to keep himself and his rod out of sight of the fish. See Angling.

FLYING BOAT. Acroplane the body of which is of boat formation. In the hull space is provided for passengers, pilot, petrol supply, and cargo.

The engine is usually placed between the wings, which are attached directly to the boat. The boat can move under its own power on the water without rising. Flying boats, which are specially valuable for coastal work and cross-ocean transport, are among the heaviest types of aircraft and some are made to alight on land or water. In October, 1929, the Dornier Do.X, a monster German flying boat, made a flight carrying 169 persons. See Aeronautics; Aeroplane; Seaplane.

FLYING BUTTRESS. In architecture, a half arch used to transmit the thrust or pressure of a structure, usually a vault, to a main buttress (q.v.) or solid foundation.

FLYING CORPS, ROYAL. Former branch of the British army. Formed in 1912, its total personnel at the outbreak of the Great War was about 2,000 and only 82 aeroplanes were fit to send overseas. In April, 1918, it was merged in the Royal Air Force. See Air Force.

FLYING DUTCHMAN, THE. Spectral ship traditionally haunting various seas, unable to reach port. The legend was dramatised by Douglas Jerrold, 1829; Marryat founded his story, *The Phantom Ship*, on it, 1839; and it inspired Wagner's opera, 1844.

FLYING FISH (*Exocoetus*). One of a group of tropical fishes. It includes over forty species which have the pectoral fins so lengthened as to resemble wings. They can leap out of the water to escape their enemies, and take long skimming flights.

FLYING FOX. Popular name for the fruit bat, *Pteropus*, due to the fact that its head slightly resembles that of a fox. It feeds entirely on flowers and fruit. It is found in S. Asia, the E. Indies, Madagascar, Australia, and some of the Pacific islands. The largest, that of Malaya, measures 5 ft. between the tips of the wings. See Bat; also ill. below.

FLYING LEMUR (*Galeopithecus*). Popular name for the colugo of Malaya. The loose skin along the sides of the body and neck spreads into a kind of parachute when the animal launches itself into the air, enabling it to cover at one bound as much as 70 yds. from tree to tree. It feeds chiefly on leaves. See ill. below.

FLYING SQUID

(*Ommastrephes sagittatus*). Species of squid or cuttle fish. Long and narrow in shape, it is common in the open seas, and forms an important part of the food of the sperm whale. See Cuttle.



Flying squid, a cuttle fish which springs out of the water

FLYING SQUIRREL

(*Pteromys*). Squirrel found in N. America, Asia, and E. Europe. Members of this group are able to simulate flying by the extension of the loose, lateral folds of their skin. There are many species and all are nocturnal in habit.

FLY WHEEL. Large, heavy-rimmed wheel mounted on a shaft which is subjected to, or has to exert, a turning effort more or less intermittently. By virtue of its inertia it acts as a reservoir of energy and has a powerful steadying effect. See Steam Engine.



Flying Lemur, *Galeopithecus*, with skin distended for gliding



Flying squirrel of north America. It is nocturnal in habit

1894, and later was professor of military history, strategy, and applied tactics at the École Supérieure de Guerre. In 1905 he became chief of staff to the 5th Army Corps, in 1907 brigadier-general, and was for 4½ years in command of the École de Guerre. In 1913 he took command of the 20th Army Corps at Nancy.

On four critical occasions during the Great War, before he was

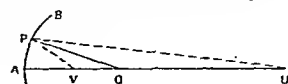


Ferdinand Foch, French soldier Henri Manuel

appointed generalissimo, Foch proved his principles in action, and his appointment to the supreme command came in March, 1918. Created marshal on Aug. 6, he showed his great qualities in the peace as in the war. He was the chief cause of the acceptance of the German offer, and largely framed the preliminary terms of peace. He died March 20, 1929, and was buried in the Invalides.

FOCHABERS. Tourist resort of Elginshire (Moray). It stands on the Spey, 8 m. S.E. of Elgin, on the L.N.E. Rly., and near by is Gordon Castle. Pop. 1,020.

FOCUS (Lat. hearth). Primarily the point at which converging lines or rays meet, but usually any point through which rays of light, heat, etc., or lines pass.



Focus. In the diagram C A B is part of a spherical mirror whose centre is O. A ray of light from U strikes the mirror at P, and is reflected along P.V. The angle U P O is equal to O P V

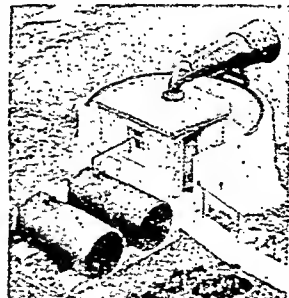
In mathematics a focus is a point from which, if lines are drawn to any points on a curve, the lengths of these lines are connected by some law. In optics, sound, heat, etc., the focus is the point to which rays are brought after reflection from a curved surface or after refraction through a lens. See Lens.

FOG. Clouds either close to or in contact with the ground. The conditions for the formation of clouds are the presence of dust and water vapour in the atmosphere, and the falling of the temperature of the air below dew point, i.e. that temperature at which the atmosphere is incapable of holding its invisible water vapour without condensation. If these conditions are fulfilled, each particle of dust receives a thin coating of water. In the country fog is usually white, but in large towns and cities it is sometimes dense and black. Extensive fogs are also produced where currents of air of different temperatures come in contact with each other. Thus off Newfoundland the warm air from the Gulf Stream meets chilled air, and the region is the foggiest in the world. See Cloud.

Fog signals are contrivances for producing warning sounds on railways, at sea, and on roads when visual signals are obscured by atmospheric conditions. Under suitable conditions aircraft and aerodromes use Very lights and directional wireless.

FOGGIA.

City of Italy, capital of the S.E. prov. of Foggia. It is 78 m. E.N.E. of Naples. An important fair is held every May for the sale of sheep, wool, corn, capers, and cheese. Pop. 86,295. Pron. Foj-ja.

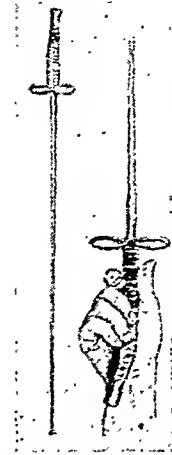


Foghorn installed on the Bass Rock in the Firth of Forth

FOGHORN. Instrument carried by ships to indicate their presence to other vessels during a fog at sea. Foghorns may be operated by mouth, hand, or mechanical power. The types designed for shore use are especially employed for port and harbour signals. The more powerful horn installations used on steam vessels, and some coast stations, are technically called sirens. The Board of Trade require sailing vessels under way, and vessels towed, to sound foghorns at one-minute intervals.

FÖHN (Ger.). Warm, dry wind experienced in Alpine valleys. In the circulation of the atmosphere air is caused to descend mountain slopes. During its descent it is heated by compression, and being thus enabled to hold more moisture, it descends as a warm, drying wind, which in a few hours clears away more snow than many days of bright sunshine, and uncovers the upland pastures. In some valleys the early sowings are entirely dependent upon this wind, whilst in others it is relied upon to ripen the grapes in autumn.

FOIL. Weapon used in fencing. It is a very slender, four-sided steel blade, with a handguard to the hilt and a button on the tip. The object of the fencer is to touch a specified part of his opponent's body with the button. See Fencing.



Foil, fencing weapon, and method of holding

FOIX. Town of France, capital of the dept. of Ariège. Former capital of the co. of Foix, it stands between the rivers Ariège and Arget, 46 m. S. of Toulouse. The counts of Foix lived in its castle, round which the older part of the town clusters. The church of S. Volusien dates from the 14th century. There are small industries, and it is a commercial centre for a large district. Pop. 6,165.

The family of Foix were rulers of the co. of Foix between about 1000 and 1500. The court of Gaston Phoebus (d. 1391) is vividly described by Froissart. In 1479 Francis Phoebus became king of Navarre. He left no sons, so the county passed to his sister, wife of Jean d'Albret, and thence to the family of Bourbon (q.v.). A member of a younger branch of the family was the famous soldier Gaston de Foix (1489-1512).

FOKKER, ANTONI HERMAN GERRAD (b. 1890). Dutch engineer. Born April 6, 1890, he began to build aircraft for the German Government about 1913 at Sehwerin. He designed a biplane called after him, and during the Great War a great number of these were employed. In 1919 he opened a factory in Amsterdam. See Aeronautics.

FOLKESTONE. Borough, watering place, and market town of Kent. It is 71 m. S.E. of London by the S.R. For visitors the attractions include the Leas—a fine promenade on the top of the W. cliff, pleasure gardens, a theatre, and a pier. Radnor Park is a public pleasure ground, and there are tennis courts, golf links, and a racecourse. The hatching is good. Between Folkestone and Dover is a large open space called the Warren in which fossils are found. In 1920 this, with the east cliff, was given to the town by the earl of Radnor, who owns much of the land and whose eldest son is called Viscount Folkestone. It is one of the chief ports for France and Holland. In May, 1930, a new steel bridge was created over the Old Harbour channel, replacing the timber swing bridge. Folkestone was an important port of embarkation for the troops in the Great War. Market day, Mon. Pop. 37,535.

FOLKLAND. Name given in England in Anglo-Saxon times to the land that was held by folk or common right and subject to certain established burdens. See Boeland.

FOLKLORE. Generic term under which the traditional beliefs, customs, stories, songs, and sayings current among backward peoples, or retained by the uncultured classes of more

advanced peoples, are comprehended and included. The term is used for the scientific study of these objects.

The Handbook of the British Folk-Lore Society, which was founded in 1878, describes folklore as "the expression of the psychology of early man, whether in the fields of philosophy, religion, science and medicine, in social organization and ceremonial, or in the more strictly intellectual regions of history, poetry and other literature." Folklore thus embraces the whole outlook of uncultured man upon the world, the beliefs concerning his own nature and destiny, his relation to other beings, whether objective or imaginary, whether human or non-human, the rites and customs which are the outcome of his beliefs and the expression of these varied relations, and, finally, the amusements of his vacant hours. See Fairy; Genie; Mythology; Witch; etc.

FOLK SONG. Song created by people whose cultural development has been effected through the unconscious and intuitive exercise of natural and inborn faculties. As between folk music and that of cultivated musicians the difference is one of kind, not of degree, akin rather to the difference between the wild and the garden flower.

Folk music ordinarily consists of melody only; it is very seldom—e.g. among the peasants of parts of Russia—that it has been carried as far as the harmonic stage. Aesthetically, the characteristic of the folk tune is its transparent sincerity, freshness, spontaneity, naïveté, and directness of statement. The work of collecting and recording English popular music has been greatly advanced by the English Folk-Song Society, founded in 1898.

FOLLY. Name given generally to a building for which there appears to be no particular use or reason, or is an example of the builder's extravagance. The palatial building erected at Fonthill (q.v.), Wiltshire, by the author of Vathek, is sometimes referred to as Beekford's Folly.

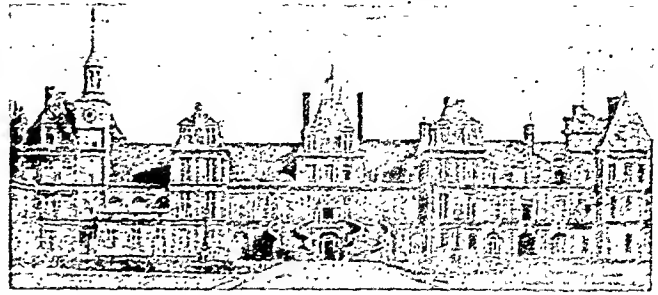
FOMENTATION (Lat. fovere, to warm). Fold of boracic lint or similar material, wrung out in boiling water and applied to relieve pain or inflammation, or to assist discharge of pus.

FONSECA, MANOEL DRODORO DA (1827-92). President of Brazil. Born at Alagoas, Brazil, Aug. 5, 1827, he joined the army in 1849, rose to the rank of general, and was in 1886 appointed governor of the province of Rio Grande do Sul. Becoming closely identified with the republican movement, he was recalled; he headed the insurrection which was followed by the establishment of the republic of Brazil. He was appointed its first president in Feb., 1891, but resigned in Nov. Fonseca died on Aug. 23, 1892.

The Gulf of Fonseca, or Amapali, is an arm of the Pacific Ocean which penetrates 40 m. between Honduras, Salvador, and Nicaragua. Two volcanoes—Conchagua and Coscoquina—stand on either side of its entrance, which is 21 m. wide.

FONT (Lat. fons, stem font-, fountain). In eccles. architecture, the basin for the rite of

baptism. Constructed of marble, stone, or lead, it is placed in a part of the church reserved for the purpose, or in a separate baptistery. As total immersion at baptism was customary.



Fontainebleau, former French royal residence. The Cour du Cheval Blanc, where Napoleon bade farewell to men of the Old Guard, April 20, 1814

early Christian fonts were of considerable size. Many fine Norman fonts are to be found in old churches in England

FONTAINEBLEAU. Town and commune of France, in the dept. of Seine-et-Marne. Lying 37 m. S.E. of Paris, it is famed for its palace and forest, and has a school of military engineering. Pop. 16,000.

The palace was founded about 998, and rebuilt by Louis VII and Francis I. Fontainebleau was the favourite dwelling-place of Napoleon I. Much altered and decorated by Louis Philippe between 1837-40, it remains one of the finest buildings in France, no less for its internal than its external and garden beauty. The forest, which is a state property, has an area of some 42,500 acres and a circumference of nearly 57 m.

FONTENOY, BATTLE OF. Fought May 11, 1745, between the British, Dutch, and some Germans, under the Duke of Cumberland, and the French under Marshal Saxe. The Allies' object was to relieve Fontenoy, a village about 5 m. S.E. of Tournai, Belgium, then besieged by the French. The battle ended in a victory

for the French, the losses amounting to about 7,000 on each side. The Allies had about 45,000 men; the French rather more.



Font. 1. Carved Norman example in Hereford Cathedral. 2. Font in Henry VII's Chapel, Westminster Abbey

FONTEVRAULT or FONTEVRAUD (Well of S. Evrault). Town of France, in Maine-et-Loire dept. It is on the Vienne, 10 m. S.E. of Saumur. Here, in 1099, Robert d'Arbrissel (1047-1117) founded a great Benedictine abbey which existed down to the time of the Revolution. In 1804 the abbey buildings were converted into a prison. In 1910, when the abbey church was restored, the tombs of Henry II of England, his wife Eleanor of Aquitaine, and his son Richard I of England were discovered. Pop. 2,302.

FONTHILL or FONT-HILL GIFFARD. Village near Hindon, Wiltshire. William Beckford the younger (q.v.), who settled here in 1796, built Fonthill Abbey at a cost of over £250,000, and disposed of it and the greater part of its contents in 1822 for £330,000. The church of Holy Trinity, which was built in 1866, replaced one which was created in 1748.

FOOCHOW or FUCHOW. Treaty port of China, capital of the prov. of Fo-Kien. It stands in a plain surrounded by hills on the river Min, 36 m. from its mouth. The river is spanned by the bridge of Ten Thousand Ages, said to be over 800 years old. A marvellous example of Chinese engineering, it connects with the island of Nan-tai, the European quarter. There are shipbuilding yards, an arsenal, a dry dock, numerous wharves, and a school of navigation. Foochow was opened to foreign trade in 1842. Pop. 314,900 See China.

FOOD. Nutritive matter taken by animals to sustain life. The principal nutritive constituent of meat is protein. In fish the chief nutrient constituents are protein and fat. Thin soups, beef-tea, meat extracts, and similar preparations contain chiefly the flavouring constituents of meat, but stimulate the flow of the gastric juices. Milk contains a certain amount of all the essential constituents of food. Cream and butter constitute easily digested forms of fat. Cheese is highly nutritive but somewhat indigestible. Eggs are highly nutritive, and most digestible when lightly boiled.

Vegetable foods contain a large proportion of carbohydrates, usually present in the form of starch or sugar. They contain a little protein and fat. Bread is a highly nutritious but by no means perfect food, since it contains so small a proportion of protein. Oats are rich in nitrogenous matter, and particularly rich relatively in fat. Maize also is as nutritious as wheat, and richer in fat. Rice is poor in protein, fat, and mineral matter. Peas, beans and lentils are rich in nitrogenous material, 95 p.c. of which is in the form of protein. Potatoes are very rich in starch, and are most digestible when eaten in the form of a purée. Green vegetables, such as cabbage, spinach, etc., contain only a small proportion of nutritive material, but play an important part in digestion. Some fruits, such as bananas, dried dates, prunes, currants, and raisins, contain a considerable amount of carbohydrate, mostly in the form of fruit sugar. The importance of a certain amount of uncooked food in the form of fruit in the diet is now generally recognized.

In the United Kingdom there is a regular system of food inspection. Special attention is paid to imported foodstuffs and food adulteration. See Adulteration.

In times of crisis, such as during the Great War, or of shortage due to other causes, the organization, busbanding, and distribution of essential foods are undertaken by government. The official responsible for carrying out the Government's decisions during the war was known as the Food Controller.

FOOL (Lat. follis, wind-bag). Retainer kept in the medieval period, and up to the 17th century, by kings and nobles for their entertainment. The fool wore a special parti-coloured dress and a cap shaped like a cock's comb with

ass's ears, and carried a mock sceptre with a fool's head carved on it. In addition, he usually carried a bladder at the end of a string.

FEAST OF FOOLS. Medieval burlesque religious festival. It was originally celebrated on the first day of the year. A boy or young man, who was known by such names as the boy bishop or the abbot of unreason (q.v.), was chosen to conduct the ritual; but the ceremonies quickly degenerated into buffoonery. The Feast of Fools survived until the Reformation. The ass, representing Balaam's ass, the ass which stood by the manger, that on which the Virgin and Child fled to Egypt, or that on which Christ rode into Jerusalem, often played a part. In some places there was a special Feast of the Ass, e.g. at Beauvais.

FOOLSCAP. Properly, the cap worn by fools and jesters, usually conical in shape with bells fastened to it. It is also the common name for a sheet of paper, strictly 17 ins. by 13½ ins., but frequently smaller. It had formerly a fool's cap and bells for its watermark.

FOOL'S PARSLEY (*Aethusa cynapium*). Annual herb of the order Umbelliferae. It is a native of Europe and Siberia, growing chiefly in cultivated ground. It has a spindle-shaped root and a smooth stem about 2 ft. high. The large, wedge-shaped leaves, are much divided into small, thin segments. The minute white flowers are massed in compound umbels. Though somewhat like parsley, its nauseous odour would prevent any but "a fool" from being imposed upon by the resemblance.

FOOT. Lower extremity of the leg. Of the bones, seven form the tarsus or posterior part; five the metatarsal bones; and fourteen the phalanges, forming the toes. The tarsus consists of the os calcis, which forms the heel; the astragalus, which articulates with the tibia and fibula to form the ankle joint; and five smaller bones—the scaphoid, three cuneiform bones, and the cuboid bone. The metatarsal bones are elongated, and articulate behind with the tarsus and in front with the phalanges. The foot is arched in the centre, the posterior pier of the arch being formed by the heel and the anterior by the heads of the metatarsal bones. See Ankle; Flat Foot.

FOOT. One of the oldest and commonest measures of length, based upon that of a man's foot, traditionally the king's. The English statute foot is divided into 12 ins. In prosody, foot is the term applied to a group of syllables, one of which is stressed to mark the rhythm that forms a constituent part of a verse.

FOOT AND MOUTH DISEASE. Fever mainly affecting cattle, sheep, and pigs, though other animals, including man, are also liable. When there is an outbreak in Great Britain the district in which it appears is isolated, and the affected animals are liable to be slaughtered, compensation being paid. See Bacteriology.

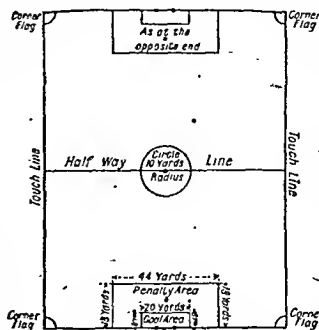
FOOTBALL.

Open-air game played with ball containing an inflated bladder. In the Rugby game, named from the famous school where it originated, the ball is oval; in the Association game it is spherical.

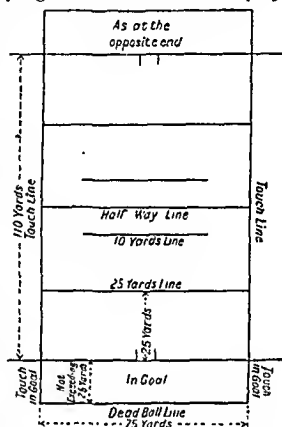
THE ASSOCIATION GAME. The Association game is played by 11 players (one goal-keeper, two full-backs, three half-backs, and five forwards) on each side. The maximum length of the field of play is 130 yds., minimum length 100 yds., maximum breadth 100 yds., minimum breadth 50 yds. The goals are upright posts, 8 yds. apart, with a bar across them 8 ft. from the ground. The circumference of the ball may not be less

than 27 or more than 28 ins., its casing must be of leather; its weight from 13 to 15 oz. The duration of the game is normally 90 mins.

The winners of the toss have the option of kick-off or choice of goals. Ends may only be charged at half-time. The goal-keeper may, within his own penalty area, use his hands, but with this exception intentional handling of the ball is not allowed. The referee is sole judge of fair and unfair play



Football. Diagram showing lines and dimensions of Association ground



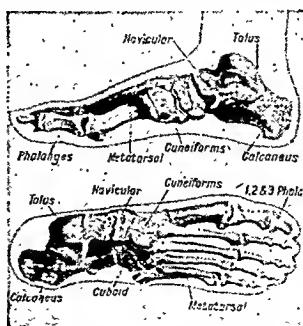
Football. Diagram showing lines and dimensions of Rugby ground

The Football Association, the governing body of English amateur and professional association football, founded in 1863, has its offices at 22, Lancaster Gate, London.

The Football League, a union of Association clubs for playing matches

against each other, dates from 1888. In this there are a first division, a second division, and a third division in two sections, northern and southern. Each section consists of 22 clubs. There is also a Scottish league in two divisions of 20 clubs each, an Irish league, and various local leagues in Lancashire and elsewhere. See Association Cup; Aston Villa; Corinthian, etc.

THE RUGBY GAME. Running with the ball, the distinctive feature of Rugby football, came into vogue in 1823, but was not recognized until 1841. The Rugby game is played by 15 players (one full back, four three-quarters, two half-backs, and eight forwards) on each side. The field of play may not exceed 110 yds. in length nor 75 in breadth. The goal-posts are 11 ft. in height, placed 18 ft. 6 in. apart and joined by a crossbar 10 ft. from the ground. The object of the game is to kick



Foot. Diagram showing the bones of the human foot, seen from above and from the side



Fool. The court fool of ancient time attired in his motley After A. Lambdon

the ball over this crossbar and between the posts. A try, or grounding the ball on the line, scores 3 points, to which two are added if a goal is kicked. The oval ball is 11 ins. to 11½ ins. in length; circumference, 30 ins. to 31 ins.; width (circumference), 25½ ins. to 26 ins.; weight, 13 oz. to 14½ oz.

FOOTE, SAMUEL (1720-77). English actor and dramatist. Born at Truro, 1720, he was educated at Worcester College, Oxford. He joined the bar, but gave up a legal career to go on the stage. He was a skilful mimic and brought out at The Haymarket a successful series of caricature comedies. He died Oct. 21, 1777, and was buried in Westminster Abbey.



Samuel Foote,
English dramatist
After Sir J. Reynolds

FOOTPATH. Narrow path, used by pedestrians only. In the United Kingdom the right of way over footpaths may be acquired by grant, which after 40 years is deemed absolute, unless enjoyed by some consent expressed by deed or other evidence in writing. The safeguarding of the right is entrusted to the parish and district councils and is also made the object of attention by the Commons and Footpaths Preservation Society. See Commons; Enclosure; Right of Way.

FOOT'S CRAY. District of Kent. One of the four contiguous parishes on the river Cray—St. Mary Cray, St. Paul's Cray, Foot's Cray, and North Cray—it is 2 m. S. of Sideup. Until 1920 it was a separate urban district, but it is now part of Sideup (q.v.).

FORAMINIFERA (Lat. foramen, small hole). Minute creatures of low organization, belonging to the sub-kingdom Protozoa. Most of them are marine. They secrete a limy or membranous shell, usually perforated with minute holes through which thread-like processes of the body protoplasm can be extruded. With the aid of these pseudopodia (false feet) the animal is able to creep about and to secure the particles of organic matter on which it feeds. The ooze of the ocean beds and the limestone in the earth's crust are largely composed of their shells.

Forbes. Town of New South Wales, Australia, 290 m. W. of Sydney. It is a centre of sheep and horse breeding. Pop. 4,654.

FORBES, ARCHIBALD (1838-1900). British war correspondent. Born in Elginshire, April 17, 1838, he made his reputation in the Franco-Prussian War of 1870-71 as correspondent, first of The Morning Advertiser and then of The Daily News. He saw service in the Russo-Turkish and Zulu Wars, and wrote Memories and Studies of War and Peace, 1895. He died in London, March 30, 1900.

FORBES, JOAN ROSITA (b. 1893). British traveller and writer. Born Jan. 16, 1893, a daughter of H. J. Torr of Morton Hall, Lines, she visited remote parts of Africa and Arabia, and was given the gold medal of several geographical societies. In 1921 she married Col. A. T. McGrath. She is author of The Secret of the Sahara-Kufara; The Jewel in the Lotus; Adventure; and other works.

FORBES, STANHOPE ALEXANDER (b. 1857). British artist. Born in Dublin, Nov. 18, 1857, he was educated at Dulwich and studied art in London and Paris. A member of the Newlyn group, his pictures are chiefly scenes of the sea or the country. The Health of the Bride, depicting a Cornish wedding, is in the Tate Gallery. Other popular pictures are The Lighthouse; The Fish Sale; The Village Philharmonic; The Quarry Team; and Forging the Anchor. Forbes was elected A.R.A. in 1892 and R.A. in 1910.

FORBES-ROBERTSON, SIR JOHNSTON (b. 1853). British actor. Born in London, Jan. 16, 1853, eldest son of John Forbes-



Sir J. Forbes-Robertson,
British actor
Marian Lewis

Robertson, art critic and journalist, of Aberdeen, and educated at the Charterhouse and Rouen, he studied art at the R.A. school, and elocution under Samuel Phelps. He made his debut, March 5, 1874, at The Princess's, London, as Chastelard, in Mary Queen of Scots. Gifted with a magnetic personality and exceptional elocutionary ability, he was one of the most popular actors of his time. Of the many parts he played, his Hamlet, the title rôle in The Passing of the Third Floor Back, and Diek Helder in The Light That Failed are specially memorable. In 1900 he married May Gertrude, sister of Maxine Elliott (q.v.), who acted with him in many of his successes. He was knighted in 1913. His brother, Norman Forbes (b. 1859), also won distinction as an actor; and his sister, Frances Forbes-Robertson, has written several novels.

FORCEPS. Instrument consisting of two blades for grasping or compressing tissues or objects. The midwifery forceps, used for assisting delivery with difficult labour, was a discovery of Peter Chamberlen, a Huguenot refugee in the 17th century, but did not become generally known till 1733. A form of forceps is employed in nearly all surgical operations, and by dentists, watchmakers, etc.



E. Onslow Ford,
British sculptor
Elliott & Fry

ling and truth of likeness. He died Dec. 23, 1901.

FORD, HENRY (b. 1863). American manufacturer. Born at Greenfield, Michigan, July 30, 1863, he began to work when a boy in an engineering shop at Detroit. He rose to be chief engineer at the Edison Illuminating Co., and in 1903 founded a business of his own at Detroit. This became the Ford Motor Co., and under his presidency the largest maker of automobiles and farm tractors in the world. He opened factories at Manchester and Cork, and in 1929 started to build enormous works at Dagenham. In 1922 he published My Life and Work; in 1929 My Philosophy of Industry.



Henry Ford, American
manufacturer

FORD, JOHN (1586-c.1639). English dramatist. Born at Islington, Devon, April 17, 1586, he spent a year at Exeter College, Oxford, and then entered the Middle Temple. His reputation rests on his tragedies, 'Tis Pity She's a Whore, 1626; The Broken Heart,

1629. and the historical drama of Perkin Warbeck, 1634.

FORDWICH. Parish and village of Kent. It is 2 m. N.E. of Canterbury. In the Middle Ages, and later, the Stour was navigable here and Fordwich was a corporate member of the Cinque port of Sandwich. It has an old church, St. Mary's, with a Norman shrine. It was a borough until 1884. Pop. 254.

FORECLOSURE (old Fr. forecloz, shut out). Term used in English law. When a mortgagor has failed to pay a debt the mortgagee may bring an action to foreclose, when the court orders that if the mortgagor does not redeem within a certain time the mortgagee shall become the owner of the security. See Mortgage.

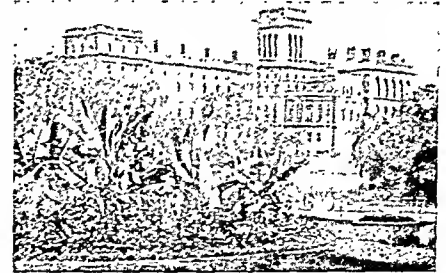
FOREIGN LEGION. (Fr. légion étrangère). French corps which includes men of other nationalities, and serves particularly in North Africa. Its headquarters are in Algiers, and it is officered chiefly by Frenchmen. Connected with the Legion are certain disciplinary battalions known as the Zephyrs.



Foreign Legion. Officer and men
of the First Foreign Legion with
their colours

FOREIGN OFFICE. British government department. Its head, the secretary of state for foreign affairs, appoints, sends out, and supervises ambassadors, consuls, and other diplomatic agents, and by various means, not excluding the use of secret agents, keeps himself acquainted with the course of affairs abroad. Before 1782 the control of foreign affairs was divided between the two principal secretaries of state. The secretary is assisted by a parliamentary and a permanent under-secretary, and his office, entered from Downing Street, overlooks St. James's Park.

FORELAND, NORTH AND SOUTH. Two headlands on the coast of Kent. The North, about 2½ m. S.E. of Margate, has a lighthouse



Foreign Office, London, seen from St. James's Park

168 ft. above sea level, with a light visible at 20 m. The South, 3 m. N.E. of Dover, has also a lighthouse. It was here that, on the advice of Michael Faraday, electricity was first used for lighting British lighthouses.

FORESHORE. Part of a beach or sea-shore which is covered at high tide and uncovered at low tide. The extent of the foreshore depends partly upon the slope of the ground and partly upon the height of the tides. The boundary has been fixed, by a decision of English law, as the mean between the high and the low water mark. Foreshore is vested in the crown. See Coast.

FORESHORTENING. Technical term in perspective drawing. In a portrait, for example, an arm represented as pointing at

full length towards the onlooker occupies less space than if it were shown as pointing to one side; yet the perspective must clearly indicate that the length of the arm is the same.

FORESTER. One who looks after a forest. The Ancient Order of Foresters is the name of a large friendly society.



Foreshortening. Example of fore-shortening of an arm, from a recruiting poster of the Great War. Courtesy of London Opinion

Founded in 1834, this has over 1,600,000 members and its total funds amount to £21,500,000. Its headquarters are at 17, Russell Square, London, W.C., and the order has spread to the United States and the British Dominions overseas. See Friendly Society.

Forest Gate. District of Essex and E. suburb of London. It is 5½ m. N.E. of Liverpool Street station on the L.N.E.R.

FOREST HILL. Residential dist. in the borough of Lewisham, London. It is 5½ m. S.E. of London Bridge station, on the Southern Rly. The Horniman Museum, standing in a public park, was opened in 1901.

FOREST ROW. Village of Sussex. It is 3 m. S.E. of East Grinstead, on the Southern Rly., and a convenient starting-point for a visit to Ashdown Forest. Pop. 3,303.

FORESTRY. The science of cultivating trees, especially for providing timber. No trees will thrive where stagnant moisture is present in large quantities. On soils where the water is percolating the willow, alder, spruce, fir, and poplar may be planted. On chalky soils larch, Scots pine, beech, oak, ash, and sycamore are the best. On the ordinary rich loam any British timber tree will flourish. On sandy soil, only the coniferous trees, such as the pines, firs, and spruces, may be expected to prosper; while on the heavy clay lands the British oak is the only tree, except perhaps the hornbeam, which is likely to repay planting.

The most generally practised system of forestry is that of utilising old pasture or waste lands, and planting oak- or two-year-old trees upon it. In Great Britain the establishment of a forest or wood from seed rarely proves successful. The only effectual safeguard against the depredations of rabbits is wire netting. All dead and dying trees and ragged and tangled undergrowth must be cleared away to afford room for new seedlings. The most immediately remunerative plantations to lay down are those of spruce, pine, and fir. Thinning of woods should be in exact proportion to the amount of exposure to which they are subjected. Training in forestry is given in the Imperial Forestry Institute at Oxford. The Forestry Commission, at 22, Grosvenor Gardens, London, S.W.1, exists to promote the interests of forestry in Great Britain. See Afforestation.

To secure an adequate supply of timber for the various purposes of the Great War, Britain secured the help of Canadian lumbermen, who were formed into a Forestry Corps in Oct., 1916, and by Jan., 1918, this force, which had a base, training and mobilisation camp in England, and about 70 camps in France, had grown to 18,000.

FORFAR. Burgh and county town of Forfarshire (Angus). It is 21 m. N.E. of Dundee on the L.M.S. Rly. The chief industries are the manufacture of linen and jute; others are tanning, bleaching, and rope-making. Market day, Mon. Pop. 9,555.

Forfarshire. Eastern co. of Scotland, since 1928 officially known as Angus (q.v.).

FORFEITURE (late Lat. *loris factum*, something done outside): Deprivation of lands, goods, or other property, usually in consequence of a sentence passed by a court of law or some breach of the law. A common instance of forfeiture is in the case of leaseholds, the conditions of which are not complied with by the tenant.

FORGE (Lat. *fabrica*, workshop). In metallurgy, term relating to appliances for the working of iron from a crude or semi-manufactured form to a higher order, as distinguished from melting and casting. It covers the simple hearth of the blacksmith, early furnaces such as the Catalan forge, in which malleable iron was produced in Europe for a long period, and the extensive plant which makes up a modern iron-manufacturing works.

Forging is the production of articles of iron or steel or other metal by hammering, pressing, rolling, or otherwise shaping the metal while heated but not in a molten condition. In its broad sense it embraces all the operations of shingling, cogging, and rolling by which "merchant" bars and plates are produced.

A forging press is a hydraulic machine for forging metal by steady pressure. Some of these machines exert a pressure of 10,000 tons.

FORGERY (Lat. *fabricari*, to frame). English law term for making or altering a written instrument which purports to be valid on the face of it with intent to defraud. The law is dealt with by the Forgery Act, 1913.

FORGET-ME-NOT. Hardy perennial plant of the order Boraginaceae, genus *Myosotis*. A native of Britain, its flowers are blue and yellow, except those of the rare species *M. palustris alba*, which are white.



Forget-Me-Not. Leaves and flowers of the perennial plant

(q.v.) is a two-pronged steel instrument which when struck gives a fixed and definite note, used to determine musical pitch.

FORLÌ. City of Italy, the ancient Forum Livii. Capital of the prov. of Forlì, it stands in a fertile plain, intersected by the rivers Montone and Ronco, 40 m. by rly. S.E. of Bologna. A walled town, it contains a cathedral (rebuilt), a citadel, 1361, utilised as a jail, a lyceum, technical institute, a municipal art gallery, a town hall, a good library, and a hospital. The churches contain pictures and frescoes by local masters. Pop. 51,859.

FORMALIN OR FORMALDEHYDE (HCOH). Pungent gaseous compound first prepared in 1867 by Hofmann by passing methyl alcohol vapour and air over a heated platinum spiral. A 40 p.c. solution of formaldehyde is known as formalin, and is the form in which the gas is

obtainable in commerce. Formalin is employed as a preservative and antiseptic. It is a powerful caustic and disinfectant. Combined with ammonia, formaldehyde yields hexa-methylene-tetraamine, which, under the name of urotropine, is used in medicine as an internal antiseptic.

FORMALISM. Adherence to cut-and-dried rules applied to sculpture or painting. The term is specially used of the reduction of religious forms and dogmas to a system.

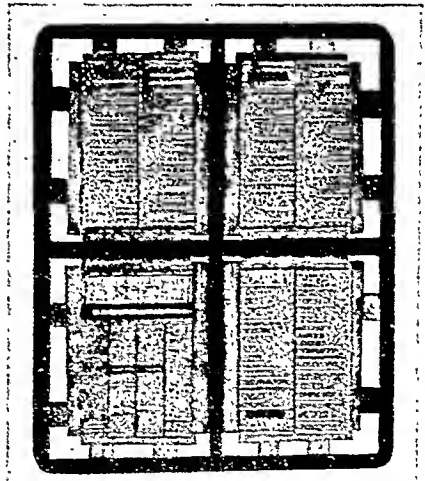
FORMAN, SIMON (1552-1611). English physician. Born Dec. 30, 1552, he went to the Netherlands about 1580 and there studied medicine. In 1583 he began to practise in London, where he was soon very popular among both rich and poor. At first the authorities would not recognize him, but in 1603 the university of Cambridge granted him a licence to practise. He died Sept. 11, 1611, leaving a number of treatises on medicine and mathematics.



Simon Forman, English physician

FORMATION. In geology, an old term used to denote a group of strata or rock-beds distinguished by common lithological characters. Modern divisions of stratified rocks are based on the fossils enclosed. See Geology.

FORMBY. Urban district and watering place of Lancashire. It is 7 m. S.W. of Southport, on the L.M.S. Rly., and a residential suburb of Liverpool. Near are the Altcar Flats, on which the Waterloo Cup is decided.



Forme. Four pages of type locked up in a chase, making a forme ready for printing

FORME. In printing, a page or number of pages of type, or stereo-plates, arranged, or imposed, for printing and secured, or locked up, in a metal frame which is called a chase. See Printing.

FORMIC ACID (Lat. *formica*, ant). The lowest in the important series of fatty acids. Its chemical formula is $\text{CH}_3\text{CO}_2\text{H}$. It was first obtained by John Ray in 1670 by distilling red ants with water. Formic acid occurs in other animal and vegetable substances, but is now made by various chemical processes. The liquid acid is colourless, and has a pungent, sour taste and odour.

FORMIDABLE. British battleship. She was completed in 1901, and had a displacement of 15,000 tons. She was torpedoed in the English Channel on Jan. 1, 1915. About 600 lives were lost; 71 officers and men were saved.

FORMOSA OR TAIWAN. Island in the W. Pacific Ocean, separated from China by Formosa strait. It has an area of 13,500 sq. m. Of wonderful fertility and great natural beauty, its western side consists of highly cultivated plains; the eastern, of lofty forest-clad mountain ranges. The mountains are inhabited by savage tribes of Malay or Negrito origin, who, since the island was surrendered by China to Japan after the war of 1894-95, are being brought into subjection. The western half is inhabited by Chinese agricultural and industrial settlers and by Japanese. Pop. 3,994,236.



Formosa. Natives of Karenka on the beach. They are of Malay origin and are half savage

The chief products are rice, tea, sugar, salt, rattans, sweet potatoes, hemp, jute, indigo, and camphor. The minerals are gold (alluvial), silver, coal, copper, petroleum, and sulphur. Economic timber may be said to be inexhaustible. Formosa is the principal source of the world's camphor supply. The climate is hot, damp, and malarious. Typhoons are frequent. Taihoku is the capital. A rly. runs from Keelung to Hozan. See Japan.

FORMULA (Lat. forma, little form). Prescribed form of anything. In mathematics formulae are the general expressions used in solving problems. The word is most commonly used perhaps in chemistry. A collection of formulae in a book is called a formulaary. Chemical formulae are symbolical representations of the arrangement of the atoms within the molecule, the modes of the formation and decomposition of a compound, or the relation which the allied compounds bear to one another. Modern usage has developed from a system employed by the Swedish chemist Berzelius (q.v.). See Chemistry.

FORRES. Burgh and market town of Moray or Elginshire. It is 12 m. S.W. of Elgin on the L.M.S. Rly. An ancient monolith, named Sueno's stone, is said to have been placed here early in the 10th century. Footwear, woollen goods, and chemical manures are manufactured. Forres is in a sheltered position at the foot of the Cluny Hills, and near by is the Cluny Hill hydropathic. Pop. 4,116.

FORREST, JOHN FORREST, BARON (1847-1918). Australian statesman and explorer. Born near Bunbury, W. Australia, Aug. 22, 1847, he became a state surveyor, 1865, and explored the interior. First premier of W. Australia, 1890-1901, he held several ministerial offices in the Commonwealth. He was knighted in 1891 and in 1918 created a peer, the first Australian so honoured. His title lapsed on his death, Sept. 3, 1918.

FORSTER, HENRY WILLIAM FORSTER, 1ST BARON (b. 1866). British politician. Born Jan. 31, 1866, he was educated at Eton and New College, Oxford. He entered parliament in 1892 as M.P. for Sevenoaks, and was financial secretary to the war office 1915-19. In 1919, when he resigned, he was made a peer. From 1920-25 he was governor-general of Australia.

FORSTER, JOHN (1812-76). British biographer. Born at Newcastle, April 2, 1812, he edited *The Daily News* during 1846. The two works by which he is best known are *The Life and Times of Oliver Goldsmith*, 1848, and *The Life of Dickens*, 1872-74. His collection of MSS., books, and pictures forms the Forster bequest at the S. Kensington Museum. He died Feb. 1, 1876.



John Forster, British historian After C. E. Perugini

FORSTER, WILLIAM EDWARD (1818-86). British politician. Born at Bradpole, Dorset, July 11, 1818, of Quaker parentage, he was Liberal M.P. for Bradford from 1861-86. In 1868 he became vice-president of the council in Gladstone's first ministry. It fell to him to frame and introduce the important Education Act of 1870. He remained in office until 1874, and was from 1880-82 chief secretary for Ireland. He died in London, April 6, 1886. He married, in 1850, Jane Martha, eldest daughter of Dr. Arnold, and he adopted four children, his wife's nephews and nieces, who were known by the name of Arnold-Forster.

FORSYTHIA. Genus of shrubs of the natural order Oleaceae. Natives of Japan and China, they have scattered yellow flowers. The genus is named after William Forsyth, an 18th century gardener.

FORTALEZA. Seaport of Brazil. It stands on an open bay, 350 m. N.W. of Pernambuco, with an anchorage two miles out, cargoes being landed on the beach in surf boats. There is a trade in rubber, cotton, coffee, sugar, etc. Pop. 96,442.

FORT AUGUSTUS. Village of Invernessshire. It is situated at the head of Loch Ness (see illus. p. 340), and is connected with Spean Bridge, 24 m. S., by a branch of the L.M.S. Rly. The fort, built originally in 1716, was purchased by Lord Lovat in 1857, and presented by him, in 1876, to the Benedictines, who made it a monastery. Pop. 1,030.

FORTESCUE, SIR JOHN (c. 1394-1476). English judge and writer. The son of another Sir John Fortescue, he belonged to the Devon family of that name. Born at Norris in Somerset, he was educated at Exeter College, Oxford, and in 1442 was made chief justice of the king's bench. His treatise on the laws of England (*De Laudibus Legum Anglie*) was published after his death.



Sir John Fortescue, English judge After W. Faithorne

FORTESCUE, SIR JOHN WILLIAM (b. 1859). British historian. Born Dec. 28, 1859, a younger son of the 3rd Earl Fortescue, he was educated at Harrow and Trinity College, Cambridge. He is author of the standard *History of the British Army*, in 13 volumes, 1899-1930, and *The Story of a Red Deer*, 1897. He was librarian at Windsor Castle, 1905-26. He received the K.C.V.O in 1926.

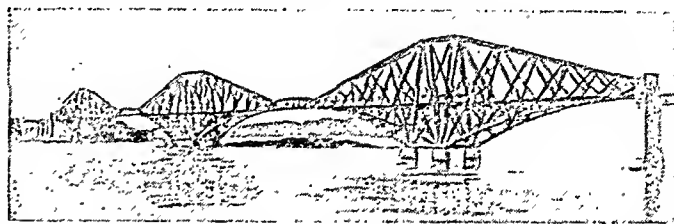
FORTESCUE, MISS. Stage name of May Finney, British actress. She made her stage debut as Lady Ella, in *Patience*, at the Opéra Comique, London, April 23, 1881. A notable Celia in *Iolanthe* at The Savoy, 1882, she appeared as Dorothy in *Dan'l Druce*, at The Court, 1884. She played Mary Melrose in *Our*

Boys, at The Strand, 1884, after which date she organized a touring company of her own, which she ran for some years. Other parts played by her were Juliet; Rosalind; Lady Teazle; and the duchess of Strood in *The Gay Lord Quex*.

FORT GEORGE. Village of Invernessshire. It stands on Moray Firth, 12 m. N.E. of Inverness, on the L.M.S. Rly. It was erected after the rebellion of 1745.

FORTH. River of Scotland, which, flowing into the N. Sea, forms as its estuary the Firth of Forth. Formed by the meeting of the hill streams Duehray Water and Avonduh, near Aberfoyle, in Perthshire, the Forth flows through Perthshire, Stirlingshire, and Clackmannanshire, its length as far as Alloa being about 53 m.

The Firth of Forth begins at Alloa, and varies in width from one to 17 m. The chief islands are Inchkeith, Inchcolm, Cramond Island, and the Bass Rock (see illus. p. 205).



Forth Bridge. It has three main piers, the span between each support being 1,710 feet

Leith, Granton, Grangemouth, Alloa, Burntisland, and Methel are the chief harbours and fishing ports. The Firth is spanned at Queensferry by the Forth Railway Bridge, a great cantilever structure (see illus. pp. 301, 338) designed by John Fowler and Benjamin Baker and built 1882-90. It has a length (with approaches) of 8,295 ft. A suspension road bridge at S. Queensferry is under consideration. See Queensferry; Rosyth.

The Forth and Clyde Canal extends from Grangemouth, on the Forth, to Bowling, on the Clyde. It was constructed between 1768-90 at a cost of £330,000, and has a length of 39 m. Since 1867 it has been the property of the Cal. Rly. (now L.M.S.). A ship canal along the same route is proposed.

FORT JAMESON. Settlement in N. Rhodesia. On the Tanganyika plateau, it is about 300 m. N. of Tete by road and 125 m. W. of Lake Nyasa.

FORTRESS. Place erected or adapted for the defence of a country or the protection of an army. The old fortress was a walled city or town with a castle or citadel. The modern one is a place that is protected by guns and defence works skilfully sited round it.

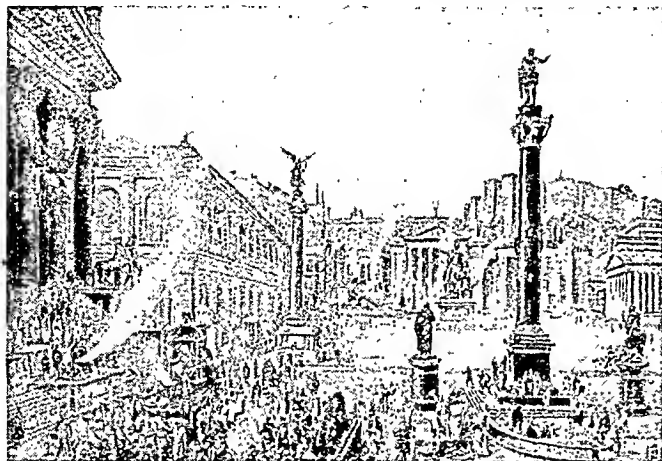
The value of fortresses now lies in the influence they can exert upon the operations of field armies. Only in exceptional cases, such as in narrow straits like the Dardanelles or in sea canals like that of Panama, can ordnance mounted in forts exercise any direct effect upon the movements of the war vessels which decide the issue of a naval war.

Commercial harbours are sometimes fortified as places of refuge for merchant shipping, but safety at sea, rather than in harbour, is the condition needed for the security of the vessels carrying the trade of a community depending upon sea commerce for existence. See Artillery; Citadel.



Miss Fortescue as Julia in the Hunchback

FORTROSE. Burgh and seaport of Ross and Cromarty. It stands on the Moray Firth, 9 m. N.E. of Inverness, on a branch of the L.M.S. Rly. Fortrose was formerly the seat of the bishops of Ross, but the cathedral was destroyed by Cromwell, who built his fort at Inverness with the stones. There is ferry communication with Fort George. Market day, Friday. Pop. 963.



FORT ROSEBERRY. Settlement of N. Rhodesia, about 45 m. W. of Lake Bangweulu. A former settlement of this name was on the Luapula, about 60 m. N.W. of the new township.

FORT SUMTER. Fort in S. Carolina, U.S.A. On an island at the entrance to Charleston harbour, it was bombarded by the Confederates, April 12, 1861, and surrendered the following day, the action immediately leading to the opening of the Civil War.

FORTUNA. In Roman mythology, the goddess of chance or good luck. The most famous seats of her worship were Antium and Praeneste. In art she is represented with a rudder as symbol of her guidance of things, also with a cornucopia as a symbol of the prosperity she brought to mankind.

FORTUNATE ISLES. Alternative name for the Islands of the Blessed, or the Elysian Fields, of early Greek mythology. They were vaguely spoken of as beyond the Pillars of Hercules, i.e. the Straits of Gibraltar. It has been generally accepted that the Canary Isles are the Fortunate Isles of the ancients.

FORTUNE TELLING. Revelation by non-rational processes of what is to befall a person in the future. It was brought from the East across medieval Europe by the gypsies. As a modern superstitious survival it is associated with palmistry, astrology, crystal-gazing, lot-casting by cards or otherwise, and subjective processes.

Under the Vagrancy Act, 1824, any person who undertakes to tell fortunes, or uses any subtle craft, means, or device, by palmistry or otherwise, to deceive and impose upon any person, is liable to imprisonment as a rogue and vagabond. In the United States fortune tellers are usually classed by statute

as disorderly persons, liable to arrest and summary examination. See Crystal; Divination; Palmistry.

FORT WILLIAM. Burgh and tourist resort of Inverness-shire. It stands on the E. shore of Lower Loch Eil, at the foot of Ben Nevis, 65 m. S.W. of Inverness, on a branch of the L.N.E.R. The fort was dismantled in 1860. It is a starting-point for the ascent of

Ben Nevis (q.v.). The water for supplying power to the British Aluminium Company's establishment is brought through the Ben Nevis tunnel, completed in 1930. Pop. 1,913.

FORT WILLIAM. Port and city of Ontario, Canada. It stands at the head of Lake Superior, on the Kaministiquia river, its importance being due to its position between E. and W. Canada. It is 420 m. E.S.E. of Winnipeg, and is served



Forum. Above, reconstruction of the western buildings in the Forum Romanum. The procession is passing the Temple of Castor and Pollux, and beyond are the Basilica Julia and the Temples of Saturn, Vespasian, and Concord. Below, the Forum to-day, with (right) the Arch of Septimius Severus

Photo, Anderson

by the C.P.R. and Canadian National Rlys. A street rly. goes to Port Arthur, 4 m. away. Steamers ply to ports on the Great Lakes and the St. Lawrence. The city has flour mills, iron foundries, and other industries. Pop. 20,541.

FORUM. Among the ancient Romans any open space used for public business. More particularly the term was applied to the open space in Rome, an irregular oblong in shape, lying between the Palatine and Capitoline hills, known as the Forum Romanum. Here the assembly of the people met, and magistrates and others addressed them from the tribunal or rostra. With the growth of the city other fora were added, the Forum Julium by Julius Caesar, the Forum Augustum, and the Forum Pacis, where Vespasian erected a temple of Peace. The Forum Trajanum, erected by the emperor

Trajan, surpassed all others in size and splendour, and remains the greatest monument of Roman architecture

FOSSA or **FOUSSA** (Cryptoprocta lerox). Carnivorous mammal, found only in Madagascar, and placed by most zoologists between the cat and the civet. It is about 5 ft. long.

FOSSE WAY. Early English name for an ancient British highway from Axminster to Lincoln. Incorporated in the Romano-British road system, no part of its 182 m. deviates more than 6 m. from a straight line between these places. It runs through Bath, Cirencester, High Cross, and Leicester.

FOSSIL (Lat. fossilis, dug up). Term applied to traces of plants or animals found in the earth's crust. According to the influences to which they have been subject, and to a large extent according to their age, fossil plants, shells, and bones become altered in constitution, losing some of their chemical constituents and perhaps gaining others by substitution. The passage from wood-fibre into coal matter by the giving off of gases and the retention of a large part of the carbon is a familiar example. Fossils may suffer complete solution, but at the same time some other substance may be deposited from the solvent which preserves the original form and structure. Frequently, however, the fossil is dissolved away, leaving only a mould, an external cast, in the encasing rock.

It was not until the close of the 18th century that it was realized that strata could be "identified by organized fossils." This phrase is due to William Smith, who showed that successive deposits contained successive types of animal remains. Hence, when a sequence has been established by observation, it is possible to determine from the fossil contents the relative age of a deposit. See Geology.

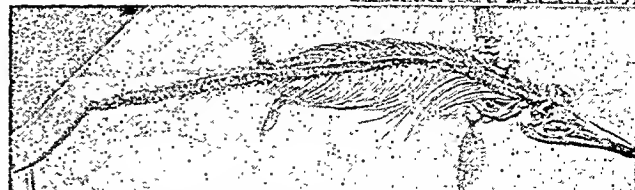


Sir George E. Foster, Canadian statesman

Russell

FOSTER, SIR GEORGE EULAS (b. 1847). Canadian statesman. Born in New Brunswick, Sept. 3, 1847, in 1882 he entered parliament for Kings, New Brunswick, and in 1885

he was minister of marine and fisheries under Sir John Macdonald. He became minister of finance in 1888, and remained in the cabinet until 1896. In 1911 he took



Fossil. 1. Skeleton of Ichthyosaurus intermedius, about 9 ft. long, Lower Lias, Somerset. 2. Slab of Lias with remains of Pentacrinus hiermeri, Württemberg

2. British Museum

office as minister of trade and commerce under Sir Robert Borden. He was made a G.C.M.G. in 1918, and represented Canada at the Peace

Conference in Paris, 1919, and at the Assembly of the League of Nations in 1921 and 1926.

FOSTER, JOHN (1770-1843). British essayist. Born near Halifax, Yorkshire, Sept. 17, 1770, he studied at the Baptist College at Bristol, and was inducted into his first charge at Newcastle-upon-Tyne, 1792, afterwards filling pastorates in Dublin, Cork, Chichester, Downend, and Frome. In 1805 appeared his *Essays*, and in the same year he became one of the principal contributors to *The Eclectic Review*. He died Oct. 15, 1843. His essays, particularly that *On Decision of Character*, are notable.

FOSTER, MYLES BIRKET (1825-99). British artist. Born at N. Shields, Feb. 4, 1825, he illustrated in black and white many poetical publications, and in 1859 turned to water-colour, painting especially English landscapes. He became member of the Royal Water Colour Society in 1861. He died March 27, 1899.

FOTHERINGHAY. Village of Northamptonshire. It stands on the Nene, 4 m. N.E. of Oundle. Few traces remain of its 11th century castle, famous as the scene of the imprisonment, trial, and execution of Mary Queen of Scots, in 1587, and as the birthplace of Richard III in 1452. Pop. 200.

FOUCAULT, LÉON (1819-68). French physicist. Born Sept. 18, 1819, he became physicist to the Paris Observatory, where he constructed various instruments, of which the gyroscope and the polariser which bear his name were the most notable. He is best remembered by "Foucault's pendulum." From the roof of the Panthéon in Paris he hung a pendulum 200 ft. long, free to oscillate in any direction. The pendulum never retraced its path, but always deviated to the right, showing that the floor was moving and the earth rotating. He died Feb. 11, 1868.

Foucault currents are currents induced in solid iron cores by alternating current passing through coils wound thereon, and by rotation in a magnetic field. See *Electricity*.

FOUCHÉ, JOSEPH (1759-1820). French politician. Born near Nantes, May 21, 1759, he became principal of Nantes College in 1790. Throwing in his lot with the Revolution, he sat in the National Convention (1792), became a Jacobin, and vehemently advocated the execution of Louis XVI.

Instrumental in the fall of Robespierre, Fouché occupied various positions in the succeeding government, becoming minister of police in 1799. Under Napoleon he was raised to the senate, and, under the empire, was also minister of the interior. He was made duke of Otranto in 1808 and governor of Illyria in 1813. Under the Bourbons he again became minister of police. He was, however, exiled as a regicide in 1816, and died in Trieste, Dec. 25, 1820.

FOULIS, ROBERT (1707-76). Founder of the Foulis Press, Glasgow. Born at Glasgow, April 20, 1707, he started printer and bookseller in 1741. He was appointed printer to Glasgow University, and in 1744 took his brother Andrew (1712-76) into partnership, and the business was continued by Robert's son, Andrew (d. 1829). The Foulis Press issued more than 550 vols., reprints of Greek, Latin, and British classics, remarkable for beauty of type, format, and textual accuracy. Pron. Fowls.



Joseph Fouché,
French politician



Robert Foulis,
Scottish publisher
From a medalion by
J. Tassie

FOUNDATION (Lat. fundare, to lay the bottom of, found). Literally, the base of a building, or that upon which a structure rests. It is freely used, however, for a society, such as a college or school, hospital or monastery, which is endowed, and so founded or set up on a permanent basis. The money given for this purpose and the conditions for which the society exists are the foundation, the work of the founder. Permanent charities, such as an almshouse or a hospital, are also known as foundations, as are cathedrals.

FOUNDLING HOSPITAL. Institution originally founded to prevent the murder or exposure of newly born children. One of the most interesting of such institutions was that in London. Its founder, Thomas Coram (q.v.), opened a house in Hatton Garden on March 25, 1741, for the admission of 20 infants. The later building in Guilford Street, Bloomsbury, dated from 1745, when it had 600 inmates. Since 1760 admission has been limited to illegitimate children who have been deserted by the father, but whose mothers can prove previous good character.

The hospital was temporarily transferred to Redhill in 1926, and in 1928 an estate, Ashlyns Hall, near Berkhamsted, was bought by the governors for the erection of a new foundling hospital. The London site was bought by Lord Rothermere for a children's park.

FOUNT. In printing, a term for a supply of type of one size and face, with a distinctive nick. A fount will normally contain a standard number of all the letters of the alphabet, graded in bulk according to the occurrence of the letters in the language in which the type is cast. See *Printing*.

FOUNTAIN (late Lat. fontana). Term applied to any construction for the supply of water, from a simple spring to an elaborate artificial basin with ornamental jets. Traces of the use of fountains have been found among the relics of the Chaldean civilization; in ancient Rome they were fully developed as a means of distributing the water brought to the city by the aqueducts.

The treatment of fountains was at first purely utilitarian. During the Renaissance, however, the ornate fountain was rapidly developed, culminating in the elaborate fountains at Versailles, with their thousands of jets. When the practice of installing a water supply in individual houses was introduced towards the end of the 18th century, utilitarian fountains became rare. But bodies like the Metropolitan Drinking Fountain Association, formed in London in 1859, proved that the demand for this type still exists.

FOUNTAINS ABBEY. Ruined abbey in Yorkshire. It stands near the river Skell, 3 m. S.W. of Ripon, in the grounds of the mansion of Studley Royal, while near is a Jacobean mansion, Fountains Hall. The ruins include those of the church with its tower, the former being 380 ft. long, the chapter house, and the magnificent cloisters (see illus. p. 422). The abbey, a Cistercian house, was begun about 1140, and only completed 200 years later. It was dissolved by Henry VIII. See *Abbey*.



Fountain. Neptune fountain at Bologna,
by Giovanni da Bologna, 1563-67

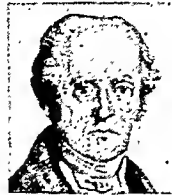
FOQUIER-TINVILLE, ANTOINE QUENTIN (1747-95). French Revolutionist. Born at Hérouel, Aisne, and trained for the law, he came to Paris and entered the secret police in 1783. He joined the extremist party in the Revolution, and was appointed by Robespierre public prosecutor of the Revolutionary Tribunal, 1793. He sent men and women of all ages and parties to the guillotine, but in the reaction from the Reign of Terror he himself was convicted and guillotined May 7, 1795.



A. Q. Fonquier-Tinville, French
Revolutionist
From a sketch

FOURIER, FRANÇOIS CHARLES MARIE (1772-1837). French Socialist. Born at Besançon, April 7, 1772, he set himself to evolve a new social system in a series of works, the chief of which are *Theory of the Four Movements*, 1808, and *The New Industrial World*, 1829. He died Oct. 8, 1837.

Fourier's theory was that the population should be redistributed in a number of new social units, each to consist of 1,500 to 1,800 people, housed in a common building with a square league of land attached, to be industrially complete in itself and self-governing. His ideas were much discussed in the U.S.A. from 1840-50, and several communities were established to put them into practice.



F. C. Fourier,
French Socialist

FOURTEEN POINTS. The conditions stated by President Wilson as those on which the Allies were prepared to make peace with Germany. He outlined them when speaking to Congress on Jan. 11, 1918, and at the end of the year they were accepted as the basis of the peace. They included the evacuation by Germany of all Russian, French, Belgian and other allied territory, the restoration of Poland, freedom of the seas, reduction of armaments, and open diplomacy.

FOURTH ESTATE. Term sometimes applied to the press to emphasize its importance in the state, the three estates of the realm according to the constitution being the lords spiritual, lords temporal, and commons. The term was first used by Edmund Burke.

FOURTH PARTY. Name given about 1880 to a small independent and irresponsible body of Conservative politicians. They were Lord Randolph Churchill, Sir H. D. Wolff, Sir John E. Gorst, and at times A. J. Balfour.

FOWEY. Borough, seaport, market town, and watering place of Cornwall. On the W. shore of the Fowey estuary, 10 m. S.E. of Bodmin, on the G.W.R., it has a fine harbour, is a favourite yachting station, and is largely occupied in pilchard fishing. There is trade in china clay. Fowey is the Troy Town referred to in some of Quiller Couch's stories.



Fountains Abbey. Ruins of the
great Cistercian house near Ripon

Market day, Sat. Pop. 1,982. Pron. Foy.

FOWL (A.S. fugol, bird). Name loosely applied to the various species of the genus *Gallus* of the pheasant family of the zoological

order Gallinae, to which the game birds generally belong. Most of them have handsome plumage, and are provided with strong legs, being better adapted for running than for flight. They range in size from the quail to the turkey, are mixed feeders, and are all valued for purposes of the table. All the many varieties of the domestic fowl are descended from the wild jungle fowl of India. The jungle fowl, which flourishes well in captivity, breeds freely with the domestic varieties, and the hybrids are always fertile. See Andalusian; Brahma; Dorking; Leghorn; Orpington; Plymouth Rock, etc.

FOWLER, SIR JOHN (1817-98). British engineer. Born July 15, 1817, he became a civil engineer and was largely employed in the many railway schemes which accompanied the boom of 1846. The Pinlloe Bridge was built according to his designs in 1860. The same year he was engaged in the construction of the Metropolitan Rly., which was opened Jan. 9, 1863. In 1883, in partnership with Benjamin Baker, he designed the Forth (q.v.) Bridge, which was opened in 1890. For this Fowler, who had been knighted in 1881, was made a baronet. He died Nov. 20, 1898.

FOX. Animal belonging to the genus *Vulpes*. It differs from other dogs in the shape of its skull, and in the fact that the pupil of the eye is elliptical instead of circular. It is of slim build, with long bushy tail and rather long ears. Foxes feed upon small mammals and birds, but also eat insects and fruit, feeding by night and spending the day in burrows, hollow trees, and clefts in rocks. They are found nearly everywhere throughout the northern hemisphere. The common fox (*Vulpes canis*) is reddish-brown in colour, with white beneath. It usually adapts the burrow of the badger or rabbit. The young, usually four or five in number, are born about April.



Fox. Common fox, *Vulpes canis*, emerging from its earth

The fox is valued for its fur, especially that of the black and silver varieties. It is a favourite animal for hunting, while on the other hand it often works havoc in the game preserve and the poultry yard. The breeding of foxes for their fur is a considerable industry in Canada and elsewhere. See Fox Hunting.

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FOX. Channel of N. America. It lies to the N. of Hudson Bay, separating Baffin Island on the E. from Melville Peninsula and Southampton Island on the W. It communicates by Hudson Strait with the Atlantic, and by Fury and Hecla Strait with the Arctic. Luke Fox explored it in 1631. Fox Land is a desolate region in the S.W. of Baffin Island.

Fox Islands is a variant name for the Aleutian Islands (q.v.), which are more specifically confined to the extreme E. group.

FOX, CHARLES JAMES (1749-1806). British statesman. Born in London, Jan. 4, 1749, he was a younger son of Henry Fox, Lord Holland, his mother being a daughter of the duke of Richmond. In 1769 he entered Parliament as M.P. for Midhurst. Fox's career as a



Charles James Fox, British statesman After Reynolds

Whig leader dates from 1775. In 1782 he entered the cabinet of Lord Rockingham as secretary of state, but in a few months the premier died, and he joined Burke and Sheridan in a Whig secession which in 1783 resulted in the coalition between Fox and Lord North, a ministry which resigned after the rejection of Fox's India Bill. In 1784 Fox appeared as an opponent of Pitt's ministry, although on some matters—the impeachment of Hastings, for instance—he was in agreement with Pitt. In 1789 came his famous declaration of welcome to the French Revolution, and in 1791 his long friendship with Burke came to an end on this issue. He declared against the war with France, but by now he had few followers, and after 1797 he ceased for a time to attend parliament. About 1802 Fox returned to public life. He remained in opposition until the death of Pitt in 1806, when he again became a secretary of state, and endeavoured to negotiate peace with France. He died Sept. 13, 1806.

FOX, GEORGE (1624-91). Founder of the Society of Friends (q.v.). He was born at Drayton-in-the-Clay (now Fenny Drayton), Leicestershire, in July, 1624, son of Christopher Fox, a weaver. In 1648 he began to preach in public, adopting the terms "thee" and "thou," opposing many social conventions as well as ecclesiastical formalism, refusing to take oaths, condemning war, and advocating a rigid simplicity of dress. By 1658 communities of his followers were established in all parts of England. Founder and followers were, however, bitterly persecuted. He died Jan. 13, 1691, and was interred in the Friends' Burial Ground, Bunhill Row. Fox's voluminous writings are now seldom read, with the exception of his Journal, first published in 1694.



George Fox, English Quaker

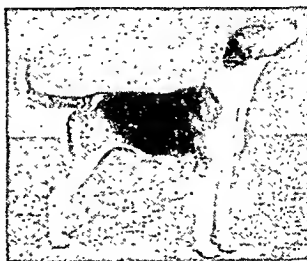
FOX OR FOXE, RICHARD (c. 1448-1528). English statesman and prelate. Born at Ropesley, Lincs, he entered the service of Henry VII in 1485. He began as the king's secretary, but was soon lord privy seal. Already ordained, and vicar of Stepney, he was made bishop of Exeter in 1487; in 1492 he was translated to Bath and Wells, and in 1494 to Durham. From 1501 until his death, Oct. 5, 1528, he was bishop of Winchester. Fox was Henry's chief adviser, and most of the diplomatic work passed through his hands. His great work was the foundation of Corpus Christi College, Oxford.

FOXES, JOHN (1516-87). English martyr-logist. Born at Boston, Lincs, and educated at Oxford, he was a tutor in the Lucy family at Charlecote, and in the Howard family at Reigate. During Mary's reign he lived on the Continent, publishing in Latin at Strasbourg the first draft of his *Acts and Monuments*, familiarly known as *Foxe's Book of Martyrs*. On Elizabeth's accession Foxe returned to England, was ordained priest, and worked on his *Acts and Monuments*, published in folio by John Daye, 1562-63. He became prebend of Salisbury and vicar of Skipton, 1563. He died April 18, 1587.

FOXGLOVE. Hardy biennial and perennial plants of the order Scrophulariaceae and genus *Digitalis*. Only one is a native of Great Britain, although there are a number of other species, which were introduced from Western Asia and Southern Europe. Their

height is from 2 ft. to 5 ft., and their flowers are purple, pink, white, yellow, or brown. The wild purple foxglove of our lanes is *D. purpurea*. See *Digitalis*; also illus. below.

FOXHOUND. Breed of hound specially maintained for hunting the fox. Of mixed origin, it is generally believed to be descended from the old type of bloodhound and the pointer, with perhaps a dash of the bulldog strain. The present breed is probably not more than 300 years old. The foxhound is notable for its speed and endurance. A good



Foxhound. Hound from the kennels of the Oakley foxhounds

hound should stand about 24 ins. high at the shoulder, but the females are usually 3 ins. shorter. The head should be large and full, the nostrils wide open. The short, rounded shape of the ear is the result of cropping when a puppy. The back and shoulders should be strong and muscular, the hind quarters well formed, and the legs straight. The coat is always parti-coloured.

FOX HUNTING.

English sport. Fox hunting, as carried on in the 20th century, is a comparatively modern sport, being introduced in Leicestershire and Northamptonshire about 1750.

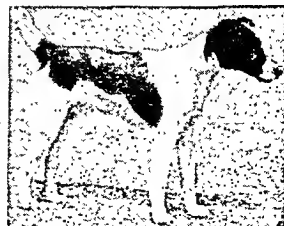
It flourished in these and neighbouring counties, which, owing to the abundance of grass, are specially suited to it, but it spread, also, to other counties where grassland and ploughland abound, and to-day there are Hunts in almost every part of the country. Horses and dogs are bred specially for the sport, and the English horse and the English dog are unrivalled throughout the world. The most famous Hunts include the Quorn, Cottesmore, and Belvoir. Each has a master, and for staff a huntsman, whips and others, with kennels in the centre of its country.



Foxglove. Flower of *Digitalis purpurea*

high. The leaves are rough and flat; the flowers form a soft, cylindrical panicle. It is a valuable meadow grass and of high nutritive value.

FOX TERRIER. Small breed of terrier, formerly used in the hunt for unearthing the fox. To some extent it is still used for this purpose, and is used for ratting. It is deservedly popular as a companion for man and as a house dog. There are two breeds, the smooth and the rough-coated. The former is perhaps the favourite as a companion, but the latter possesses the better hunting instincts. In colour the fox terrier should be black, white and tan. In everything except coat the two varieties of fox terrier are identical.



Fox Terrier. A prize winner in the London Fox Terrier Club's Championship show

FOX TROT. American dance. It originated in a dance, consisting of alternate slow and rapid movements, performed by a music-hall artist. To this he gave the name Fox-trot. It was adopted as a social dance for two, and was brought to France and England early in the 20th century, many variations being introduced. See Dancing.

FOY, MAXIMILIEN SÉBASTIEN (1775-1825). French soldier. He entered the army in 1791 and was soon given a command. Having distinguished himself in Italy, 1801, and against the Austrians, 1806, he was sent by Napoleon to Turkey to assist the sultan. He served right through the Peninsular War and held a command at Waterloo, where he was wounded. Foy, who died Nov. 28, 1825, wrote a History of the Peninsular War, which was published in 1827.



Maximilien Foy,
French soldier

FOYERS. Two cascades near the mouth of the Foyers river, on the E. side of Loch Ness, Inverness-shire. They have long been used for generating electricity.

FOYLE. Lough or inlet between cos. Donegal and Londonderry, into which drains the river Foyle, 16 m. long. There are dangerous shoals on the W. side.

FRACTURE (Lat. fractura). Word meaning breakage, but specially applied to breakages of the bones. These are usually caused by external violence, and are of several kinds. In a simple fracture there is no communication between the seat of fracture and the external air; in a compound fracture the overlying parts are so injured as to bring about this communication. In a comminuted fracture the bone is broken into more than two pieces, and in an impacted fracture the ends of the bones are driven into each other. A fracture which does not completely break the bone, but bends and splits it, is termed a green-stick fracture, and is most often seen in young children, whose bones are soft.

The general treatment consists first in bringing the broken ends into opposition with each other in the normal position and securing them by means of bandages, splints, and, in appropriate cases, plaster of Paris.

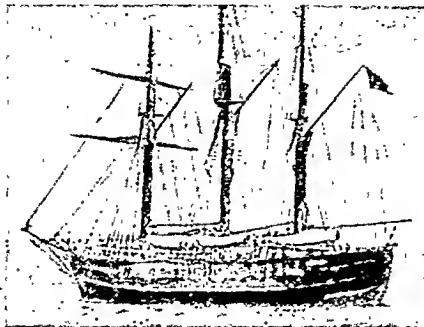
FRAGONARD, JEAN HONORÉ (1732-1806). French painter and engraver. Born at Grasse, in Provence, April 5, 1732, he studied under Boncher and Chardin, and, after being received into the Académie in 1765, he abandoned classical painting for the freer style appreciated by the Court. During the Revolution he retired to Grasse, where he completed the five paintings of *The Lover's Progress*, now in the Pierpont Morgan collection and exhibited at the Guildhall in 1902. He died Aug. 2, 1806. Apart from the Grasse pictures, his most famous works are in the Louvre and the Wallace Collection, London.



J. H. Fragonard,
French painter
After Gérard

FRAGSON, HARRY. Stage name of the British comedian Leon Pott (1870-1914). Born at Brixton, he went on the stage and gave imitations of Paulus, a star of the Paris music halls. Meeting with little success in London, he moved to Paris, and after living in poverty made a success with his *Ronde des Petits Cochons*. In 1904 he appeared in pantomime at Drury Lane, where he made a success with his *Love, Love, Whispers of Love*. He was at the height of his popularity when he was murdered by his father. Jan. 1, 1914.

FRAM (Norweg. forward). Three-masted schooner of 402 tons built in 1892 for Nansen's Arctic expedition. She was 117 ft. in length, with triple external planking ranging from 24 ins. to 28 ins. in thickness, and auxiliary



Fram. The polar exploration ship after she had been converted from steam to oil for Amundsen's expedition in 1910

engines driving a screw propeller. Nansen sailed in her in Aug., 1893, and entering the ice at the new Siberia Islands drifted northward. In June, 1895, he left the ship and marched north as far as 86° 13' 6". The Fram returned in safety to Norway, and in 1899 was used by Sverdrup in his exploration of Jones Sound, in the N. of Baffin Bay.

In Aug., 1910, Captain Roald Amundsen (q.v.) left Norway in the Fram, and made his way from Madeira to the Antarctic regions. See Arctic Exploration; Nansen.

FRAMBOESIA or **YAWS** (Fr. framboise, raspberry). Infectious and contagious disease caused by infection with a minute spiral-shaped organism, *Treponema pertenue*, discovered by Castellani in 1905. The disease is almost confined to tropical and sub-tropical regions. It is characterised by the appearance on the face and elsewhere of red raspberry-like papules which may develop into nodules. The disease is rarely fatal, but it is a cause of much sickness. Treatment by injection of salvarsan has been found very effective, and is now widely adopted.

FRAMLINGHAM. Market town of Suffolk. It is a station on the L.N.E.R., 22 m. N.E. of Ipswich and 90 m. N.E. of London. S. Michael's Church contains tombs of some of the Howards, including that of the earl of Surrey, the poet. The castle, a fine ruin, was the stronghold of the Bigods, and later of the Howards, both families holding the earldom of Norfolk, in the lands of which the place lay. Framlingham College is a public school, opened in 1865. Market day, Sat. Pop. 2,400.

FRAMPTON, SIR GEORGE JAMES (1860-1928) British sculptor. He first exhibited at the R.A. in 1884, was elected A.R.A. 1894, and R.A. 1902, and knighted in 1908. As a decorative sculptor he is in the front rank, excelling in polychromatic figure work and architectural skill. Among his works are the bronze memorial to Charles Mitchell. 1898; S. George, 1899; statue of Queen Victoria, Calcutta; Peter Pan in Kensington Gardens, memorial. He died May 21, 1928.

FRANC. French silver coin, the unit of the French decimal monetary system. The name comes from the inscription *Francorum Rex*, king of the Franks, on the obverse of the gold coin issued by John II in 1360. It was

then the equivalent of the livre, and consisted of 20 sols. In 1795 the franc was again established, superseding the livre, and, consisting of 100 centimes, remains the unit of French currency, the standard being the gold piece of 20 francs. The coin has the same name in Belgium and Switzerland. French francs are nominally reckoned at 25 to the £ sterling, but the Great War caused great fluctuations of value. On June 26, 1928, the franc was stabilised at 124.21 to the £ and 25.52 to the dollar. See Coinage.

FRANCE. Country of Europe. Its area is 212,650 sq. m., including the territories restored as a result of the Great War. Lower Alsace, Upper Alsace, and Lorraine are now the depts. of Bas-Rhin, Haut-Rhin and Moselle. Paris is the capital. The pop. in 1928 was estimated at 41,020,000.

The mt. ranges which divide France from Switzerland, Italy, and Spain are the Jura, Alps, and Pyrenees. The Vosges, until the restoration of Alsace and Lorraine, served as a frontier between France and Germany. Another and independent mt. system includes the Cévennes, the mountains of Auvergne, and the Causse. There are ranges of hills in Brittany and Normandy, and the French Ardennes towards the Belgian frontier. The chief rivers are the Loire (the longest), Seine, Garonne, and Rhone.

Agricultural products include wheat, oats, barley, rye, and sugar-beet. France is famous for its wines, the principal districts being in Burgundy, Champagne, and the Medoc (Bordeaux) region. Vast quantities of fruit are produced, including apples for cider, as well as early vegetables and flowers from the S. Silk culture is important. Horse breeding is a national industry. Mineral products include coal, iron, antimony, salt, and potash. Tobacco and matches are state monopolies. There are about 26,000 m. of rly., mostly in private hands. The canals, upwards of 3,000 m., are a valuable auxiliary to the rlys. The roads are excellent.

The land of France corresponds generally, but not accurately, to the Gallia or Gaul (Transalpine) of the Roman Empire. Its name is taken from the Rhineland tribes of Franks who conquered the Latinised Celts of Gaul when the Roman empire was disintegrating at the end of the 5th century.

The Franks maintained as their rulers until the 8th century the Merovingian princes, the descendants of the Frankish chief Clovis. Then the Merovingians were deposed by the family who, as mayors of the palace, had been the effective rulers for half a century; the actual founder of the new Carolingian dynasty being Pepin the Short, son of Charles Martel and father of Charlemagne, who had already been king of the Franks 30 years when he was crowned emperor in Rome (800). His empire was partitioned among the grandsons of the great Charles; from towards the close of the 9th century, the West Franks owed no allegiance to the German branch or to the elected German emperors. The French kingdom had definitely come into being. On the death of the last Carolingian in 987, the nobles elected Hugh Capet king; and his descendants in direct male line ruled as kings of France till 1848 with no actual break except during the period 1792-1815.

For two centuries the great aim of the Capet kings was to add to the land under their own control, at the expense of those controlled by the great feudatories. In this way the advance of



Franc. Left to right, reverse sides of French, Belgian, and Swiss francs, actual size

the royal power was continuous till it met a set-back, the result of a disputed succession, in the 14th century, on the outbreak of the Hundred Years' War with England. Brilliant English victories were followed by an English collapse; but under a half-witted king, Charles VI, France was rent

his successor Mazarin. His retirement and death left his master and pupil, Louis XIV, in 1661, the absolute ruler of France, with the best armies and the best generals in Europe in his service. In France Louis was an autocrat; it was his ambition to be also the dictator of Europe.

second Republic, whose president, a nephew of the great Napoleon, made himself emperor in 1852. Eighteen years later the Second Empire crashed in the conflict with Prussia and the Third Republic was born.

For some years a monarchical restoration seemed possible, but monarchists could concentrate upon no one claimant; for 50 years the permanence of the Republic has been an established fact. At the close of the 19th century France, long isolated, entered on an alliance with the Tsardom, and a few years later adjusted her differences with Britain. This was followed by the Great War, from which, after suffering terrible losses, France emerged victorious. The enemy was driven from her soil and Alsace-Lorraine was recovered.

The chief representative of France at the peace negotiations of 1919 was Clemenceau, and the questions that most concerned him and his colleagues were the nature of the security to be given to France and the amount of reparations she could obtain from Germany. Soon after the signature of the treaty Clemenceau resigned (Jan., 1920), and for about two years a succession of premiers struggled with these problems, but without any great success. In 1922, therefore, Raymond Poincaré became premier and a more aggressive policy was adopted. As Germany was in default with her payments, the Ruhr was occupied in Jan., 1923, but this policy did not bring the desired results, and in May, 1924, Poincaré resigned.

With M. Herriot as premier France accepted the Dawes Scheme about reparations, and on Dec. 5, 1925, signed the pact of Locarno, but meanwhile the franc was falling heavily and conditions generally were unsatisfactory. In July, 1926, Poincaré again became premier, also taking charge of the ministry of finance. He stabilised the franc, settled the vexed question of the debt due to Great Britain, and in August, 1928, his foreign minister, M. Briand, signed the peace pact in Paris. In 1929 at the Hague the question of reparations was

settled and the arrangements made for the evacuation of the Rhineland by French and British troops. In July, 1929, Poincaré resigned and was succeeded by Briand and then by Tardieu.

GOVERNMENT. The hereditary principle which survives in the British constitution has no place in the French Republic. The head of the state is a President elected for a term of seven years, not by popular vote, but by official groups of electors; his powers and functions closely resemble those of the British monarch. An officially elected Senate corresponds to the House of Lords, in a position of dignity rather than effective power—which is vested in the Chamber of Deputies, elected for a term of four years under a system of proportional representation.

LANGUAGE AND LITERATURE. French is one of the Romance languages; that is, it is based upon the Latin which with wide variations became the popular language of the Celtic Gauls under the Roman empire, borrowing almost nothing from the native German of the Franks. The differences of dialect were very marked for a long time; it was not



France. Map showing the departments, principal railway lines, and the frontier as determined by the Treaty of Versailles 1919. Inset, the island of Corsica

by factions, a junior branch of the royal family having acquired the lordship of Burgundy and the Netherlands. Henry V of England revived the war in 1415, but the English kings lost the last of their French possessions, except Calais, which they held for another century, in 1453; leaving Charles VII and his son Louis XI free to reorganize the supremacy of the crown.

When the era of the Reformation arrived France was divided between orthodox Catholics and Calvinistic Huguenots; the latter were far the fewer, but were led by some of the most powerful of the nobles. Throughout the second half of the 16th century she was torn by the wars of religion. Her conflicts with the Hapsburg monarchs were indecisive; the religious wars were ended for a time by the reconciliation between the Huguenot claimant to the crown, Henry IV, and the Papacy, and by the compromise of the edict of Nantes.

On his death the religious struggle revived practically as an effort on the part of the nobles to recover their ancient independence of the crown. The attempt was gradually crushed by the genius of Richelieu, whose work in that field attained completion under

When Louis died in 1715 his 50 years of almost constant warfare still left France the first military power in Europe; the French court the model which every prince in Europe strove to copy; French culture the leader of European culture; and the French monarchy the absolute controller of the destinies of the French people. Eighty years later the overseas empire, of which the foundations had been laid in his reign, had passed to Britain; the French monarchy had fallen; the French Revolution was convulsing all Europe; and the French Republic was fighting for its life against a world in arms.

Even at that moment, however, the destinies of France were passing into the hands of Napoleon Bonaparte. For 20 years, first as general of the Republic and then as autocrat, Napoleon dominated Europe. When he was finally overwhelmed at Waterloo the Bourbon monarchy was restored with constitutional limitations. It strove to cancel those limitations, and was displaced by the second Revolution of 1830, which set up the Orleans limited monarchy. This in turn fell in the third or February revolution of 1848, setting up the

till the end of the 12th century that the langue d'oïl of the north definitely gained ascendancy over the langue d'oc of Provence and became the parent of modern French.

In France, as everywhere, there was during the early Middle Ages almost no written literature in the tongue spoken by the people, but plenty of verse "romances" with love and war as their theme. Prose began with the chronicles of the 13th and 14th centuries, of which the most familiar is Froissart's.

But French literature in the full sense was born with the general revival of art and letters which was the culmination of the Italian renaissance. Thus in the 16th century appeared three writers of French prose, each in his own field an author of the first rank, John Calvin, Rabelais, and Montaigne; while Ronsard and the circle of poets known as La Pléiade directed French poetry into the classical lines which culminated in the great writers of the reign of Louis XIV, when all Europe bowed to Boileau as the supreme critic; when also Descartes was acknowledged as the supreme philosopher; though Molière, greatest of comedians, gave to the comic drama of France a flavour all its own. Consult Short History of France, V. Duruy, 1917; History of Modern France, E. Bourgeois, 1919; The Story of France, Paul Van Dyke, 1928; How France is Governed, R. Poincaré, 1915; A Short History of French Literature, G. E. B. Saintsbury, 7th ed. 1917.

FRANCE, ANATOLE (1844-1924). Pen-name of Jacques Anatole Thibault, French author. Born in Paris, April 16, 1844, he early devoted himself to literature, publishing his first book, a study of Alfred de Vigny, in 1868. After producing two volumes of poems in 1873 and 1876, he turned to prose work with the tales, *Jocaste et le Chat Maigre*, 1879. Out of the long succession of works of fiction, satire, and criticism, which France has since produced, the following are the most noteworthy: *Le Crime de Sylvestre Bonnard* 1881; *Le Livre de mon Ami*, 1885; *Balthazar* 1889; *Thais*, 1890; *La Vie Littéraire*, a series of reprinted essays, 1888-92; *La Rôtisserie de la Reine Pédauque*, 1893; *Pierre Nozière*, 1899; *Jeanne d'Arc*, 1908; *L'île des Pingouins*, 1908; *Les Dieux ont Soif*, 1912; and *La Révolte des Anges*, 1914.

Anatole France was a staunch supporter of Zola in the Dreyfus affair, and a prominent supporter of socialist, radical, and anti-militarist causes. He was elected a member of the Academy in 1896, and died Oct. 13, 1924.

FRANCESCA DA RIMINI. Heroine of a famous Italian love-story. Giovanni Malatesta of Rimini obtained her in marriage from her father, Guido da Polenta, lord of Ravenna, and sent his brother Paolo to fetch her. Francesca and Paolo fell in love and were caught together and slain by Giovanni, 1285. The story was told by Dante, and has since been used by writers, painters, and musicians.

FRANCHE COMTÉ. District of Europe: in full, the free county of Burgundy. It was first an independent state, then part of the duchy of Burgundy, and finally part of France. Its capital was Dôle. It was conquered by Louis XIV of France, who formally secured it by the Treaty of Nimwegen in 1678. It now forms the depts. of Haute Saône, Jura, and Doubs, and part of the dept. of Ain. See Burgundy.

FRANCHET D'ESPEREY, Louis (b. 1856). French soldier. Born in Algeria, he entered the army in 1876, and saw a good deal of service. During the Great War he was

placed at the head of the Fifth Army in 1914. In 1916 he was given command of a group of armies, and he was on the western front till June, 1918, when he was given supreme command of the Allied armies of the Orient. He received the surrender of Bulgaria Sept. 1918, and was in command in European Turkey until Nov. 1920. He was created a marshal in 1921.



Franchet d'Esperey.
French soldier

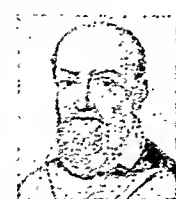
idea of freedom was attached, i.e. the free grant of a privilege. It is now used in two narrower senses, one in law and the other in politics. In law, a franchise is a privilege granted by the crown to an individual, or more usually to a corporation, such as the right to hold a market or fair, or rights of fishing. In politics, the franchise is the right to vote, especially at elections of members of parliament.

In the United Kingdom there are two franchises, the parliamentary and the municipal. Before 1918 women could enjoy the latter although not the former, but the differences between them have practically disappeared. The parliamentary franchise, at first confined to a few privileged classes of men, was gradually extended by Acts of 1832, 1867 and 1884. In 1918 certain classes of women were admitted to it, and in 1928 an Act gave the vote to all adults, with very few exceptions. The municipal franchise has been similarly enlarged. See Election: Reform Bill

FRANCIS, SAINT. Italian saint known as Francis (Francesco) of Assisi. Born about 1182 at Assisi, his father was a prosperous cloth merchant. Francesco's youth was marked by a love of pleasure, but soon he began to take a more serious view of life. In 1202 he was taken prisoner in a battle. His release in 1203 was followed by a serious illness and at this time he decided to enter upon a life of sacrifice and service towards the poor and diseased.

At the end of 1209, or more probably in 1210, having already a small group of disciples, he went to Rome and begged Innocent II to confirm a brief rule which he had drawn up, and thus to authorise a new religious order. The pope, after some natural hesitation, consented.

Although head of the order, Francis still devoted himself to missionary work. He made preaching journeys in Italy and in 1214 was in Spain. In 1219 he went to Palestine, and during his absence from Italy his vicars joined with other notables in a policy which tended to bring the Franciscans into line with the older orders. At this news he suddenly returned, but was unable entirely to check the movement, which had considerable support from the papal court. Recognizing his own want of strictly business qualities, he resigned the direction of the order. At La Vernia, in Sept., 1224, he is said to have miraculously received the Stigmata, or five wounds of Christ. He died Oct. 3, 1226, and was canonised in 1228. See Assisi; Franciscans.



Francis de Sales,
French saint

canonised in 1665, and adopted as the patron saint of writers and journalists in 1923.

FRANCIS. Name of two emperors of the Holy Roman Empire. Francis I (1708-65) was duke of Lorraine when, in 1736, he married the empress Maria Theresa. In 1737 he became grand duke of Tuscany and in 1745 was chosen emperor, but owing to the wars with Prussia and the consequent disorder in his realm his rule was never very effective. He died Aug. 18, 1765. From his union with Maria Theresa the Hapsburgs are descended.

Francis II was born in Florence, Feb. 12, 1768. His father, hitherto grand duke of Tuscany, became Roman emperor as Leopold II in 1790, and two years later (March 1, 1792) Francis succeeded him. He carried on a war with France, which resulted in disaster and disruption. In 1804 he took the title of emperor of Austria, thus seeking to unite more closely the various lands over which he really ruled. In 1806 the Holy Roman Empire, of which he was the nominal head, ceased to exist. Later he came to terms with Napoleon, giving him his daughter in marriage; but in 1813 he joined the Allies, and his armies assisted in Napoleon's defeat. He died March 2, 1835. He left his successor, Ferdinand I, and other children, one being the father of the emperor Francis Joseph (q.v.).

FRANCIS. Name of two kings of France. Francis I (1494-1547) was born at Cognac, Sept. 12, 1494, and in 1515 succeeded his



Francis I,
King of France

cousin Louis XII, whose daughter he had married in 1512. He invaded Italy and defeated the duke of Milan at Marignano in 1515. In 1519 he made an unsuccessful bid for the imperial crown, which Charles V obtained, and the famous rivalry of the two monarchs began. In 1525 he again invaded Italy, and was captured at Pavia, Feb. 25. Kept

prisoner at Madrid, he was set free in 1526 on surrendering Burgundy and abandoning various claims in favour of Charles. He died at Rambouillet, March 31, 1547. Francis II (1544-60) was born at Fontainebleau, Jan. 19, 1544, the eldest son of Henry II. He was married to Mary Stuart, Queen of Scots, 1558, and became king on his father's murder in April, 1559. During his short reign the government was conducted by his mother, Catherine de' Medici, and the Guises. He died suddenly in Paris, Dec. 5, 1560.

FRANCIS, SIR PHILIP (1740-1818). Supposed author of *The Letters of Junius* (q.v.). He was born in Dublin, Oct. 22, 1740, entered the public service and rose to a high position in the War Office. A member of the council of Bengal, 1774-81, Francis quarrelled with Warren Hastings, who wounded him in a pistol duel, 1779. He was M.P. for Yarmouth, I.W., 1784; Bletchingley, 1790; and Appleby, 1802; assisted Burke in impeaching Warren Hastings; became an intimate of the Prince Regent; and supported Wilberforce against the slave trade. In 1793 he founded the Society of Friends of the People; and in 1814 married Emma Watkins, whom he encouraged in her belief that he was the author of the *Junius Letters*. He died in London, Dec. 22, 1818.

FRANCIS FERDINAND (1863-1914). Austrian archduke. A son of the archduke Charles Louis and nephew of the emperor Francis Joseph, he was born at Graz, Dec. 18, 1863. After inheriting, in 1875, the wealth and titles of the house of Hapsburg-Este,



Francis Ferdinand,
Austrian archduke

he became, by the suicide of the crown prince Rudolf in 1889, heir-apparent to the crown of Austria-Hungary. On hismorganatic marriage in 1900 to the Countess Sophia Chotek, who was created Princess Hohenberg, he renounced for the children the right of succession, but his own position remained, and he was one of the directors of the policy of Austria-Hungary. His assassination at Sarajevo, June 28, 1914, precipitated the Great War.

FRANCIS JOSEPH I (1830-1916). Emperor of Austria. The eldest son of the archduke Francis and



Francis Joseph, Emperor of Austria
After L. Horowitz

a grandson of the emperor Francis II, he was born at Vienna, Aug. 18, 1830. In 1848 the shaking throne was occupied by Ferdinand, a childless imbecile, and it was decided that Francis Joseph should take his place. Thereupon he became emperor and reigned from Dec. 2, 1848, until Nov. 21, 1916, one of the longest reigns in the world's history. But its interest is not so much in its length as in its vicissitudes. He saw Austria lose her possessions in Italy, 1859, and, defeated by Prussia, 1866, driven from the German confederation. He saw a hated rule lead to continuous discontent in Hungary and Bohemia. The emperor's private life was even more tragic. His wife Elizabeth, daughter of Maximilian duke of Bavaria, was assassinated at Geneva in 1897; his only son, Rudolf, committed suicide, or was killed, in 1889; his nephew and heir, the archduke Francis Ferdinand, was murdered at Sarajevo, June 28, 1914. He died Nov. 21, 1916, and was succeeded by his grand-nephew, the archduke Charles. His surviving family consisted of two daughters.

The emperor took a real part in ruling his empire, with its warring races and inherited difficulties, and hut for him it is probable that it would have fallen to pieces before it did. See Austria-Hungary.

FRANCISCANS. Order of friars, also known as Friars Minor or Minorites, or Grey Friars, founded in 1209 by S. Francis of Assisi. The first general chapter, in 1219, was attended by upwards of 5,000 members. The rule was solemnly ratified by Honorius III in 1223. A year later the order was established in England, at Canterbury. Following a relaxation of the strict rule of poverty, the order was divided into Conventuals, who lived in large convents under modified conditions; and Observantines, who adhered to the original rule. Known in France as Cordeliers, the Observantines subsequently divided into Observants, Friars Armed, Discalced, Relics and Capuchins. Far the to



Franciscan. Dress of the order

powerful, as a result of the efforts of Leo second half of the 13th century, the Conventuals and Capuchins by the wars of the Hapsburg monarchy were united under the religious wars of the 16th century, or Friars reconciliation between the grey cloth habit, with the crown, Henry VIII (1534-47), under-tunic, by the compromise of 1534. Allied to it, as a practically as an 'e'ries. See Francis, Saint, of the crown. The attack of Richelieu (1622-90), crushed by the genius of Richelieu, Dec. 10, work in that field attained completion

and at Paris. After teaching for two years in Belgium, he settled in Paris in 1844, and devoted himself to teaching and composition. In 1858 he became organist at the church of S. Clotilde, and in 1872 professor of the organ at the Conservatoire. He composed a large amount of music of varying merit, chiefly the oratorio Les Béatitudes, orchestral works, including Ruth, Redemption, and Rebecca, and chamber music, notably a quintet for piano and strings and a string quartet. He died Nov. 8, 1890.

FRANCONIA (LAND OF THE FRANKS). Name given in the 9th and 10th centuries to one of the great duchies into which Germany was divided, the one founded and inhabited by the Franks. The west-central part of Germany, it was the district through which the Main runs, although a portion of it, including the cities of Mainz, Worms, and Spire, was on the W. side of the Rhine. Its capital was Frankfurt. The Bavarian portion of Franconia is now divided into three parts: Franconia, capital Baireuth; Middle Franconia, capital Ansbach; and Lower Franconia, capital Würzburg. See Bavaria.

FRANCO-PRUSSIAN WAR. Fought in 1870-71 between France and Prussia assisted by Bavaria and other German states. On July 3, 1870, Prince Leopold of Hohenzollern-Sigmaringen was selected for the vacant throne of Spain. Napoleon III feared a Prussianised state on his Spanish frontier, and demanded that the idea should be abandoned. Bismarck knew that Germany was ready for war, and that France was not as ready as Napoleon believed, and by the Ems telegram, which did not truly represent King William's words, sent French feeling to fever point. War was declared on July 19. Both Austria and Italy declined to intervene.

The Germans were organized in three armies; the first or northern one, under Steinmetz; the second, under Prince Frederick Charles; the third or southern army, under the Crown Prince. The first actual conflict of forces larger than reconnoitring parties took place at Sarrebruck on Aug. 2, when the French drove back a few battalions and crossed the frontier.

On Aug. 6 there were two battles, one at Wörth and the other at Spicheren. Both ended in German victories. The whole of Alsace-Lorraine, except the fortresses, was abandoned by France. From their disorganized forces the French formed two new armies, one round Metz and the other at Châlons. On Aug. 18 the former was beaten at Gravelotte and shut up, with its leader Bazaine, within the fortifications of Metz.

The other army under MacMahon went forward to relieve Bazaine, but was met by the Germans and forced back to Sedan. There on Aug. 31 and Sept. 1 a decisive battle was fought. The French army surrendered, Napoleon himself being among the prisoners. Bazaine, his desperate attempt to break out having failed, held off the enemy until Oct. 27, when he surrendered with his army. A month earlier Strasbourg, after a siege, had passed into German hands.

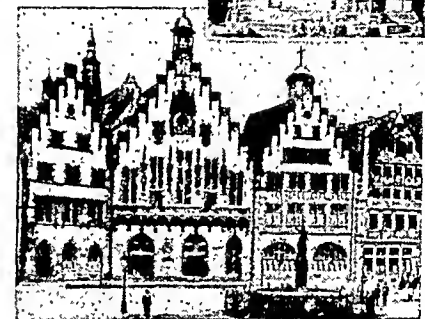
While a republic was being proclaimed the Germans were marching without opposition to Paris, which they invested on Sept. 20. Armies were formed to resist the invaders, but these could make no impression upon their trained forces and thorough organization.

During Jan., 1871, Paris was regularly bombarded, and in addition its inhabitants endured the pangs of hunger. Disease and death were rampant, and the necessity for capitulation became evident. Jules Favre was sent to arrange terms of surrender at Versailles, where William, now crowned as German emperor, had taken up his headquarters. Negotiations were opened on Jan. 24; a

general armistice was proclaimed and the terms of surrender were definitely settled on the 28th. By the peace treaty, France lost Alsace and Lorraine, and paid Germany a war indemnity of £200,000,000.

FRANKFORT-ON-MAIN. City of Germany, called by the Germans Frankfurt. It stands on the Main, the city proper being on the right bank; and on the left bank is Sachsenhausen; while the city also includes Bockenheim and other suburbs. Pop. 467,520.

The interest of Frankfurt is in its buildings and historical associations on the one hand and in its banking and commercial interests on the other. It was the birthplace of Goethe, while from it came the Rothschilds. In the centre of the old town is the Römerberg or market place. Beyond is the comparatively new town, begun in the 14th century. Beyond that are the Anlagen, or promenades, laid out early in the 19th century when the city walls were pulled down. Of the many churches, the cathedral was founded in



Frankfort-on-Main. The Römer or town hall. Above, monument to Gutenberg, inventor of movable type

the 9th century. Much of the present building dates from the 14th century, but it was thoroughly restored in the 19th century after a fire. The town hall, called the Römer, consists of a number of old houses linked together. In it are the election chamber, where the electors met to choose the German king, and the Kaisersaal, where the coronation feast, described by Schiller, was held. Several bridges cross the Main. The most notable is the old bridge dating from the 14th century. A university was founded here in 1914.

Frankfort is served by a network of railway lines, while the river adds to its facilities for transport. It has always been noted as a banking centre, while some of the earliest printing was done here. There is a large trade in leather and other articles.

FRANKFORT-ON-THE-ODER. Town of Germany. It stands on the left bank of the Oder, with the suburb of Damm on the right, and is about 50 m. E. of Berlin. Of its old buildings the chief are the 13th century church of S. Mary and the town hall. It is a port on the Oder, and is also a rly. junction. Pop. 70,884.

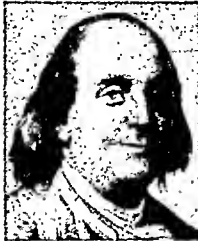
FRANKINCENSE (old Fr. franc encens, true incense). Fragrant gum exuded from several trees of the genus Boswellia. It is abundant on the Somali coast and in South Arabia. A cut is made in the tree trunk, and the weeping resin coagulates in breast-shaped globules which are scraped off.

The ceremonial religious use of frankincense is of great antiquity, having been practised by the Egyptians, Persians, Babylonians, and

Assyrians; by the Jews as a constituent of the incense of the sanctuary (Ex. 30, 34), and by the Greeks and Romans.

FRANKING (Fr. franc, free). Free use of the postal service. To the extent of sending ten letters a day and receiving fifteen, it was a privilege granted to both the House of Lords and the House of Commons in 1764. With the introduction of penny postage in 1840 it was abolished, but letters are still franked by the public departments.

FRANKLIN, BENJAMIN (1706-90). American statesman and scientist. The son of an English immigrant, a tallow chandler, Benjamin Franklin was born at Boston, Mass., Jan. 17, 1706, and was apprenticed in 1719 to his eldest brother, a printer. He moved to Philadelphia in 1723; and in 1729 he purchased a weekly journal, *The Pennsylvania Gazette*. He became postmaster of the city in 1737, clerk to the general assembly from 1736-51, and a member from 1751-64.



Benjamin Franklin,
American statesman
After J. H. Duplessis

Meanwhile Franklin had added scientific research to his many activities. About 1746 he began to investigate problems connected with electricity, his work leading to the invention of the lightning conductor in 1749. Earthquakes, meteorology, stoves and chimneys, ocean currents and navigation were all among the many subjects of his inquiries during these years; his experiments with the pouring of oil on stormy water and with agricultural fertilisers showed the versatility of his mind.

In 1757 he went to England for the second time as the agent of Pennsylvania in the colonial dispute with the Pennsylvanian proprietors. In 1762 he went back to America, but 1764 found him again in London in his former capacity. In 1766 he negotiated the alliance between America and France, and was then appointed plenipotentiary in Paris, where he remained throughout the war, negotiating the treaty of peace, finally signed in 1783. He died at Philadelphia, April 17, 1790.

FRANKLIN, SIR JOHN (1786-1847). British explorer. Born at Spilsby, Lincolnshire, April 16, 1786, he entered the navy as a midshipman in 1801, being present at the battle of Copenhagen. He took part, between 1818 and 1827, in three Arctic expeditions. For these services he was promoted captain, knighted, 1829, and awarded various scientific distinctions at home and abroad. From 1836-43 he was governor of Van Dieman's Land (Tasmania). A new British



Sir John Franklin,
British explorer

expedition, consisting of the ships *Erebus* and *Terror*, with Franklin in command, intending to explore the N.W. Passage, sailed from the Thames on May 19, 1845. The vessels were last sighted in Baffin Bay.

In 1857 an expedition was sent out to find him. Two years were spent in search, and in June, 1859, a cairn was found at Point Victory in which was a record of Franklin's expedition down to April 25, 1848, with definite proof that he had discovered the N.W. Passage, and that he had died on June 11, 1847.

FRANKLINITE. Sometimes considered an ore of zinc, but more properly an ore of iron. Its normal composition is peroxide of iron, 67 p.c.; sesquioxide of manganese, 16 p.c.; oxide of zinc, 17 p.c. It occurs in coarse,

granular, massive form and in brilliant crystals frequently of large size. It is brittle and slightly magnetic, but blacker than magnetic iron ore, which it resembles. It is used in the manufacture of Bessemer steel.

FRANKS (late Lat. *franeus*, free). Group of tribes dwelling in Europe in the 3rd century, who founded the kingdom of France, to which they gave their name.

In the 4th century or a little later the Franks were divided into two main branches: the Salian Franks around the mouth of the Rhine and the Riparian Franks higher up the river. They were first enemies and then tributaries of the Romans, and the decay of the Roman empire was their hour. The man to use it was Clovis, descendant of one Chlodio, who had led the Salian Franks into what is now France and had made Tournai his capital. Clovis was baptized as a Christian, and nominally at least the Franks were no longer pagans. His sons continued his career of conquest, and soon Frankland was a great district lying on both sides of the Rhine.

A definite division was made in 817, and soon afterwards the E. Franks became Germans and the W. Franks became French. The boundary between them was not easily drawn; indeed, it may be said to have been a prime cause of a thousand years of intermittent European warfare. France added Celtic elements from the S. and W. to her Franks; Germany added Slavonic ones from the E. to hers, and for this and other reasons the two developed into distinct nations. See Europe; France.

FRANZ JOSEF LAND. Archipelago in the Arctic Ocean, lying N. of Novaya Zemlia and N.E. of Spitsbergen in lat 80° to 82° N. and long. 42° to 64° E. Of about 100 small islands, the chief are Graham Bell Land, Wilezek Land, McClintock Island, Alexandra Land and Crown Prince Rudolf Land. The loftiest point rises to 2,800 ft. Bears, walrus, seals, foxes, and a large variety of birds are found. Discovered by the Austrian explorers, Payer and Weyprecht, in 1872-73, the islands are uninhabited.

FRASCATI. City and summer resort of Italy. It stands on the slopes of a wooded hill, at an elevation of about 1,000 ft., 15 m. by rly. S.E. of Rome. The cathedral, founded in 1700, contains a tablet to the Young Pretender, interred here in 1788. In the neighbourhood are remains of numerous ancient villas, an amphitheatre, a theatre, and a reservoir belonging to the town of Tusculum, which was destroyed in 1191. Between the ruins of the ancient city and Frascati, the villa of Cicero once stood, and on its site some monks in the 11th century built a convent. Frascati is famous for its wine. Pop. 11,115.

FRASER. River of Canada, in British Columbia. Rising in the Yellowhead Pass in two branches, it flows N.W. for the first 160 m. of its 800 m. course, and subsequently almost due S. until it reaches Hope, after which it flows W. to its outlet in the Strait of Georgia at New Westminster. Notable for salmon, it is navigable for some 80 m.

FRASERBURGH. Burgh, seaport and fishing town of Aberdeenshire. On the W. shore of Fraserburgh Bay, and on the S. side of Kinnaird's Head, 47 m. N. of Aberdeen, on the L.N.E.R., it is the chief centre of the Scottish herring fishery. It has a good harbour, with piers and a breakwater. The town cross is noteworthy. The town was named from Sir Alexander Fraser, who, in 1613, made it a burgh. There are remains of the castle of the Frasers. Pop. 10,514.

FRASERVILLE. Town and watering place of Quebec, Canada, known also as Rivière du Loup. It stands on the Rivière

du Loup, near the junction of that river with the St. Lawrence, 110 m. N.E. of Quebec. The town is on the C.N.R. Its industries include pulp mills. Pop. 7,703.

FRAUD (Lat. *fraus*, deceit). English law term, for which no comprehensive definition exists. The essence of the matter is deceit—some statement or suppression of fact in word or deed with intent to deceive. When a man sues on the ground of fraud, or claims property fraudulently withheld from him, his right of action begins to accrue from the time he discovers the fraud, and not from the time it was perpetrated upon him. Some frauds are criminal, but not all. But a conspiracy to defraud is always criminal. If a person has been induced to enter into a contract, or to transfer property by fraud, he can always, on discovering it, have the contract or transfer set aside; but he must be careful to take steps immediately. And he cannot recover his property as against some innocent purchaser who has bought it without notice of the fraud.

FRAUNHOFER, JOSEPH VON (1787-1826). German optician and physicist. Born at Straubing in Bavaria, he was apprenticed to a glass polisher, and eventually set up for himself as a maker of achromatic lenses. He taught himself mathematics and optics, and in 1806 was appointed optician in the mathematical institute at Munich, and later became the manager of another such institute, which he had helped to found. He died June 7, 1826.

FRAUNHOFER LINES. Fraunhofer was responsible for great advances in lenses, while by his invention of the diffraction grating he opened up a new field of development for theoretical optics. But his greatest discovery was that of the Fraunhofer lines. When a beam of sunlight that has been admitted through a thin slit is passed through a prism, so as to be drawn out into a spectrum, and this spectrum is examined through a telescope, it is found to be crossed by a multitude of dark lines. The position of each line corresponds to a definite angle of refraction, and thus to a definite wave-length, and the presence of any given dark line implies that light of that wave-length has failed to reach us, owing generally to absorption by some element in the sun's atmosphere. These lines had been noted by Wollaston, but Fraunhofer discovered them independently, mapping them, and assigning to the seven most prominent the letters A to G, by which they are still known. See Spectroscopy.

FRAZER, SIR JAMES GEORGE (b. 1854). British anthropologist. Born in Glasgow, he was educated privately and early devoted himself to researches into the social institutions, mythology and folklore of mankind in all ages. His main work is embodied in *The Golden Bough*, first published in 1890, of which revised and expanded editions have since appeared. His other books include *Studies in the History of Oriental Religion*, 1906; *The Scope of Social Anthropology*, 1908; *Totemism and Exogamy*, 1910; and *Folklore in the Old Testament*, 1918. He was made professor of social anthropology, Liverpool, 1907. In 1914 Frazer was knighted and in 1925 he received the O.M.

FRECKLES. Rounded or irregular spots of yellowish or brownish pigment in the deeper layers of the epidermis, most common in fair and red-haired persons. Freckles are permanent in some people, but in many they appear in the summer months, following exposure to sun, and disappear in the winter. Persons desirous of avoiding the condition should wear veils in strong sunshine. Freckles may be removed or lessened by application of a dilute solution of perchloride of mercury, but only under medical advice.

FREDERICK I (c. 1124-90). German king and Roman emperor, known from the redness of his beard as Barbarossa. A member of the family of Hohenstaufen, Frederick became duke of Swabia in 1147 and was chosen king in 1152. Three years later Frederick was crowned emperor by the pope at Rome. The eventful years of Frederick's life were spent in Italy, where he came into conflict with the rich cities of Lombardy and the pope. To cow the cities he placed his own officials therein, and in 1162 stormed and humiliated Milan. The cities formed against him the Lombard League, an association blessed by the pope, and the struggle went on with varying fortunes until, on May 29, 1176, the rival armies met at Legnano. Frederick was totally defeated and forced to sue for peace, and in 1177 he signed the treaty of Venice with Alexander III. In 1189 he set out on a crusade, and on June 10, 1190, was accidentally drowned in a river in Cilicia.

FREDERICK II (1194-1250). German king and Roman emperor. Son of the emperor Henry VI and grandson of Frederick I, Frederick was born in Italy, Dec. 26, 1194, heir to the splendid Hohenstaufen inheritance and to that of his mother, Constance, the heiress of Sicily. Educated with more than usual care, his varied abilities earned for him the designation of *stupor mundi*, the wonder of the world.

In 1212, following an invitation from some of the princes, Frederick left Italy to supplant Otto IV in Germany, and was there crowned king by his partisans. After six years the old struggle between Welf and Hohenstaufen ended in his favour with Otto's death in 1218. In 1220 he was crowned emperor at Rome, and after spending some years in governing Sicily and fighting in Italy he tardily fulfilled his promise to go on crusade. In 1228 he reached the Holy Land, and, having already taken the title of king of Jerusalem, was crowned there as soon as he had obtained possession of the city and its neighbourhood.

The concluding years of Frederick's reign were sad and unfortunate. In 1231, and again somewhat later, his eldest son Henry revolted. About 1239 began his last and greatest quarrel with the Pope. Excommunication he faced with a smile of contempt, but it was more serious when the pope allied himself with the Lombards and worked upon the turbulent princes of Germany. Struggling to the last against a ring of foes, Frederick died at Fiorentino, Dec. 13, 1250. His splendid tomb is in the cathedral at Palermo.

FREDERICK III (1415-93). German king and Roman emperor. A prince of the house of Hapsburg, Frederick was chosen German king in 1440, and was nominal ruler of the country for over 50 years. His feeble attempts to secure the kingdom of Hungary and Bohemia failed, and he was for a time deprived of Austria, and was unable to check the Turkish inroads. For some time before his death, on Aug. 19, 1493, he had ceased to take any part in the government of the country. Frederick III was the last emperor to be crowned in Rome, 1452.



Frederick,
German emperor

FREDERICK (1831-88). German emperor. Son of the emperor William I, he was born at Potsdam, Oct. 18, 1831. In 1855 he was betrothed to Victoria, princess royal of England, whom he married in 1858. In politics he strongly opposed Bismarck, and in the Austrian war, 1866, he commanded an army at Sadowa. In command of an army in the war of 1870, he fought at Wörth and Sedan, and took part in the siege of Paris.

On the death of his father in March, 1888, he succeeded to the throne, which he had only occupied for ninety-nine days when he died at Potsdam, June 15, 1888. His family consisted of two sons and four daughters. The former were William II and Prince Henry of Prussia. See William II.

FREDERICK. Name of eight kings of Denmark. Frederick III, who reigned 1648-70, was the first hereditary king of Denmark, the others having been elective. Frederick IV, who reigned 1699-1730, was mainly occupied in wars with Sweden. Frederick V ruled 1746-66. Frederick VI, who became regent in 1784 and king in 1808, guided Denmark's affairs during the Napoleonic period. He was also king of Norway until the two countries were separated in 1814. Frederick VII, who lost the duchies of Slesvig and Holstein, was the last king of the Oldenburg dynasty.

Frederick VIII (1843-1912) was a son of Christian IX and a brother of Queen Alexandra. He married a daughter of Charles XV, king of Sweden, and succeeded to the throne in 1906. He died suddenly at Hamburg, Aug. 14, 1912. His eldest son, Christian, became king of Denmark, and another, Charles, became king of Norway.

FREDERICK II (1712-86) called the Great, king of Prussia. Born in Berlin, Jan. 24, 1712, he was the son of king Frederick William I. He was soon at variance with his eccentric father and ran away from his court, only to be captured and sentenced to death by a court martial. The sentence was not carried out, instead the prince, in comparative tranquillity, was able to give time to music and French literature, both of which he loved greatly.



Frederick the Great,
King of Prussia
After C. Vanloo

In 1733 he married a princess of Brunswick, and soon he had started upon his career as a soldier by serving under Prince Eugene and as an author by writing *Anti-Machiavel*, outlining his views on kingship. He also made the acquaintance of Voltaire.

In 1740 the emperor Charles VI was succeeded by his daughter Maria Theresa, who declined to recognize Frederick's claim to Silesia. The Prussian king at once made war. He took Breslau and after a victory at Mollwitz was in possession of Silesia. These reverses induced Maria Theresa to make peace, and in 1742 Prussia's conquest was formally ceded to her. In 1744, alarmed at Austria's successes, Frederick again attacked Maria Theresa, France being his chief ally. He entered Bohemia and captured Prague; other successes followed and in the end, as master of Dresden, he dictated there the peace which confirmed his possession of Silesia.

A period of peace, lasting eleven years, followed and during this time the king was able to carry out many reforms, which added greatly to the wealth and prosperity of the land. This beneficent work was interrupted in 1756 by the outbreak of the Seven Years' War in which Frederick, aided only by Great Britain, was engaged with nearly all Europe. His military genius gained more than one splendid victory, but his enemies were far too strong for him, and his country was reduced to poverty and his people to despair. Nevertheless he fought on until peace was made in 1763.

The king now set about the work of reconstruction with his accustomed vigour. No department of church or state was immune from his interference. He would clap a judge into jail, or appoint a cardinal for his Roman

Catholic subjects, or keep a general in arrest for weeks. He set up loan offices, built an opera house, and put his artillery horses to the plough, in the intervals of instructing ambassadors and publishing poetry. In 1772, by sharing in the partition of Poland, he added more territory to Prussia. Frederick died childless at Sanssouci, Aug. 12, 1786, and was succeeded by his nephew, Frederick William II. Consult *History of Frederick II of Prussia*, T. Carlyle, 6 vols., 1858-65; *Life of Frederick the Great*, N. Young, 1919.

FREDERICK (1707-51). Prince of Wales. The eldest son of George II, he was born Jan. 6, 1707, his father being then crown prince of Hanover. From 1714, when his grandfather became king as George I, until in 1729 he was made prince of Wales, he was called duke of Gloucester. Frederick is important only as the centre of the opposition to George II, and as the father of George III. He died March 20, 1751. In addition to George III he left four sons and two daughters by his wife, Augusta, daughter of Frederick, duke of Saxe-Gotha, who lived until 1772.



Frederick,
Prince of Wales

FREDERICK WILLIAM (1620-1688). Elector of Brandenburg, known as the Great Elector. Born in Berlin, Feb. 16, 1620, the son of the elector George William, he passed much of his youth in the Netherlands, a stay that was responsible for his marriage with Louise, a princess of Orange, in 1646. In 1640 he became elector, and his first duty was to free Brandenburg from the horrors of the Thirty Years' War. He organized the army, founded the navy, welcomed industrious immigrants, started colonies in Africa, and encouraged trade. He had great influence in European affairs, and helped William of Orange's invasion of England in 1688. He died May 9, 1688, and was succeeded by his son Frederick, first king of Prussia.



Frederick William,
Elector of Brandenburg

FREDERICK WILLIAM. Name of four kings of Prussia. Frederick William I (1688-1740), a son of king Frederick I, reigned from 1713 to 1740. He is noted as the collector of giants for his army and the harsh father of Frederick the Great. He died May 31, 1740.

Frederick William II (1744-97) was a grandson of Frederick William I and the nephew and successor of Frederick the Great. He was king from 1786 to 1797, but his chief interest was in promoting the curious creed

known as Rosicrucianism rather than in affairs of state. He died Nov. 16, 1797. His eldest son, Frederick William III (1770-1840), who succeeded to the throne, was king when, in 1812, the people rose against France and freed their land from the invader. He took part in the congresses that followed the Napoleonic Wars, and died June



Frederick William,
ex-Crown Prince
of Germany

7, 1840. Frederick William IV (1795-1861) reigned from 1840 to 1861. He died Jan. 2, 1861.

FREDERICK WILLIAM (b. 1882). German prince. The eldest son of William II, he was born May 6, 1882, and in 1888, on his father's accession, became crown prince. When the Great War broke out he was given

a high command and was nominally the head of a group of armies on the west front. On the collapse of Germany in 1918 the crown prince associated himself with his father's abdication and took refuge in Holland. In 1903 he was married to Cecilie, duchess of Mecklenburg. He published his *Memoirs*, 1922.

FREDERICKSBURG. City of Virginia, U.S.A. On the Rappahannock river, 60 m N. of Richmond, it is served by the Potomac, Fredericksburg, and Piedmont, and other rlys. The town was the scene of an important battle in the American Civil War, Dec. 11-15, 1862. This resulted in the defeat of the Federals under Burnside by the Confederates under Robert E. Lee (q.v.), with tremendous losses on both sides. See American Civil War.

FREDERICTON. City and capital of New Brunswick. On the river St. John, 84 m from its mouth, and 68 m. N.N.W. of the city of St. John, it is a station on the C.P.R. and C.N.R., while steamers ply the river to St. John. The chief buildings include those of the provincial legislature and the government offices, Government House, the city hall, the barracks, the Anglican cathedral, and the university of New Brunswick.



Fredericton. Parliament buildings in the capital of New Brunswick.

wick. It is the centre of a lumbering district and makes boats, shoes, etc. The city was founded about 1740, and was made the capital in 1788. Its first name was St. Ann's. Pop. 8,114.

FREDERIKSBORG. Palace of Denmark. It is built on a group of small islands in a lake near Hillerød, in the district of Frederiksborg, in Zealand, 21 m. by rly. N.N.W. of Copenhagen. Erected in the 17th century by Christian IV on the site of an older castle, it was restored after a fire in 1859, and now houses a national historical museum. Several Danish monarchs have been crowned in the chapel of the castle.



Frederiksborg, Denmark. Courtyard of the royal palace which was rebuilt after the fire of 1859.

FREE CHURCH. Term adopted for the various denominations formerly known as dissenters. They claim to possess entire freedom in choice of doctrine, church government, and the appointment of ministers.

The Free Church Council is an organization in England and Wales the object of which is to federate the various Free Churches. Officially styled the National Council of Evangelical Free Churches, it originated shortly before 1892 in a Free Church Congress held in Manchester, and numerous annual gatherings have been held since. The headquarters are at the Memorial Hall, London, E.C.

FREE CHURCH OF ENGLAND. Title assumed at various times by congregations which have separated from the Church of England on doctrinal or other grounds. It is more especially applied to a small sect which originated about 1844 in Devonshire as a protest against the Oxford Movement. This has

bishops, who derive their succession from Bishop Greig, who seceded from the American Church. See Church of England.

FREE CHURCH OF SCOTLAND. Name borne by a distinct Presbyterian church in Scotland from 1843 to 1900, and since the latter date by another body of Presbyterians. The original Free Church was founded at what is known as the Disruption of 1843, when members of the Established Church severed themselves from that body over patronage and liberty of individual congregations to reject ministers presented to livings. The Rev Thomas Chalmers (q.v.) was virtually the leader. The present Free Church represents the dissenters from the union of the original Free Church and the United Presbyterian Church in 1900. Few in numbers, it secured by a judgement of the House of Lords the property of the original Free Church, but an Act of Parliament in 1905 altered this position. To-day the Free Church of Scotland is quite a small body, strongest in the Highlands. See Scotland, Church of; United Free Church.

FREE CITY. City that is independent of any save the highest authority. The free cities of the Middle Ages were under the rule of none save the emperor himself, being in practice little republics, each with its own form of government. The modern free city, Danzig (q.v.), is under the protection of the League of Nations only.

The number of the free cities of the Holy Roman Empire varied; in 1521 a list gave 84 of them, after which there was a decrease.

With the changes caused by the French Revolution many of the cities lost their freedom, and in 1803 six only were recognized. They were Hamburg, Lübeck, Bremen, Augsburg, Frankfurt, and Nuremberg. In 1806 Bavaria secured Augsburg and Nuremberg, but the other four lasted until 1866, when Frankfurt, having fought against Prussia, lost its independence. As free cities the other three entered the German empire in 1871, and remained therein after the changes of 1918.

FREEHOLD. Term used in English law for land which is free from all charges save those to the state. The essence of it is that it cannot be held for a definite term of years, however long; it must be indefinite. It is the best kind of tenure which is known to English law.

FREEMAN. One who is free, i.e. one who is not a slave. The distinction between the two classes, bond and free, is an old one. It was found among the Greeks and earlier. In Rome there were two classes of freemen, those who were born free and those who were freed. Among the Teutonic tribes of Europe, including the Anglo-Saxons, the freeman was the one who enjoyed political power.

The freeman of to-day is one who possesses the freedom of a city or borough, e.g. London, this being in former days the right to share in its government and to enjoy certain material privileges. The honorary freedom of a city or borough is granted to persons of distinction.

FREEMAN, EDWARD AUGUSTUS (1823-92). British historian. Born at Harborne, Aug. 2, 1823, he was educated at Oxford, after which he settled down in the country to the career of a writer, making his home from 1860 at Somerleaze, near Wells. His first book was *A History of Architecture*, 1849. He also wrote a great deal for the reviews, especially *The Saturday Review*. Freeman's historical works

place him in the front rank of British historians. The first was an unfinished *History of the Federal Government*, 1863, followed by the *History of the Norman Conquest*, 6 vols., 1867-99. In 1884 Freeman was appointed regius professor of modern history at Oxford, but his health was bad, and he died at Alicante, Spain, March 16, 1892.

FREEMASON. Member of an ancient and extensive secret order or society. The oldest masonic records in the British Isles are in Scotland. Edinburgh Lodge, No. 1, the oldest Scottish lodge, possesses record books from 1599, but these do not record the beginnings of that ancient organization. The first freemason to be initiated on English soil, so far as the records show, was Sir Robert Moray, who was also one of the founders and first president of the Royal Society. He was initiated at Newcastle-upon-Tyne, May 20, 1641. The organization of the grand lodge of England was effected June 24, 1717, by the union of four lodges then meeting in London. The grand lodge of Ireland was formed in 1729, and the grand lodge of Scotland in 1736.

In the grand lodge of England two offices only are elective, viz. grand master and grand treasurer, the remaining offices being in the appointment of the grand master, a similar custom pertaining to the grand lodges of Ireland and Scotland.

Freemasonry the world over is noted for its benevolent activities. In England there are three well-known institutions, viz. the Royal Masonic Institution for Girls, founded in 1788, which has a senior school at Clapham Junction, with a junior school and convalescent home at Weybridge, opened in Aug., 1918, with nearly 800 girls receiving benefits; the Royal Masonic Institution for Boys at Bushey, Herts, founded in 1798, with nearly 900 boys receiving benefits; and the Royal Masonic Benevolent Institution for Aged Freemasons and the Widows of Freemasons at Croydon, which has nearly 15,500 annuitants on its register. The British headquarters are in Great Queen Street, Kingsway, London, where in 1930 the Masonic Peace Memorial was being erected.

In 1928 it was estimated that there were 4,400,000 freemasons in the world. Of these England and Wales have 322,000, Scotland 90,000, and Ireland 50,000. The U.S.A. has 3,270,000, and Canada 195,000.

FREE PORT. Port at which no customs or other duties are charged on goods. In the Middle Ages there were a number of these ports, some being in Italy, others in Germany and elsewhere. Their existence made it much easier for merchants to exchange their wares than would have been the case if duties had to be paid before this could be done. A modern substitute for the free port is the bonded warehouse system, although some free ports still exist, e.g. Hong Kong and Singapore. In other cases a free port and an unfree one are side by side in the same seaport. Thus Hamburg and Copenhagen have each a free port, as well as the ordinary one for the import of goods. The free ports of modern China are such in a different sense; they are ports open to foreign trade.

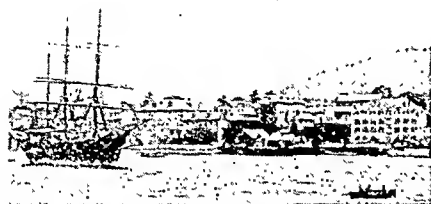
FREESIA. Small genus (two species only) of bulbous herbs of the natural order Iridaceae. They are natives of the Cape of Good Hope. They have long, narrow, grass-like leaves and large funnel-shaped white or yellow flowers. *F. leichlinii* has yellow or cream-coloured flowers, and *F. refracta* pure white blossoms, marked with violet lines and sweetly scented.



Freesia. Funnel-shaped flowers of this bulb.
Courtesy of
Sutton & Sons

FREESTONE. Sedimentary rock, usually sandstone, but sometimes limestone, which can be easily worked with the chisel and lacks the usual tendency to split along certain planes. Freestone is extensively used in architecture for mouldings.

FREETHOUGHT. Belief of one who is free from conventional authority in religion; a rationalist. It may be regarded as a scientific label for the attitude of mind which challenges all demands for belief on grounds of traditional or documentary authority. Broadly considered, this attitude reacts in the same way against historical and other propositions as against religious dogmas and narratives; but inasmuch as the latter have always made the most menacing claim to uncritical acceptance, it is to the critical refusal of acceptance in their case that the term has always been commonly applied.



Freetown, Sierra Leone. The sea front and harbour of this West African port and coaling station

FREETOWN. Port, coaling station, and capital of Sierra Leone, British W. Africa. On the Sierra Leone river, at the N.W. end of the Sierra Leone peninsula, it was founded as Granville town in 1788 as a residence for freed African slaves. It has an excellent harbour, which is connected by a narrow-gauge rly. with the interior. The town has a cathedral. Pop. 44,142. See Sierra Leone.

FREE TRADE. In general, the absence of restrictions of any kind on trade. In modern speech it refers particularly to the system by which goods are allowed to enter one country from another country without paying customs duty for the protection of home producers.

Concisely stated, the free trade theory is that the prosperity of Great Britain and the unity of the British Empire are best advanced by leaving the ports of the United Kingdom open to the goods and the shipping of all the world, subject only to such charges as may be imposed for revenue purposes, and to such measures as may be necessary to guard the country against injury at the hands of an actual or a potential enemy. That a similar proposition is true for other countries most of them have denied. See Safeguarding; Tariff Reform.

FREE WILL. Psychologically, the theory that men's actions are not dependent on any external force, but are the result of conscious motives operating from within. Metaphysically, free will is the power of acting independently of any cause whatever, external or internal—the capacity of willing or not willing the same thing at the same time. The existence of free will (metaphysically) is denied by determinism, affirmed by indeterminism. See Arminianism; Calvin, John.

FREEZING POINT. Temperature at which a liquid assumes the solid form. The freezing point of water is one of the fixed points on the thermometric scale (0° C., 32° F.). Liquids may be divided into two classes as regards freezing; water is an example of the liquids which undergo crystalline solidification in an abrupt change to the solid state. On the other hand, molten glass undergoes

"amorphous" solidification; as the temperature falls the glass becomes viscous, then gradually hardens into a solid. The second class of liquids can hardly be said to have a definite freezing point.

In the first type the freezing point is not constant, but varies under pressure. Water expands when it freezes, and the effect of pressure is to lower the freezing point. Paraffin wax, on the other hand, contracts in freezing, and here the effect of pressure is to raise the freezing point. The freezing point of a liquid is lowered by the presence of a salt dissolved in it. A temperature of -20° C. can be reached in this way with a mixture of snow and common salt, but by the use of other salts which dissolve with greater absorption of heat much lower temperatures can be obtained. Such a mixture is called a freezing mixture. See Heat; Temperature.

FREIBURG-IM-BREISGAU. Town of Baden, Germany. It stands on the Dreisau, near the western borders of the Black Forest, 40 m. S. of Strasbourg. The Gothic cathedral, known as the minster, is one of the most complete of its kind, and its tower is celebrated for its delicate beauty of outline. The university, founded in 1455, has an excellent library. There are a fine archbishop's palace, ducal palace, and merchants' house, and spacious botanical gardens. The town has manufactures of textiles and carries on a trade in wine and timber. Pop. 90,475.

FREMANTLE. Seaport of W. Australia. At the mouth of the Swan river, 12 m. S.W. of Perth, with which it has rly. and river communication, it has a deep and well-equipped harbour, and is a port of call for European mail boats. Among the chief buildings are a town hall and public library. Pop. 31,983.

FREMANTLE, SIR SYDNEY ROBERT (b. 1867). British sailor. The eldest son of Sir E. R. Fremantle, an admiral, he was born Nov. 16, 1867. In 1881 he entered the navy, and in 1903 became a captain. In 1915 he served in the Dardanelles, being in command of the Russell when she was sunk. Afterwards he was made deputy chief of the naval staff, from which he was transferred in 1919 to command a battle squadron of the Atlantic Fleet. He was in command at Portsmouth, 1923-26, and was knighted in 1919.



Sir Sydney R. Fremantle, British sailor Russell

FREMONT, JOHN CHARLES (1813-90). American explorer. Of French extraction, he was born at Savannah, Georgia, Jan. 21, 1813. From 1842-54 he explored Oregon, California, and New Mexico, in which states he made rly. surveys and did much to open up the far west to settlers. A senator in 1850, he was nominated Republican candidate for the presidency in 1856, but his anti-slavery sentiments angered the Southern states and he was defeated by Buchanan. He served in the Civil War. The rly. crisis of 1873 ruined him financially, but he was governor of the territory of Arizona, 1878-82. He died in New York, July 13, 1890. After him is named Fremont's Peak, in the Rocky Mts., in Wyoming, 13,790 ft. high, which he ascended in 1842. Fremont's Pass is in Colorado in the Rocky Mts.

FRENCH. River of Ontario, Canada. Rising in Lake Nipissing, it flows nearly due W. to Georgian Bay, Huron Lake. Its length is 60 m., and it forms part of the scheme to connect this lake with the St. Lawrence river. See Georgian Bay.

French. Family name of the earl of Ypres (q.v.). The first holder of the title was the famous soldier Sir John D. P. French.

FRENCH REVOLUTION. Name given to the period of upheaval in France, usually reckoned as beginning with the meeting of the States-General in 1789 and closing with the establishment of the Directory in October, 1795. Its ideal was set out in the words Liberty, Equality, Fraternity.

In 1788 drastic reform in France was a sheer necessity. The political system was an uncompromising absolutism which allowed the people no share whatever in the government. The king ruled through ministers whom he appointed and dismissed at his pleasure. Socially the people were divided into rigid castes, forming primarily three groups, noblesse, clergy, and commons. In the towns there was a middle class and a working class. In the country districts the peasants were virtually the serfs of the landed proprietors. Noblesse and clergy were exempt from taxation. Individual liberty did not exist.

Under these conditions the States-General, which had not met since 1614, was summoned and met in May, 1789. The third estate at once asserted itself, declared itself a national assembly, and was recognized as such by the king. The people of Paris showed their sympathies with the new order, and on July 14 a mob destroyed the Bastille. This was the signal for revolutionary movement all over the country, with the tricolour as its emblem.

The national assembly went on with its work. All privileges were abolished, and, in order to frame a new constitution, its members declared themselves a constituent assembly. Many of the nobles, realizing that force was useless against a nation in arms, fled from the country, while the more ardent spirits, wishing reform to move even more rapidly, formed the Jacobin Club, from which sprang similar societies all over the country.

In April, 1791, Mirabeau, the one man who might have prevented the excesses of the extremists, died, and soon afterwards the king and queen fled from Paris. They reached Varennes, where they were stopped and brought back. A Constitution, with the king with limited powers at its head, was adopted, and a legislative assembly was called. In this the chief parties were the Feuillants or Constitutionalists, the Girondins, and the Jacobins or extreme republicans.

A threat of interference in the interests of the king had already been received from the Austrian Emperor and the king of Prussia, but it had been withdrawn before the zeal of the revolutionaries compelled France to declare war on Austria in March, 1792. During the ensuing excitement the Jacobins took control of the government, and under their direction military reverses gave way to military successes, of which the victory at Valmy was the first.

The National Convention was the next experiment in government. This abolished the monarchy and declared France a republic. Liberation was promised to all oppressed peoples, and on January 21, 1793, Louis XVI was beheaded. After that the reign of terror began. The Committee of Public Safety, with Robespierre as its leading spirit, sent aristocrats to the guillotine by the hundred. In October, 1793, Marie Antoinette suffered the same fate. The revolutionaries then turned upon one another, and the execution of Danton, on April 5, 1794, was followed on July 28 by that of Robespierre. This marked the end of the Reign of Terror. The next change was the establishment of a Directory. See France.

FRENHAM. Village of Surrey, 3½ m. S. of Farnham. The larger of its two lakes covers 90 acres and is visited for boating and fishing. The church of S. Mary, restored in 1866, is interesting, parts of it being Early English. Frenham Common is a large open space, used by the military. Pop., parish, 3,971.

FRERE, SIR HENRY BARTLE EDWARD (1815-84). British administrator. Born at Clydach, Brecknockshire, March 29, 1815, he entered the Bombay civil service in 1834. For his services during the Mutiny he received the thanks of both Houses of Parliament and was knighted. He was governor of Bombay from 1862-67. In 1877 he was appointed governor of the Cape and high commissioner of native affairs in S. Africa, with a view to the



Sir Bartle Frere, British administrator

confederation of the S. African colonies, but his policy was not acceptable to the Liberals, and he was recalled in 1880. He died May 29, 1884, and was buried in S. Paul's. There is a monument to him on the Thames Embankment, London.

Frere Town, in Kenya Colony, opposite Mombasa, was named after him.

FRESCO (Ital. fresh). Method of painting in water colour upon fresh mortar. It was the favourite process of mural decoration before the introduction of oil painting. The plaster must be fresh in order to absorb the colour, and since it dries rapidly, the artist must work with great dexterity, decision, and speed. The wall must be free of saltpetre, and only such colours can be employed as are not affected by lime—a limitation which excludes certain of the most brilliant greens, reds, and yellows.

The artist first of all drew a cartoon (q.v.), and then transferred it piecemeal to as much fresh plaster as he could cover "at a sitting."

The palette was dispensed with because it could not hold enough colours, and pots of different colours were used instead. Though regarded as a process of water-colour painting without agglutinants, size, or white or yolk of egg, was required to fix certain colours. Theoretically, fresco should last as long as the wall which it adorns, but a damp climate is fatal to it. See Painting.

FRESHFIELD, DOUGLAS WILLIAM (b. 1845) British traveller. Born April 27, 1845, he became an ardent mountaineer, and in 1869 was the first to climb Mt. Kasbek (16,545 ft.), in the Caucasus. In 1899 he made an expedition to Sikkim, and journeyed round Kangchenjunga. He travelled in Uganda, Syria, Algiers, Caucasus, Armenia, etc. He was vice-president of the Royal Geographical Society, 1906-13, president 1914-16, and president of the Alpine Club, 1893-95.

Freshfield, a promontory on the coast of King George V Land (q.v.), Antarctica, separating Cook Bay from Deakin Bay, discovered by the Mawson Expedition of 1911-14, was named after him.

FRESHWATER. Watering place of the Isle of Wight. On the river Yar, 1½ m. S.W. of Yarmouth, it is a terminus of the Southern Rly. Its parish church, on the site of an older building, retains a Norman doorway, a 12th century arcade, and a memorial brass of 1390. Lord Tennyson resided at Farringford House, in the neighbourhood, and a monument to him is on High Down. Pop. 3,439.

FRETWORK (O.F. frette, trellis work). Carved woodwork in perforated patterns.

The wood used should be of fine grain, such as satinwood, walnut, lacewood, sycamore, lime, or maple. The strongest is three-ply. The usual thickness is a quarter inch. The chief tools are a saw, drill, and bradawl, a fret-saw board and carving board being also necessary. The former is a piece of ordinary wood with a V-shaped opening at the front which allows the saw to be moved freely. The hull saw, chiefly used, is a three-sided frame of steel or wood, of which the fourth side is formed by the saw, often no thicker than a thread. A fret-machine is an clatoration of the saw, and allows both hands to be free for guidance.

In architecture fretwork is the carved ornament, consisting of intersecting lines in relief, used as ceiling decoration

FREUD, SIGMUND (b. 1856). Austrian scientist. Born at Freiberg, Moravia, May 6, 1856, he was appointed professor of the therapeutics of neurotic diseases at Vienna.

Freud made the discovery that many neurotic affections were due to a conflict between the conscious and the unconscious parts of the mind, the conscious endeavouring to act in conformity with social training, while the unconscious was endeavouring to find an outlet for primitive tendencies suppressed by the patient. By gradually bringing the suppressed material into consciousness so that the patient understood his mental conflict, the symptoms were found to disappear.

For this purpose Freud devised the method known as psychoanalysis, a process most often applied to the investigation of dreams, which Freud considers represent in a symbolic manner the gratification of suppressed wishes. Freud has written many books on his ideas, and most of them have been translated into English. See Dream; Psychoanalysis.

FREYJA. Goddess of love and healing in Norse mythology. Two wild cats drew her chariot, and she could fly in a magic feather skin. Her house in Asgard was Folkvang, where she received the souls of half the slain from Odin.

FREYR OR FREY. Norse god of rain, sunshine, and fruitfulness, especially worshipped in Sweden. Brother of Freyja, his house in Asgard was Alfheim. He possessed the Sword of Victory, but gave this away to win Gerda, a giant maiden, and thus was conquered in the last great fight.

FRIAR (Fr. frère, brother). Term applied to members of the mendicant orders of the Roman Catholic Church. These have included Franciscans, 1209; Dominicans, 1215; Carmelites, 1245; Augustinians, 1256; Servites, 1233; Trinitarians, 1198, and Crutched or Crossed Friars, 1169. See Franciscans, etc.

FRIAR'S CRAG. Hill overlooking Derwentwater, famous for its view. It is on the E. side of the lake, about 1 m. from Keswick. On it is a memorial to Ruskin. See illus. p. 502.

FRICTION (Lat. a rubbing). Resistance offered by one body to motion over another. A body resting on a table requires a certain

force to move it along the surface of the table, and also to keep it moving. The magnitude of this force depends upon two things: (1) the material of which the substances are made, and (2) the normal pressure between the touching surfaces. Friction between two bodies is greatly decreased by the use of lubricants. It is easier to keep a body moving on a surface than it is to start it moving, and it follows that what is known as static friction, i.e. friction at rest, is greater than kinetic friction, or friction of motion. When a wheel or cylinder rolls on a surface, there is resistance to motion at the point of contact, and this is called rolling friction. The friction of liquids and gases is properly called viscosity.

FRIDAY STREET. Beauty spot in Surrey. It is about 4 miles from Dorking, beneath Leith Hill, and consists of a few cottages picturesquely placed near a small lake. In 1929 the Severells estate, which includes Friday Street, was bought for the nation

FRIDESWIDE. English abbess and patron saint of Oxford. Her father, Didan, viceroy of Oxford under Ethelbald, built for her a church at Oxford, in connexion with which she founded a nunnery, and became herself its first abbess. Persecuted by a Mercian noble, she took refuge at Binsey, where she built an oratory, and where she died about 900.

S. Frideswide's nunnery was taken over by Austin Canons in 1004, and suppressed in 1525 by Wolsey, who replaced it by Cardinal College. Frideswide was canonised in 1481, and her festival is still kept at Oxford on Oct. 19, though it disappeared from the English Church calendar at the Reformation.

FRIEDLAND. Town of Prussia. It is situated on the river Alle, 26 m. S.E. of Königsberg, and is famous as the scene of a battle fought June 14, 1807, between the French under Napoleon and the allied Russians and Prussians under Bennigsen. Napoleon's attempt to march on Königsberg was resisted by Bennigsen, who crossed the Alle and engaged Marshal Lannes at Friedland. Ney's advance on Friedland was checked by Russian cavalry, but Victor was hurried to his assistance, and an artillery concentration led to the rout of the Russians, who, pursued by Ney, fled through Friedland and back across the river. The Allies lost 20,000 killed and wounded.

FRIEDRICHSHAFEN. Town of Württemberg, Germany. It stands on the lake of Constance, and consists of two parts, Hofen and Buchhorn. It has a harbour on the lake, built by Frederick I, king of Württemberg. The chief building is the palace.

The town has a meteorological station. Friedrichshafen is a tourist resort, and steamers go from here to various places on the lake. It was known as a Zeppelin depot. Here the machines were put together, and over the lake they made their trials. The building of boats is another industry. Pop. 11,718

FRIENDLY OR TONGA ISLANDS. Group of islands in the S. Pacific Ocean, a British possession. Consisting of three groups of islands—Tongatabu, Haabai, and Vavau—and the outlying islands of Niuatobutabu, Taofahi, and Nuafoa, they lie some 400 m. E. of the Fiji group. They are administered by a British high commissioner, with the assent of the king or queen and native chiefs. The islands are of volcanic and coral formation. The capital is Nukualofa. There is a wireless station at Nukualofa, and a sub-station at Vavau. The Friendly Islands were so named by Cook in 1773, from the courteous behaviour of the inhabitants. Tasman first touched here in 1643. Its area is about 390 sq. m. Pop. 25,918 natives and 1,130 other nationalities.

FRIENDLY SOCIETY. Voluntary association for the mutual relief and maintenance of members in sickness, old age, distress, etc.



Sigmund Freud, Austrian scientist



Fresco, Christ received by two Dominican monks, painted in fresco by Fra Angelico in S. Mark's, Florence

In Great Britain, voluntary associations for the mutual relief and maintenance of members in sickness, old age, unemployment, and other forms of distress were legalised in Great Britain in 1793. An Act of that year permitted an unlimited number of persons to raise funds for their mutual advantage, to make rules and to impose fines. The privileges of the Act were secured when a society obtained from a justice of the peace the confirmation of its rules.

Other legislation followed, and to-day the societies are supervised by the Registrar of Friendly Societies, who is also the Industrial Assurance Commissioner, a government official with staff and offices at 17, North Audley Street, London, W.1. There is an office for Scotland at 19, Horiot Row, Edinburgh.

Registration of friendly societies was formerly voluntary, but since the passing of the Act of 1923 it has been compulsory. An unregistered society that carries on business is liable to a penalty of £50 a day, and to have all its policies treated as illegal. To be registered a society must have at least seven members. The total amount assured on any one life must not exceed £300, where it is by one or more than one society. Societies must make annual returns to the registrar, and must value their assets and liabilities at least once every five years. A registered society can hold land, own property in the names of the trustees, carry on legal proceedings in such names, and take summary proceedings against persons committing offences against its property. It enjoys freedom from income tax. Its members can legally insure for the funeral expenses of their wives and children, and can dispose of sums payable at death up to £100 by written nomination.

The Act of 1923 gave the Industrial Commissioner much more extensive powers than he had enjoyed simply as Registrar of Friendly Societies. His inspection of their accounts became more complete, and in reporting on this, in 1925, he gave various examples of the abuses he had been able to stop.

The societies may be divided into collecting and non-collecting. The former are mainly occupied with industrial insurance, i.e. insurances made by the working classes, the premiums on which are collected weekly or at other short periods by paid agents. Non-collecting societies are the older friendly societies, such as the Manchester Unity of Oddfellows. They do not employ paid collectors. Both classes have formed approved societies to work the health insurance scheme.

FRIESLAND (Dutch, Vriesland). Province of the Netherlands. The Zuider Zee and North Sea form its W. and N. boundaries, and it is contiguous on the E., S.E., and S. with Groningen, Drenthe, and Overijssel; it includes the three islands of Terschelling, Ameland, and Schiermonnikoog. The flat and in parts marshy country is mainly agricultural. The chief town is Leeuwarden (q.v.). The old Frisian dialect prevails. Its area is 1,249 sq. m. Pop. 402,788.

East Friesland is the name of a district in Hanover between Groningen and Oldenburg.

FRIEZE. In architecture, the middle member of the entablature, between the cornice and architrave. The Greek frieze in its simple form was divided into panels or metopes by triglyphs or channelled blocks, the metopes being sometimes sculptured with a floral design, and sometimes, as in the Parthenon, with figures. Different varieties of frieze developed in Roman and Renaissance times,

and when domestic architecture assumed importance the feature was applied both to exterior and interior decoration. Exterior friezes are now mainly confined to public buildings, but modern rooms are frequently decorated with a wall-paper frieze, and occasionally with a frieze pattern in low relief.

FRIGATE (Ital. fregata). Forerunner of the modern light cruiser. A fast vessel of from 25 to 50 guns, she was useful for either the attack or defence of commerce on the high seas, and for scouting duties with the line-of-battle fleets. The first English frigate was the *Constant Warwick*, designed by Peter Pett



Frigate Bird, Specimen of the larger species found in tropical regions

FRIGATE BIRD (*Fregata aquila*). Sea-fowl related to the gannet and the pelican. It has a long, slender body, ending in a forked tail resembling that of the swallow, and the beak is long and hooked. Found only in the warmer seas, usually far from land, it lives upon the fish that it catches or robs from other sea-fowl.

FRILLED LIZARD (*Chlamydosaurus*). Australian lizard. Measuring nearly a yard in length, it is distinguished by a large membranous frill on either side of the neck. This is usually folded back, but can be erected when the animal is alarmed, apparently for the purpose of frightening its enemies.



Frilled Lizard, *Chlamydosaurus Kingi*, from Australia

FRIMLEY. Urban dist. of Surrey. It stands on the Blackwater, 2 m. S. of Camberley, on the Southern Rly. A farm colony for sailors and soldiers suffering from tuberculosis was organized here in 1920. Bret Harte was buried here. Pop. 13,673.

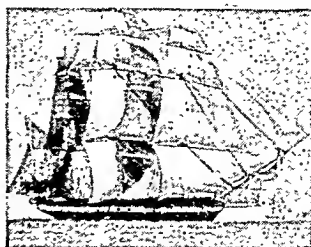
FRINGE TREE (*Chionanthus*). Genus of shrubs or small trees of the order Oleaceae. Natives of China and N. America, they have large, smooth, magnolia-like leaves, and white, sweet-scented flowers which hang in graceful



Frieze. Example of ancient frieze from Trajan's Forum, Rome

clusters; the corolla is cut into narrow segments, which give it a fringed appearance. *C. virginica* is the American snowdrop tree.

FRINTON-ON-SEA. Urban dist and seaside resort of Essex. It is 2 m. S. of Walton-on-the-Naze, on the L.N.E., and has good bathing facilities and golf links. A model garden town, its roads are wide and planted with trees. Pop. 3,037.



Frigate of war under full sail

FRIPP, SIR ALFRED DOWNING (1865-1930). British surgeon. Born at Blandford, Sept. 12, 1865, he was educated at the Merchant Taylors' School and qualified as a doctor. For 40 years he was connected with Guy's Hospital, and he was also consulting surgeon to the navy. Fripp served in S. Africa with the Imperial Yeomanry and was knighted in 1903. He died Feb. 25, 1930. Sir Alfred was known as the head of the Ancient Order of Frothblowers (q.v.).

FRISIAN ISLANDS. Chain of islands extending from the coast of North Slesvig and Schleswig to the Zuider Zee. The North Frisian Islands are separated from the mainland by the Watten. The principal members of this group are Sylt and Föhr. The East Frisian Islands form an almost continuous line masking the coast between the mouths of the Ems and Weser. The chief islands are Norderny and Borkum. The West Frisian group, of which the most important islands are Terschelling, Vlieland, and Texel, screens the mouths of the Zuider Zee. Frisian, the original speech of these islands, resembles the older forms of English.

The Frisians were a Teutonic people originally inhabiting the country now covered by the Dutch provinces of Friesland and Groningen and the German district of East Friesland. They were closely connected with the other Low German peoples. Numbers of them were probably associated with the Angles and Saxons in their incursions into Britain in the 4th and 5th centuries. See Netherlands.

FRIT. Name popularly applied to certain small dipterous insects destructive to corn crops. The one generally so named is *Chlorops frit*, a small black fly which sometimes causes havoc among the crops. It is not found in Britain, though there its allied species, *C. taeniopus*, frequently attacks barley.

FRITH, WILLIAM POWELL (1819-1909). British painter. Born at Aldfield, Yorks, Jan. 9, 1819, he studied at Sass's Academy, Bloomsbury, and at the R.A. schools. Founding his style on that of Daniel Maclise, he began to paint historical subjects, his *Malvolio* being hung at the R.A., 1840. He was elected A.R.A. in 1844, and R.A. in 1852. He scored popular successes with *Ramsgate Sands*, 1854; *Derby Day*, 1858; *The Railway Station*, 1862; *Private View at the R.A.*, 1881. He died Nov. 2, 1909.

FRITILLARIA. In zoology, the name applied generically to certain Ascidians, commonly called sea squirts, of the free swimming class. In botany it is given to a large genus of Liliaceae. See Snake's-head.

FRITILLARY. Name given to several species of butterfly of the Argynnis and allied genera.

Several of these are native in Great Britain. In the spotted or tessellated marking of their upper surface the Fritillary. Silver-washed fritillary, a British butterfly. In appearance the flowers of the fritillaria. See Butterfly.



FRIULI. District of Italy, at one time an independent duchy. It lies around the head of the Adriatic and was formerly partly in Austria and partly in Italy. The Isonzo and Tagliamento flow through it, and there was much fighting here during the Great War. The adjective for Friuli is Furlanian. The area is about 3,300 sq. m.; pop., about 700,000.

The district takes its name from the Roman settlement of Forum Julii. Venice secured part of it, while eastern Friuli was added about 1500 to Austria. In 1797 Austria obtained the Venetian portion, which she retained in 1815. In 1866 the new kingdom of Italy was given the part that had previously belonged to Venice. After the Great War Austrian Friuli was claimed by Italy and Yugoslavia, but by the treaty of Rapallo (1920) the whole became Italian. Udine is the capital of the district.

FROBISHER, SIR MARTIN (c. 1535-94). English sailor. Born in Yorkshire, he spent some years in voyages to the Levant and N. Africa. In 1575 he was commissioned by the Muscovy Company to search for the North-West Passage, and set out on June 7, 1576, with two ships, sighted Greenland, and reached Frobisher Bay in N. America. Returning to England, Frobisher repeated the voyage in 1577 as admiral of the company of Cathay. In 1586 he was vice-admiral to Drake's expedition to the W. Indies, and, in command of the *Triumph*, helped to defeat the Armada (1588), being knighted for his gallantry. Mortally wounded in the sea attack against Brest, he died Nov. 22, 1594.



Sir Martin Frobisher
English sailor

FRODSHAM. Market town of Cheshire. It is 10 m. N.E. of Chester, and has a station on the L.M.S. Rly. It has a Norman church, restored in the 19th century. Frodsham Marshes is a low-lying area between the Weaver and the Mersey, which rivers meet near here. Market day, Thurs. Pop. 3,025.

FROEBEL, FRIEDRICH WILHELM AUGUST (1782-1852). German educational reformer. Born at Oberweissbach, April 21, 1782, he studied at Jena, 1801, and at Göttingen, 1811, teaching in the interval. In 1816 he opened a small school at Griesheim, Thuringia, transferred later to Keilhau. His book, *The Education of Man*, appeared in 1826, and he did important work in training teachers at Burgdorf, Switzerland, between 1833-37. He opened his first kindergarten in Blankenburg, near Keilhau, in 1837. He died June 21, 1852.

His theory of children's education is known as Froebel's system. He believed that children should be allowed to develop naturally, in happy and harmonious surroundings. His system lays great stress on the value of play, which is regarded as a spiritual activity, and on giving a free hand to the instinctive sense of rhythm and the natural creativeness of the child mind. The main part of Froebel's theories was put into practice in the kindergarten schools, where the child's senses are developed by such means as clay-modelling, work with colour brushes, mat-plaiting, etc., and the observation and care of natural objects, animals, flowers, etc., help to encourage his finer instincts. See Kindergarten; Montessori.

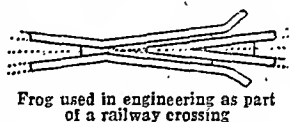
The Froebel Society was founded to assist in the dissemination of the Froebel system of child education. Its headquarters are at 4, Bloomsbury Square, London, W.C.

FROG. Smooth-skinned member of the order Ecaudata (tailless), of the class Batrachia, and family Ranidae. Nearly 200 species are known.

Frogs can live only in damp places; they are found in all parts of the world, except in New Zealand, Papua, the extreme S. of South America, and the frozen regions. Like all batrachians, frogs pass through a series of metamorphoses. The eggs are deposited in a jelly-like mass in fresh water, and hatch out as tadpoles, consisting of an oval body and a long tail. During this stage they breathe by means of gills. The tail and gills are gradually absorbed, and at the same time the four limbs make their appearance. At the completion of this stage they leave the water and take to a terrestrial life, breathing air by means of lungs. The fore feet are not webbed; the hind ones are partially webbed. The food consists of insects and slugs, which are seized by thrusting out the long, sticky tongue. The winter months are passed in a state of hibernation, usually in the mud of ponds.

Great Britain possesses two species of frogs, of which the common frog (*Rana temporaria*) is found almost everywhere. The edible frog (*R. esculenta*) is found mainly in the eastern counties, and is distinguished by its usually larger size and more mottled appearance, especially on the thighs. On the Continent and in N. America the edible frog is often used for the table, but rarely in Great Britain.

FROG. In engineering, two short lengths of rail spliced together and forming part of a railway crossing. The term is also applied to part of a horse's hoof, and to that part of a soldier's equipment which carries the sword or bayonet.



Frog used in engineering as part of a railway crossing

FROGBIT (*Hydrocharis morsus-ranae*) Floating aquatic herb, of the order Hydrocharitaceae. A native of Europe and N. Asia, it has long-stalked, kidney-shaped leaves, and three-petalled white flowers. It sends out runners which produce new plants, and in autumn bulbs which sink to the bottom of the ponds and ditches in which it lives, where they pass the winter in the mud. In spring they rise to the surface of the pond or ditch and put out leaves.

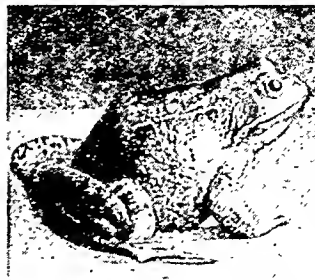


Frogbit. Bulbs rising to the surface. One has developed into a plant with four leaves

FROG-HOPPER, OR FROTH-FLY. Name popularly given to a large family (Cereopidae) of hemipterous insects. Their larvae may be noticed on plants, where they are covered with froth and are often known as "cuckoo spit." The adult insects are grey or greeny, and leap vigorously if disturbed.

FROGMORE. Residence in Windsor Park. It is within the Home Park, Windsor, 1 m. S.E. of the castle: and was purchased by

Queen Charlotte in 1800. In the grounds are two mausoleums. One contains the remains of the duchess of Kent, mother of Queen



Frog. Left, common frog, *Rana temporaria*; right, edible variety, *R. esculenta*

Victoria. The other, a cruciform structure surmounted by an octagonal lantern, was erected by the queen over the tomb of the Prince Consort. The queen herself was buried here in 1901. The mausoleum is shown each year on Jan. 22, the anniversary of her death.

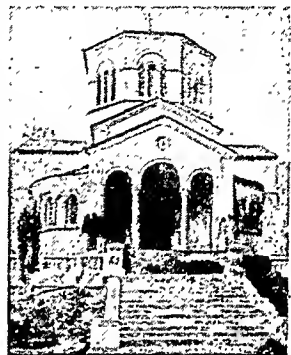
Frogmouth.

Family of night-flying, insectivorous birds. There are numerous species, distributed over Australia, Malaya, and parts of India. They resemble the nightjars.

FROHMAN, CHARLES (1860-1915). American theatrical manager. Born at Sandusky, Ohio, June 12, 1860, he established himself in 1893 at the Empire Theatre, New York, and later had five other theatres under his control in that city. In 1897 he became lessee of the Duke of York's, London, where he brought out Sir James Barrie's plays, *The Admirable Crichton*, 1903; *Peter Pan*, 1904; *What Every Woman Knows*, 1908; and experimented with a repertory system in 1910, producing plays by Barrie, Bernard Shaw, John Galsworthy, and Granville Barker. He was drowned when the *Lusitania* was torpedoed, on May 7, 1915.

FROISSART, JEAN (c. 1338-e. 1404). A French chronicler. He was born at Valenciennes and probably started to write the first part of his history about 1358. He became secretary to Philippa of Hainault, queen of Edward III of England, in 1361, and while in her service visited the court of David II of Scotland. Later he visited Gascony, N. Italy, and Béarn, and travelled with the knight Espaing de

Lyon, whose stories gave him much picturesque matter for his *Chronicles*, to the brilliant court of Gascony. He paid another visit to England. The *Chronicles*, in four books, trace the history of the main events in England, Scotland,



Frogmore, Windsor. The royal mausoleum built by Queen Victoria
F. W. Hardie



Frog-hopper of the Alder, *Aphrophora alni*. Above, spiny-legged frog-hopper, *Evacanthus interruptus*

Ireland, France, Flanders, and Spain, as well as happenings at the papal courts at Rome and Avignon, between 1325 and 1400, and form one of the greatest of medieval historical works. It was translated into English by Lord Berners, 1525.

FROME OR **FROME SELWOOD** Urban dist. and market town of Somerset. It stands on the Frome, 24 m. by rly. S.E. of Bristol on the G.W.R. Brewing, printing, and the manufacture of cloth are the chief occupations, the woollen industry having declined. The parish church is a Decorated building dating from the 14th century, magnificently restored in the 19th.



Louis de Frontenac
Statue by P. Hébert
in the Parliament
Buildings, Quebec

Market day, Wed. Pop. 10,506. Pron. Froom.

FRONTENAC, LOUIS DE BUADE, COMTE DE (1620-98). French governor of Canada. He belonged to a noble family of Béarn, and served in the French army with distinction. In 1672 he was sent out to Canada as governor, and held that position until 1682, and again from 1689-98. As a ruler he was successful, but his autocratic temper caused constant quarrels with other officials. Frontenac died at Quebec, Nov. 28, 1698.

FROST. Term used for the formation of ice on ground, plants, etc., sometimes called hoar frost or rime. The formation of hoar frost is due to the condensation of water vapour on surfaces which are themselves at a temperature of less than 32° F. The frost consists of small particles of ice, crystalline in structure, which often form the most variegated patterns. Hoar frost is in reality frozen dew. Black frosts are long-continued severe frosts, generally with absence of hoar or white frost, and are so called because they kill or blacken vegetation. See Ice; Meteorology.

FROST BITE. This is localised gangrene of the tissues produced by exposure to severe cold. The parts most likely to be involved are the fingers and toes, and exposed parts such as the nose and ears. The first sign of frost-bite is a patch of redness with slight swelling and sometimes severe pain. If the exposure continues the part becomes white, hard, shrunken, and waxy-looking, but without pain. Ultimately it becomes black and ulcerated.

Treatment consists in very gradual restoration of circulation in the affected area. The patient should be kept in a cold room, the temperature of which is slowly raised, and the frozen part rubbed with snow or bathed with cold water. If actual gangrene occurs the part must be kept carefully protected and aseptic until a line of separation forms, and the subsequent ulceration heals.

FROTHBLOWERS, ANCIENT ORDER OF. British charitable organization. It was founded by Mr. Bert Temple, a London business man, in Sept., 1924. Members pay a subscription of 5s. A member who enrolls 25 others is a Blaster; a Tornado if he enrolls 100, a Monsoon if he enrolls 500, and a Grand Typhoon if he raises 1,000 new members. The Frothblowers' anthem is "The more we are together." See Frupp, Sir A. D.

Froth-Fly. Variant name of the insect called the frog-hopper (q.v.).

FROUDE, JAMES ANTHONY (1818-94). British historian. Born at Dartington, Devon, April 23, 1818, he entered Oriel College, Oxford, afterwards becoming a fellow of Exeter. At Oxford Froude was associated with the Tractarians,



James A. Froude,
British historian

but he never joined them, and later he broke with orthodox religion. He expressed his changed views in *The Nemesis of Faith*, 1848, and resigned his fellowship at Exeter. His *History of England from the Fall of Wolsey to the Spanish Armada* appeared in 1856-70. As pendants to it he wrote *The Divorce of Catherine of Aragon*, 1891; *The Spanish Story of the Armada*, 1892; and *Lectures on the Council of Trent*, 1896. As the sequel to an intimate friendship, Froude was named as Carlyle's executor, and he published some *Reminiscences*, 1881. Mrs. Carlyle's *Letters*, 1822, and *Life*, 1882-84, which gave a markedly unfavourable picture of the relations between Carlyle and his wife.

In 1892 Froude succeeded Edward A. Freeman as professor of modern history at Oxford. He died at Salcombe, Devon, Oct. 20, 1894. His most delightful work is in the four volumes of *Short Studies on Great Subjects*. He also wrote *The Life and Letters of Erasmus*, 1894.

His elder brother, Richard Hurrell Froude (1803-36), was fellow and tutor of Oriel, and brought Newman and Keble together, thus starting the Oxford Movement (q.v.). He died Feb. 28, 1836.

FRUIT (Lat. fructus, enjoying). General term for that part of a plant which contains the seed. Many fruits are edible, and with this the word is chiefly associated—the chief fruits being apples, pears, plums, grapes, currants, peaches, etc. The most common method of preserving fruit is boiling it with sugar until it becomes jam (q.v.). But it may be preserved in other ways. It may be crystallised, the sugar preserving it as in jam; it may be put through a drying process, so that the moisture is entirely evaporated, decay being thus prevented; or it may be hermetically sealed in vessels with syrup or water.

FRUIT PIGEON. Name given vaguely to a number of large coloured pigeons, of the family Treronidae, which feed mainly on fruit. The beak is so adapted that it can swallow fruits whole. Found throughout S. Asia and Australia, these birds do great damage to crops. See Pigeon.



Charles B. Fry,
British athlete
Lafayette

FRY, CHARLES BURGESS (b. 1872). English athlete. Born at Croydon, April 25, 1872, he went to Repton and Oxford, and excelled particularly as a cricketer. He was captain of the XI against Cambridge in 1894, played for Surrey, later for Sussex, and in 1909 for Hampshire. In 1900 he made a total of 3,147 runs, with an average of over 78 per innings. His innings of 232 not out for the Gentlemen v. Players, in 1903, ranks as his best performance. He also gained his blue at football and athletics. For many years Fry held the record for the long jump. He was also an international at Association football.

FRY, ELIZABETH (1780-1845). English prison reformer. Born at Gurney Court, Norwich, May 21, 1780, a daughter of John Gurney, Quaker and banker, she was brought up in



Fruit Pigeon of
Oceania, *Carpophaga ocellata*



Elizabeth Fry,
Prison reformer
After C. R. Leslie

entured surroundings, and married Joseph Fry, another Quaker, in 1800. In 1813 Mrs. Fry paid her first visit to Newgate prison. The horror of the conditions prevailing there determined her to devote herself to improving the lot of the prisoners, especially the females, and the rest of her life was spent in this cause. In 1817 she formed an association for their improvement, and extended her interests to Continental prisons. She died Oct. 12, 1845.

FRY, JOSEPH (1728-87). British manufacturer. Born at Sutton Benger, Wiltshire, he had a good medical practice in Bristol, but his fame rests upon his business enterprises. He founded the business of cocoa and chocolate manufacturers, later the firm of J. S. Fry & Sons, and also became a typefounder. Fry died March 29, 1787.

Like many of his descendants, Fry was a member of the Society of Friends. One of his grandsons was Francis Fry (1803-86), the bibliographer. Sir Theodore Fry (1836-1912), an ironmaster, was M.P. for Darlington from 1890-95; and Lewis Fry (1832-1921), M.P. for Bristol, 1878-92 and 1895-1900.

FRYATT, CHARLES (1872-1916). British sailor. Born Dec. 2, 1872, he entered the service of the G.E.R., being promoted captain in 1913. When the Great War broke out he was in command of the G.E.R. steamer *Brussels*, and helped to maintain the service between Holland and England. On March 3, 1915, he was attacked by a German submarine, and succeeded in ramming it. Bound from Holland to Tilbury on June 23, 1916, he was captured by a German destroyer, tried by a court-martial on July 27, the evidence of his log for March 28 being produced against him, was condemned as a frane-tireur, and shot the same evening.



Charles Fryatt,
British sailor



Fuad,
King of Egypt

FUAD OR **AHMED FUAD PASHA** (b. 1868). King of Egypt. Born in Cairo, March 26, 1868, he was the youngest son of the khedive Ismail Pasha and brother of the first sultan of Egypt. Hussein Kamil, whom he succeeded Oct. 9, 1917. He was a candidate for the new throne of Albania, but withdrew in order to devote himself to Egyptian interests, and was proclaimed king of Egypt in 1922. See Egypt.

FUCHSIA. Hardy and half-hardy flowering shrubs, of the order Onagraceae. They are natives of Central America, whence they were introduced in 1788. Their colours are all shades and mixtures of white, cream, pink, purple, crimson, and violet. Greenhouse sorts rarely attain a height of more than 2 ft., but in warm open districts, notably Devon and Cornwall, hardy species frequently grow to 10 ft.-12 ft. The shrub takes its name from the German physician and botanist Leonhard Fuchs (1501-66).



FUEGIANS. South American Indian tribes inhabiting Tierra del Fuego. The primitive race are the central Yagans, who use rudimentary wind-shelters, skin aprons, and mantles. See Tierra del Fuego; also illus. p. 631.

FUEL. Any combustible substance burnt for the sake of the heat evolved in the process. All common fuels contain carbon as their chief constituent,



Fuegians. Indian and his squaw wearing blankets. See p. 630

either alone or in combination with hydrogen (hydrocarbons), and the ultimate result of their complete combustion is the conversion of this carbon into carbon dioxide, the hydrogen being similarly oxidised to water. Fuels may be solid, liquid, or gaseous. Some occur naturally, others are prepared or derived fuels. The most important is coal; other natural solid fuels are lignite, peat, wood, and vegetable materials such as straw. Coke is the most important derived solid fuel. Mineral oil is the chief liquid fuel. As obtained from the earth, it contains a large number of hydrocarbons which differ in volatility, and it is found more profitable to separate these into groups or "fractions," and to use each portion in different ways, than to burn the whole mixture. The distillation of coal and other solid fuels yields oils and gas. Natural gas issuing from the earth is used as a fuel, notably in America.

Pulverised fuel, consisting of powdered coal carried in a stream of air, behaves in many ways like a gaseous fuel; it is commonly used for firing cement-burning kilns, and has been applied to metallurgical furnaces and steam boilers. In 1928 a Blue Star ship employed pulverised coal on a trip to S. America, the first British ship to do so. Since the Great War a Fuel Research Board has been at work in England. There is a fuel research station at East Greenwich, London, S.E.10. See Coal; Coke; Oil, etc.

FUGUE (Fr. from Ital. fuga, flight). Important form of contrapuntal music akin to the round and canon but much more free. The subject is the chief theme, announced by all the voices or parts in turn, but it is called the answer when it has the dominant as its key-centre instead of the tonic. The counter-subject is the counterpoint which accompanies later entries of subject and answer.



Enjiyama. The famous snow-capped mountain of Japan viewed from Omiya village

FUJIYAMA, FUSUYAMA, OR FUJISAN. Mountain peak in Japan, on the island of Honshiu. Alt. 12,390 ft. A dormant volcano, with a beautiful snow-capped cone, it occupies a position of splendid isolation 60 m. S.W. of Tokyo. Its crater is nearly 3 m. in circumference and over 500 ft. deep. The sacred mountain of Japan, it is annually visited by thousands of Buddhist

pilgrims. It is frequently portrayed on Japanese pottery, and is a favourite theme with poets and artists. See Cone.



Fulah woman from Timbuctoo

FULA (Mandingan, red-dish). Dominant African people in the W. Sudan, the plural being Fulbe and the Hausa name Fulani. Estimated at 8,000,000, and descended from an early admixture of Libyan—if not pre-Libyan—and negro stocks, they are handsome, oval-faced, chestnut-hued, straight-nosed, thin-lipped, and curly-haired. They are now a virile stock, three-fourths Caucasian, dwelling from the Atlantic coast to the Nile valley.

FULGURITE (Lat. fulgur, lightning). Tube formed in sandy soil, and less commonly in rocks, by passage of lightning. This often penetrates to a depth of many feet, fusing the particles it encounters. The glassy lining often produced in tubes varies in size to more than 2 ins. in circumference



Fulham. Courtyard of Fulham Palace, built in the time of Henry VII

FULHAM. Metropolitan borough of London. On the Middlesex side of the Thames, S.E. of Hammersmith it has been a parish since 1631 and a met. bor. since 1899. Its oldest building is Fulham Palace the residence of the bishops of London. A part of the grounds, Bishop's Park, is open to the public. The parish church of All Saints has a 14th century tower. Fulham contains the grounds of the Chelsea and Fulham football clubs, and those of the Hurlingham club. Pop 157,938.

FULHAM WARE. This fine stoneware first produced in 1671 by John Dwight at Fulham was an imitation of china, semi-transparent, with hard, close body of grey colour. The enamel was brilliant, the colours were largely blue and purple, the decorations of flowers and leaves were raised. Marbled pieces were also produced. Dwight gave up in 1746, and was succeeded by White until 1762. The factory is still carried on. In 1888 William De Morgan began the manufacture of quaintly shaped pots and pans in lustre ware.

FULLER, THOMAS (1608-61). English divine and eccles. historian. Born at Aldwinkle, Northants, he held at various times the curacy of S. Benet's, Cambridge, the rectory

of Broadwindsor, Dorset, the curacy of Waltham Abbey, and the rectory of Cranford, Middlesex; but from 1642 till his death depended largely upon his pen for subsistence. His Church History of Britain, a folio of 1,300 pages, was published in 1655, and his History of the Worthies of England was issued in folio in 1662. He died Aug. 16, 1661.

FULLER'S EARTH. Soft, earthy variety of clay, greenish, brownish, or yellow in colour. Chemically a hydrous aluminous silicate, it



Fulgurite. Specimens obtained at Maldonado, Uruguay

falls to powder on immersion in water. It is found in the Lower Green-sand and in Jurassic strata, and gives its name to a stratum extending from Dorset to Gloucestershire. It is used by fullers as a grease absorbent, though to a less extent than formerly, and is employed also in many cleansing preparations and soaps, and in the filtration of mineral oils.

FULLING. Process of cloth finishing also known as milling. The cloth is saturated with soap and water, twisted rope-like, and passed between vertical rollers, the object being to shrink the cloth in the direction of the weft. The wet cloth is then cuttled, i.e. stored in an enclosed space, when it shrinks in the direction of the warp. Fulling is carried out on woollen cloth to be used for overcoats and heavy suits. See Wool.

FULMINATE (Lat. fulminare, to lighten, thunder). Sensitive and violently explosive compound used for the detonation of high explosives. Fulminate of mercury, the chief of these salts, is manufactured by dissolving mercury in strong nitric acid and adding this whilst warm to alcohol, the fulminate being deposited from the solution as fine crystals. Fulminate of mercury is detonated by very moderate friction or percussion, by heating to about 150° C., or by contact with strong sulphuric acid. If unconfined, small quantities burn violently when ignited, but two sheets of paper confine it sufficiently to cause violent detonation. See Detonation; Explosive.

FULTON, ROBERT (1765-1815) American engineer. Born in Pennsylvania, in 1794 he invented various improvements for the canal systems, and two years later went to Paris, where he turned his attention to the adaptation of the steam engine for marine purposes. After a successful experiment in 1803, he constructed in 1807 a larger vessel, the Clermont, in New York, whither he had returned the previous year. This vessel was followed by the steam frigate Fulton, in 1814. He died Feb. 24, 1815. Fulton was the first to apply steam successfully to navigation.

FULWOOD. Urban dist. of Lancashire. It has a station on the L.M.S. Rly. and barracks. It is within the parliamentary borough of Preston. Pop. 6,599.

FUMITORY (Lat. fumus terrae, earth-smoke). Small genus (Fumaria) of annual or perennial herbs of the order Fumariaceae.

Natives of Europe and Asia, they hang on the borders of cultivation. The leaves are much divided into slender segments, and the small flowers are in terminal sprays. Common fumitory (F. officinalis), the best known species, has delicate, much-divided leaves and rosy-purple flowers. See illus. p. 632.

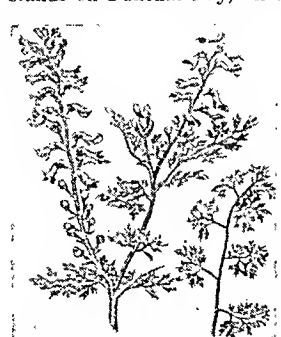


Fulham Ware. Figure of Jupiter by John Dwight. Liverpool Museum



Thomas Fuller, English divine

FUNCHAL. Capital of Madeira, an island in the Atlantic, belonging to Portugal. It stands on Funchal Bay, on the gentle ascent of some hills in the form of an amphitheatre.



Fumitory. Flowers and foliage of *Fumaria officinalis*. See p. 631

A popular winter health resort, it has a cathedral, museum, theatre, casino, meteorological observatory, and wireless station. There is cable communication with Lisbon, Falmouth, and Pernambuco. The streets, which are steep and narrow, have no wheeled traffic, ox-sleds being used. In the roadstead is a steep black rock crowned by a castle. Pop. 20,844.

FUNDAMENTALISM. Religious movement in the United States which demands the acceptance of the "fundamental" truths of the Christian faith, namely, the virgin birth, the resurrection, the atonement, the miracles and verbal inspiration. It arose about 1910 and has provoked much controversy.

FUNDY, BAY OF. Extension of the N. Atlantic Ocean, dividing Nova Scotia from New Brunswick. It terminates in two branches, the northern known as Chignecto Bay, and the southern as Minas Channel, which leads to Cobequid Bay. From Grand Manan Island, at the entrance, to Cape Chignecto, its length is about 100 m., and its mean breadth 35 m. The chief rivers draining into the bay are the St. John and St. Croix. The bay is remarkable for the great rise and fall of its tides.

FÜNEN. Island of the Baltic Sea (q.v.), forming part of Denmark. It lies between Jutland and Zealand, being separated from the mainland by the Little Belt, and from Zealand by the Great Belt. Area, 1,133 sq. m. Mostly flat, and much indented, it is very fertile. The chief towns are Odense (q.v.), the capital, Svendborg, and Nyborg. Pop. 285,849.

FUNERAL (low Lat. funeralia, things belonging to a funeral). Comprehensive term, at one time written in the plural, for the ceremonies, etc., attending the conveyance of a dead person to grave or tomb. The term obsequies, often used in the same connexion, has not quite the same meaning; funeral means a mournful ceremony, especially the processional part of it; obsequies, a respectful

valediction. Elaborate ceremonial rites attending the disposal of the dead have been observed in all parts of the world from neolithic times to the present day. See Burial; Death.

FUNGUS. Enormous class of cellular cryptogams or flowerless plants. They are characterised by a total absence of chlorophyll and starch. They have no real roots, but the creeping threads (mycelium) which constitute the fungus proper serve the same purpose. For lack of chlorophyll they are unable to decompose the carbonic acid of the atmosphere, and they obtain organized carbon from decaying or living vegetable or animal matter. Those that attack living matter are known as parasitic fungi; those that are content with decaying material are saprophytes.

The forms of fungi are multitudinous, varying from the hard or corky brackets that advertise their attacks on trees, through the mushrooms, toadstools, and puff-balls of the woods and fields, to the minute leaf-moulds, rusts, smuts, and mildews, and to the bacteria. They are all produced by spores, but in some families there is a sexual process before spore production. Some species of fungi—e.g. the mushroom—are edible, but others are highly poisonous. See illus. below.

FUNNY BONE. Popular term for the groove between the olecranon process of the ulna and the internal condyle of the humerus on the inner side of the elbow. The ulnar nerve passes along this groove, and a blow on the nerve at this point produces the familiar sensation of "pins and needles."

FUR. Skin of certain mammals which, after preparation, is worn by men and women

we are told, used the skin of the Nemean lion as a garment.

Furs fell into disuse in Britain during the Stuart period, but a most important event with regard to the trade happened after the Restoration, when Prince Rupert founded a company to trade for furs in Hudson Bay, 1670. From this really dates the commencement of the British fur trade.

The two great fur-producing countries of the world are Canada and Siberia. The colder the country the better the fur, hence the covering of the animals found in the high latitudes of Canada and Russia is particularly thick and warm. From Canada and Siberia come, among others, the sable and American marten, mink, ermine, fisher, red and silver fox, lynx, wolf, beaver, musquash, otter, bear, squirrel, Wolverine, elk, and musk ox; while within the Arctic circle are found the polar bear, white fox, seal, and hair seal. Skunk, raccoon, and opossum come largely from the U.S.A. Australia produces opossum, wallaby, and vast quantities of rabbit; the beautiful chinchilla comes from Peru and Argentina; and Armenia gives its name to the ermine, though its habitat is farther north. Astrakans, slinks, caracul, tigers, sheep, goats, and bears are natives of Central Asia.

London, although its supremacy has been recently challenged by St. Louis, U.S.A., is still the premier fur market of the world, and to London the bulk of the raw skins is consigned. They are lotted and sold at Colledge Hill sale rooms to buyers from all over the world, in Jan., March, and Oct.

HERALDIC FURS. There are two principal furs used in heraldry. Ermine is shown by a white field flecked with black ermine tails. Vair is shown by its representation of a fur of small skins sewn in rows, blue and white skins alternately. See Heraldry.

Furies (Lat. *Furiae*). In classical mythology, the name under which the Romans knew the Eumenides (q.v.).

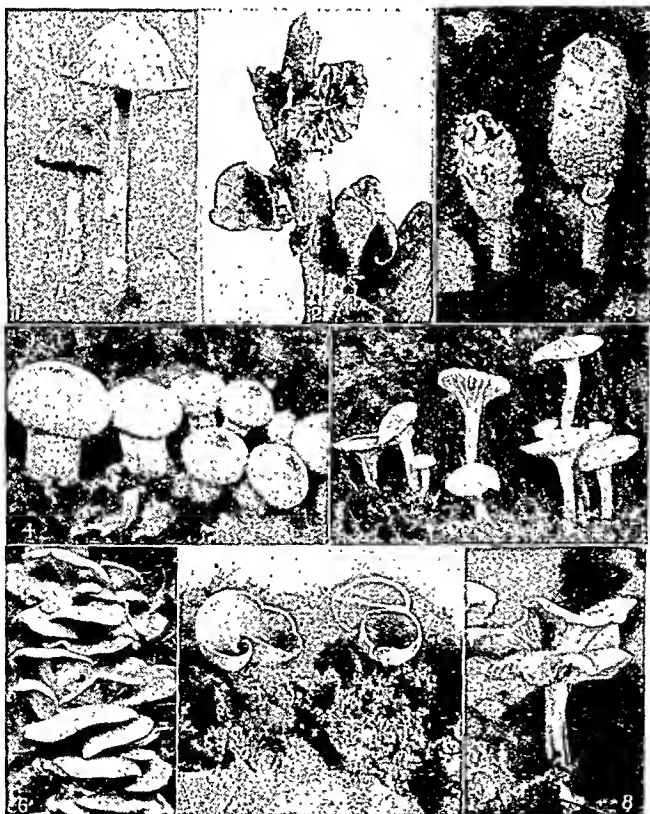
FURIOUS. British aircraft carrier. Designed as a cruiser, her design was altered, and she was finished in 1918 as an aircraft carrier. Between 1921-25 she was entirely refitted and her appearance altered. She displaces 19,000 tons, and can steam 32 or 33 knots. The aircraft that bombed the German airship sheds at Tondern, July 19th, 1918, were launched from the deck of the Furious. See Aircraft Carrier; Glorious.

FURKA. Mt. road of Switzerland. It runs between the upper Rhône valley and that of the Reuss to Andermatt. Its maximum height is 7,991 ft.

FURLONG (O.E. furlang, furrow-long) British measure of length, one-eighth of a mile, or 220 yards. The name is derived from the old English furrow length. A square, each side of which was a furrow 220 yds. long contained 10 acres. See Acre.

FURLOUGH (Dutch *ver lof*, for leave, or oorlof, permission, sanction). Army term designating the absence from duty of N.C.O.'s and men, for periods in excess of six days. It is, usual for approximately a quarter of the strength of regiments to be on furlough on full pay from Oct. 1 to Feb. 1, each man generally being granted a month at a time. A soldier on furlough is not permitted to leave the kingdom, and his pass may be endorsed with the permission to wear civilian clothes.

FURNACE (Lat. *fornax*, a furnace). Term applied to a structure in which heat is developed or utilised, including those used for steam raising and certain chemical operations. Its most general and important application is to the structures used for the extraction of metals from their ores, or for the refining or working of metals. Modern furnaces may be divided into five types. Hearths, the first type, are very largely used for roasting ores to drive



Fungus. 1. Inky mushroom, *Coprinus atramentarius*. 2. Jew's ear fungus, *Hirneola auricula-judae*. 3. Lawyer's wig mushroom, *Coprinus comatus*. 4. Puff-ball, *Lycoperdon perlatum*. 5. Ivory cap, *Hygrophorus virgineus*. 6. Oyster mushroom, *Pleurotus eousmus*. 7. Orange Elf cap, *Oideia aurantia*. 8. Amethyst mushroom, *Laccaria laccatis*

for warmth. The Assyrians, Greeks, and Romans all made lavish use of furs. The practice is mentioned by Herodotus, and Hercules,

off sulphur, arsenic, or other volatile elements. They are the simplest forms of furnace, consisting, in some cases, of a prepared piece of ground on which the ore is stacked in a heap; more advanced forms are seen in the stall, pit, and kiln. All these are worked by natural draught. In the common blacksmith's hearth and the iron refinery we have a type of hearth worked by forced draught.

The second type of furnace is the shaft, worked by natural or forced draught. These include the iron ore calciner, various kilns, the blast furnace, the cupola and special modifications of the blast furnace. The third type is the reverberatory. The metal being treated in this furnace is not normally in contact with solid fuel, but the heat is caused to reverberate, or to be thrown from the crown or sides of the furnace on to the metal below.

The fourth type is the closed vessel type. It includes the ordinary crucible and muffle furnaces and the retort furnaces as used for the production of zinc. The fifth type is represented by the electrical furnace, which, like other types, assumes various forms. (See Aluminium, and Héroult cell, illus. p. 66.) Furnaces generally consist of two essential portions, an inner one, which contains the metal and in some forms the fuel also, and an outer portion, the purpose of which is to give structural stability to the whole. See Blast Furnace, and illus. p. 264.

FURNES. Town of Belgium, in W. Flanders. It is 16 m. E. of Dunkirk, on the rly. from Dunkirk to Dixmude. In the Great War it was first bombarded by the Germans, Oct. 24-27, 1914, in which month the Allies evacuated it. The French conferred the croix de guerre on it in 1920. Pop. about 8,000.

FURNESS. District in the N.W. of Lancashire. It is detached from the main portion of the county by Morecambe Bay. Its area is 250 sq. m., and it contains large supplies of hematite iron ore. The Furness Rly., which serves the district, is now part of the L.M.S. Rly. system.

FURNESS, CHRISTOPHER FURNESS. 1st Baron (1852-1912). British shipowner. Born April 23, 1852, at West Hartlepool, he became a shipbroker in 1876, establishing soon afterwards the Furness line of steamers. In 1885 he went into partnership with Edward Withy, of Hartlepool, the firm being known as Furness, Withy & Co. He was Liberal M.P. for Hartlepool, 1891-95, and 1900-10. Knighted in 1895, he was raised to the peerage in 1910 as Baron Furness of Grantley. He died Nov. 10, 1912, and was succeeded by his son Marmaduke (b. 1883), who was created a viscount in 1918.

The Furness Line has regular sailings from British ports to Canada and the United States, and from Bombay to Antwerp, Montreal to Antwerp, etc. Its head office is Furness House, Leadenhall Street, London, E.C.

FURNESS ABBEY. Picturesque ruins, 1 m. S. of Dalton, Lancashire. On the banks of a stream, in a wooded valley, close to a station on the L.M.S. Rly., they include part of the Transitional Norman nave, Early English chapter house, Decorated transepts, and Perpendicular belfry and presbytery.

The abbey, dedicated to S. Mary, was founded in 1127 by Benedictines from Normandy, and became Cistercian in 1148. In 1920 it was presented to the nation by Lord R. Cavendish, and restoration work was undertaken.

FURNISS, HARRY (1854-1925). British caricaturist. Born at Wexford,

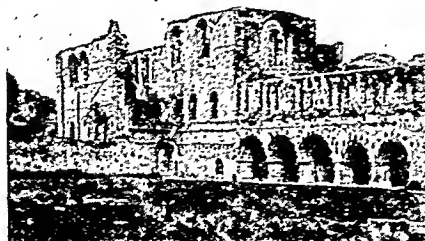
of Anglo-Scottish parents, he came to London in 1878. He joined the staff of Punch in 1880 as illustrator of the *Essence of Parliament*. In 1894 he started his own weekly, *Lika Joko*. He illustrated the works of Dickens, 1910, and Thackeray, 1911, and also wrote many books, including *Confessions of a Caricaturist*, 1901; *Harry Furniss at Home*, 1903; *Poverty Bay*, a novel, 1905; *How to Draw in Pen and Ink*, 1905. He died Jan. 14, 1925.

FURNITURE. The earliest known records of domestic furniture are found in Egyptian bas-reliefs dating from 4000 B.C., where beds, tables, chairs, and stools are all represented. Very little furniture was used by the ancients, but it was often elaborately decorated. Chairs and thrones appear to have been fabricated of metal, ebony and other rare woods inlaid with ivory. The furniture of Chaldaea and Assyria, also portrayed on the bas-reliefs, is more crude. It is always rectangular, with

metal bosses at the corners, and with heavy fringes. The civilization of Persia was more Oriental, and its furniture included low divans.

Greek vases show that elegant forms of furniture existed in 500 B.C. The Romans surpassed the Greeks in domestic luxury, and after the sack of Corinth in 146 B.C., when paintings, sculptures and works of art arrived for the first time in Rome as part of the spoils, these objects of art were at once reproduced by the Greek craftsmen who flocked to Rome.

Whenever the Romans colonised they introduced a certain amount of furniture, and it is easy to trace its influence on both Saxon and Norman motives. In the time of Alfred the Great beds generally consisted of a sack filled with straw laid on a chest or on boards. About 1200 they began to assume a balustered form. Posts to beds were invented in the 16th century. The earliest form of English chair was of turned oak, but every variety was scarce until the 17th century. Fixed uphol-



Furness Abbey. Ruins of the 12th century buildings of a former wealthy and powerful Cistercian abbey
Valentine

stery did not exist in Great Britain until about 1600. Round and trestle tables were in use from Saxon times until the 16th century, when the oak "joyned" table, composed of a long top resting on a frame, made its appear-

ance. Other important pieces of furniture in oak were cupboards, buffets, and chests.

About 1655 a great change took place in all furniture. Walnut was much used, and a twist was introduced into the uprights on tables and the tall backed chairs. Soft wood furniture, elaborately carved and gilt, came to England from Italy and France, leading to the introduction and development of the cabriole leg. By 1720 this was firmly established lending itself well to the new hard wood, mahogany, and introduced particularly on chairs, the backs of which had become low, with hooped backs and with the flat splats which first brought fame to Thomas Chippendale. This master and his school produced every possible form of mahogany furniture, and later Chippendale allied himself with Robert Adam (q.v.) and produced pieces of inlaid satin wood and mahogany furniture of very light and elegant design. Hepplewhite and Sheraton continued along these delicate lines, adding painting to their decorations. Towards the end of the 18th century a classical style known as Empire arose in France. This, represented in England without any of its original charm, drifted into the heavy mahogany and gilt pieces of George IV. See Buhl; Bureau; Chair; Chest; Chippendale; Hepplewhite; Sheraton; Table, etc.

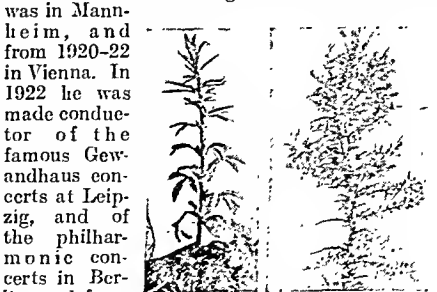
FURSE, DAME KATHARINE (b. 1875).

British organizer. She was born at Bristol, Nov. 23, 1875, the daughter of John Addington Symonds, and educated privately; she married C. W. Furse, the painter, in 1900. On the outbreak of the Great War she became associated with the Voluntary Aid Detachment and went to France to organize the work there. In 1915 she became commandant-in-chief of the force, and in 1917 director of the Women's Royal Naval Air Service. She was created G.B.E. in 1917.



Dame Katherine Furse, British organizer Elliott & Fry

FURTWÄNGLER, WILHELM (b. 1886). German musician. Born in Berlin, Jan. 25, 1886, he was the son of Adolf Furtwängler, a noted archaeologist. He received his musical education in Munich, and between 1911 and 1915 was conductor at Breslau, Zurich, Munich, and Strasbourg. From 1915-19 he was in Mannheim, and from 1920-22 in Vienna. In 1922 he was made conductor of the famous Gewandhaus concerts at Leipzig, and of the philharmonic concerts in Berlin, and from 1927-30 of the philharmonic concerts in Vienna. He has also conducted in New York and London.



Furze. Left, seedling of *Ulex europaeus*; right, dwarf furze, *U. minor*

FURZE or **GORSE** (*Ulex europaeus*). Shrub of the order Leguminosae. It is a native of Europe, the Canaries, and Azores. It varies in height from 2 ft. to 8 ft., and is densely covered with sharp evergreen spines. The bright yellow, scented flowers are borne on the larger spines, which are twigs. The dwarf furze (*U. minor*), smaller in all its parts, is native only in Belgium, France, and Britain.

FUSAN. Seaport of Korea or Chosen, belonging to Japan. At the S.E. extremity of the Korean peninsula, on Broughton Strait,

7 m. from the mouth of the Nak tong, it is the S. terminus of the rly. from Seoul. A treaty port, it was opened to foreign commerce in 1883. Steamers ply to and from Nagasaki, Port Arthur, Vladivostok, Shanghai, and other ports, and the town has cable communication with Nagasaki. There is trade in cotton fabrics and raw silk, as well as in herring and other fisheries. In 1917 the Korean rly. system was put under the control of the S. Manchurian Rly. It extends from Fusan to Changchun, a junction for the route to Leningrad via Harbin. Pop. 78,161.

FUSE (Dim. of fusee, from Fr. fusil, a gun) Means employed to ignite a detonator (q.v.). When a charge of explosive is to be fired instantaneously the fuse is made of quick-match. When a delay is needed to enable the firing party to get to a safe distance a safety fuse of fine gunpowder is used. For blasting purposes an electric fuse is sometimes used. In this, when an electric current is switched on, a thin wire is heated by its passage and ignites the detonator. In the case of shells, a fuse forms part of the projectile, and acts at the instant the shell grazes the target (percussion fuse), or it can be "set" to cause explosion of the shell during flight (time fuse). See Explosivo; Shell; Shrapnel.

ELECTRIC FUSE. This is a safety device forming part of an electrical circuit. Fuses are designed to carry the ordinary amount of current in a particular circuit, and to melt and break the circuit automatically should the current become so great as to heat the other parts of the circuit beyond the limit of safety. The material used is generally an alloy of tin and lead, with a low melting point. A fine copper wire is sometimes used. The fuse is usually fixed between brass clamps on a small slab of porcelain, or it may be enclosed bodily in a porcelain tube or case, while the space about it is packed with some non-conducting material which will effectually prevent the passage of a spark or the formation of an arc when the fuse "blows."

FUSEL OIL OR AMYLIC ALCOHOL. Volatile liquid present in the products of the alcoholic fermentation of saccharine liquids, especially those derived from potato starch. It is a complex liquid and varies according to the source of the alcohol, and the proportion obtained is influenced by the activity of the particular bacteria which form amylac alcohol. Its presence in potable spirits is undesirable. Fusel oil is used in connexion with the manufacture of rubber by synthetic methods.

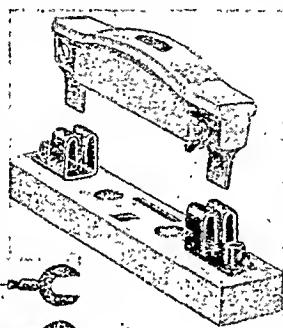
FUSIBILITY. Property by virtue of which matter may be melted or rendered fluid if heated to a sufficiently high temperature under suitable conditions. Metals melt at very different temperatures, ranging all the way from -39°C , the melting point of solid mercury, to $1,740^{\circ}\text{C}$, the approximate temperature at which platinum melts. The melting is always accompanied by the absorption of heat which becomes "latent" and a change of volume.

FUSIBLE METALS. These are metal alloys which melt at comparatively low temperatures. An alloy composed of 15 parts bismuth, 8 lead, 4 tin, and 3 cadmium, known as Wood's metal, will melt at 155°F . By varying the proportions of the constituents, alloys can be made which will melt at from 202°F . to 380°F . Some have an important use in the manufac-

ture of fusible plugs. These plugs, being inserted in the furnace plates of a steam boiler, will melt if the plate becomes dangerously overheated, and, by permitting the steam to escape, may prevent a serious accident.

FUSILIER. Formerly the designation of special bodies of troops equipped with a fusil or light flintlock musket at a time when the matchlock was the standard firearm. It is now only the distinctive regimental name of certain corps of infantry who are armed exactly the same as infantry of the line.

The senior fusilier regiment of the British Army is the Royal Fusiliers (City of London Regiment), formed in 1685. The Scots Fusilier Guards relinquished the title fusiliers in 1877, and became the Scots Guards. Other British regiments of fusiliers are the Northumberland, Lancashire, Royal Scots, and Royal Welch. The distinctive uniform of British fusilier regiments is the bearskin cap.



F U S T,

JOHANN (d. 1466). German printer. He was a wealthy goldsmith of Mainz and financed Gutenberg's business there. He foreclosed on a mortgage and carried on the business with Peter Schoe-

ffer, Gutenberg's son-in-law, one of the masterpieces of this partnership being a Latin Psalter, 1457, the initial letters in which were printed in red and blue.

FUTURISM. Name given to an art movement which originated at Turin in Italy in March, 1910. It owed its inception mainly to F. T. Marinetti, the Italian poet. The adherents of the movement endeavoured to introduce into the art of painting a "poetry of motion," whereby, for example, the painted gesture should cease to be a fixed momentary thing and become actually "a dynamic condition." This aim was further complicated by the Futurists' effort to indicate, in the painting of a scene, not only the state of mind of the painter, but also that of the person or persons who are depicted in the picture.

The original Futurists included Marinetti and the Italian painters Boccioni, Carrà, Russolo, Balla, and Severini. The first exhibition of Italian Futurist painting was held in 1911 in Paris, whence it was transferred to London in March, 1912.

FYFE, HAMILTON (b. 1869). British journalist and author. After varied service on The Times, he edited The Morning Advertiser 1902-3, and The Daily Mirror, 1903-5. From 1905 until 1919 he was special correspondent of The Daily Mail, which he represented, during the Great War, in France, Russia, Rumania, Italy, Spain, Portugal, and the U.S.A. He was in charge of British propaganda in Germany, July-Nov., 1918. He has written several plays and novels, including The Widow's Cruise, 1920. He was editor of The Daily Herald, 1922-26.

Fylde. Name given to the flat district in Lancashire between the estuaries of the Wyre and the Ribble.

FYNE. -Sea loch of Argyllshire. It extends S.W. and S. for 40 m. from above Inveraray to its mouth at the Sound of Bute with a breadth of from 1 m. to 5 m.

G. Seventh letter of the English and Latin alphabets. In English it has two sounds, the one hard, as in gate, the other soft, as in gender. Before n, as in gnat, it is mute, as also in brought and bough. Often it has the sound of f, as in rough, enough. See Alphabet; Phonetics.

In music G is the fifth note of the major scale of C. It is a perfect fifth above C, and is known as the dominant of the key C.

GABA TEPE. Hill in Gallipoli (q.v.). As part of the Allied operations to open the Dardanelles, the Australian and New Zealand Army Corps, under Birdwood, sailed from Mudros, April 24, 1915. Reaching the Gallipoli coast early next morning, they landed on the beach, afterwards called Anzac, about 2 m. N. of Gaba Tepe, and took up a line extending for a mile N. of Gaba Tepe to high ground over Fisherman's Hut. The Turks, strongly reinforced, struck at this line for four hours, but were repulsed with great loss by the Anzacs. During the nights of the 25th and 26th the Turks delivered repeated assaults, but the Anzac line held firm.

GABERDINE (Span. gabardina, smock, coarse frock). Loose garment, usually of rough, dark material, reaching to the ankles and girt with a cord. It was worn in the Middle Ages by pilgrims and mendicants, in which connexion the Scots word gaberlunzie, a beggar, is noteworthy, and came to be identified chiefly with the Jews, who were flowing robes of this type.



Gaberdine, as worn by Jews

GABÈS. Port of Tunisia. On the Gulf of Gabès, or Gabès, it is 205 m. by rly. S. of Tunis. W. of Gabès are salt lakes or shats. Pop. about 15,119.

The Gulf of Gabès extends between the Kerkenna Islands on the N., the Circinae Islands, and Jerba (Djerba) Island on the S. The latter contains the ruins of El-Kantara. Sponge-fishing is carried on. The chief towns are Sfax and Gabès.

GABLE (old Fr. fork). - Pointed or nearly pointed termination of a roof in the Gothic style. In classical architecture the gable is known as a pediment. The simplest form of gable is the triangular. Recent building has seen a marked revival of the



Gable. Example from an old house in Salisbury, c. 1360

gable for small houses. See Barge-board.

GABORIAU, ÉMILE (1833-73). French novelist. He was born at Sanjon, Nov. 9, 1833. A master of detective fiction, his story L'Affaire Lerouge, 1866, brought him instant fame. This was followed by Le Dossier No. 113, 1867; Le Crime d'Orcaival, 1867; and other novels of the same type. He died Sept. 28, 1873.

Gabriel (Heb. man of God). Name in Biblical and post-Biblical literature of one of the seven archangels. See Angel.

GABUN, GABON, OR GABOON. Colony in French Equatorial Africa. It lies to the S. of Cameroons, and is bounded W. by the Atlantic Ocean, E. by the French Middle Congo colony (Moyen Congo), and S. by the Belgian Congo

Its area is 104,320 sq. m. The colony contains vast forests and the products include rubber, palm kernels, and cocoa. The climate is unhealthy in the coastal regions, sleeping sickness prevailing, but comparatively healthy in the elevated interior. Pop. 388,899.

GAD. Seventh son of Jacob, by Zilpah the handmaid of his wife Leah (Gen. 30, 10, 11).

Gad is also the name of a prophet who acted as a counsellor to David (2 Sam. 24, 11; 2 Chron. 29, 25), and wrote a history of his reign (1 Chron. 29, 29).

GADARA. Ancient town of Palestine. It stands on the E. side of the Jordan, 6 m. S.E. of the Lake of Tiberias. Founded by Greeks, it is mentioned in Mark 5, 1, in connexion with the Gadarene swine. Extensive ruins include remains of two theatres and a colonnade.

GAD FLY (*Tabanus bovinus*). Two-winged fly nearly an inch in length, exceedingly troublesome to cattle and horses in summer time. Its larvae live in the soil.

GADOLINITE. One of the rare earths, the first to be discovered. Investigated by J. Gadolin, the Swedish chemist, in 1794, it was shown later to contain yttrium and other rare substances. It is a greenish black mineral and is chiefly found in Texas, Ytterby in Sweden, and Risör and Hitterö in Norway.

GADOLINIUM. Rare-earth element of which the oxide, associated with terbium, was discovered by Marignac in 1880. These two rare elements are found in gadolinite, samarskite, and orthite. The symbol for gadolinium is Gd; its atomic weight is 157.3, and its atomic number 64.

GAD'S HILL. Village of Kent, associated with Charles Dickens. It is 2 m. from Rochester on the road to Gravesend. The home of the novelist was Gad's Hill Place. Shakespeare (1 Henry IV) makes Falstaff meet the men in buckram in the road by Gad's Hill.

GAEA or **GE.** In Greek mythology, the earth goddess. The daughter of Chaos, she was the mother of Uranus (Heaven), and Pontus (Sea), and by the former of the Titans. She represented the productive power of earth. Her Roman counterpart was Tellus.

GAEKWAR. Title borne by the ruler of Baroda (q.v.). It is the family name of the house that has governed this state since the early part of the 18th century. The word is derived from a native word meaning a cow.

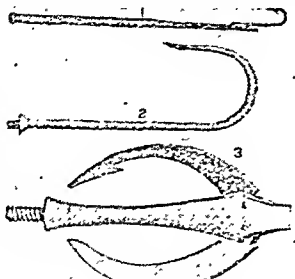
GAELIC. The language of the Gaelic branch of the Celtic race, which in Greek and Roman times occupied the middle of Europe. Though Irish, Manx, and Scottish Gaelic are all derived from the ancient Gaelic, the original name is now almost restricted to the Gaelic spoken in the Scottish Highlands.

The beginnings of Gaelic literature date back to the 5th century A.D. The great 11th century MSS., *Leabhar na h'Uidhre*, is the oldest exclusively Gaelic MS. in existence. At the dawn of letters among the Gael, S. Patrick figures as the author of two letters in Latin, the *Epistola ad Coroticum*: and a *lorica*, or hymn, in Gaelic, popularly known as S. Patrick's Breastplate. After him S. Columba and his followers inaugurated a period of great literary activity. They wrote in Latin and Gaelic, using the Roman script and the Roman alphabet, and made Latin copies of books of the Bible, some of them beautifully illuminated. They also wrote hymns and lyrical poems having nature for their theme. The

19th century produced a succession of gifted bards, e.g. MacLachlan and Maccoll.

Gaelic poetry is in the main lyrical. There are no epic poems except Macpherson's *Ossian*. The best prose is represented in the Gaelic Bible, Caraidnan Gaidheal, and Nicolson's *Proverbs*. See *Celt*; *Erse*.

GAFF. Stick armed with an iron hook for landing large fish, especially salmon. The use of the gaff is prohibited in the Tweed after the close of the net fishing and in the Helmsdale while kelts are in the water.



Gaff: angling implement. 1. With handle. 2. For trout. 3. Folding gaff. By courtesy of S. Alcock & Co.

In nautical phraseology a gaff is a spar which stretches out the upper end of a sail. Gaff topsails are sails set above the mainsail.

GAINSBOROUGH. Urban dist., market town, and river port of Lincolnshire. It stands on the Trent, 18 m. N.W. of Lincoln and is served by the L.N.E.R. The industries include the manufacture of linseed oil. The Old Hall dates from the 15th cent. It gives its name to a co. div. returning one member to Parliament. Four fairs are held annually: Market days, Tues. and Sat. Pop. 19,694.

GAINSBOROUGH, THOMAS (1727-88). English painter. Born at Sudbury, in Suffolk, in May, 1727, he studied art in London. In 1745 he married and lived for a time in Ipswich. In 1750 he moved to Bath, where his portraits attracted much attention. In 1774 he settled in London, and there his reputation reached its height. His studio was crowded with sitters, who were not deterred by the high prices he charged. He was an original member of the Royal Academy, at which he exhibited regularly until 1783, when he quarrelled with the council. He died in London, Aug. 2, 1788, and was buried at Kew.



T. Gainsborough, English painter

Of Gainsborough's wonderful paintings, more than 200 were portraits. He also practised the art of etching, and produced a few plates in aquatint. Some of his finest pictures are in the National Gallery, Dulwich Gallery, Windsor Castle, Buckingham Palace, National Gallery at Edinburgh, the Wallace Collection, and in private collections. He stands in the front rank of English portrait and landscape painters. For exquisite beauty and vibrant quality his portraits have never been surpassed. His *Blue Boy* was purchased in 1921 by Henry Huntington of New York for, it was stated, £150,000. In 1928 his *The Harvest Wagon* was bought for £72,000 by Sir Joseph Duveen. In Oct., 1927, a memorial exhibition of his paintings was held in Ipswich. See *Art*; also *illus.* p. 393.

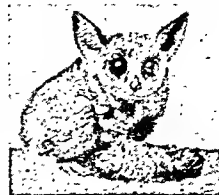
GAIRLOCH. Sea loch of Scotland. On the W. coast of Ross and Cromarty, it is 6 m. long and $3\frac{1}{2}$ m. broad at the entrance. The name is also borne by a village at the head of the loch, which has a pier and golf links. Pop., parish, 2,781.

GAITERS (Fr. *guêtre*). Covering of cloth for the leg, buttoning from knee to ankle, and usually extending to the instep. Spatter-dashes, or spats, both forms of gaiters, are part of the uniform of Highland regiments.

GAIUS (2nd century A.D.). Roman jurist. He lived during the period from Hadrian to Marcus Aurelius. Fragments of his Institu-

tiones are preserved in Justinian's *Digest* and other works. See *Roman Law*.

GALAGO. Group of small, long-tailed, lemuroid animals, found in most parts of tropical Africa. The largest of them is about the size of a domestic cat, while the smallest is only five inches long. They are nocturnal in habit, and feed mainly on fruits, insects, and small birds. They are distinguished from the true lemurs by their large ears.



Galago. Specimen of the Maholi galago

GALAHAD. Knight of Arthur's Round Table, who achieved the vision of the Holy Grail. Son of Lancelot and Elaine, daughter of King Pelles, he was brought up by nuns, and received knighthood at Arthur's hand.

GALÁPAGOS OR **TORTOISE ISLANDS.** Group of volcanic islands in the Pacific Ocean, 695 m. W. of Ecuador, to which they belong. Officially renamed the Colon Archipelago in 1892, the chief are Albemarle, Indefatigable, Chatham, James, Hood, Narborough, Barrington, Charles, and Abingdon. Total area 2,868 sq. m. The islands possess a richly endemic flora and an interesting fauna. Sulphur exists in quantities. On Charles Island is a penal settlement. Pop. 500.

GALASHIELS. Burgh of Selkirkshire. It is 33½ m. S. by E. of Edinburgh, on the L.N.E.R. The chief seat of the Scottish woollen industry, Galashiels has also tanneries and dyeworks. Market day, Tues. Pop. 14,000.

GALATEA. In Greek mythology, a sea nymph, one of the daughters of Nereus. She loved the Sielian youth Acis (q.v.), who was slain by the jealous Cyclops Polyphemus. The name has also been given to a statue endowed with life by Venus at the prayer of Pygmalion.

GALATIA. Territory in Asia Minor, comprising part of Phrygia and part of Cappadocia. Its inhabitants were an offshoot from the host of Gauls who overran Asia Minor until checked by Attalus I, king of Pergamum (241-197 B.C.), who compelled them to settle within the country later known as Galatia. Under Augustus, Galatia became a Roman province.

GALATIANS, EPISTLE TO THE. One of the four principal Epistles written by S. Paul. Like the Epistle to the Romans, it contains the main points of the Apostle's teaching, together with autobiographical matter, which supplements the biographical statements in the Acts. If, as Sir W. Ramsay suggests, the Epistle was addressed to the Church in South Galatia, the Epistle may be supposed to have been written from the Syrian Antioch about A.D. 53. See *Paul*, *Saint*.

GALA WATER. River of Scotland. It rises among the Moorfoot Hills, and flows through Selkirkshire and Roxburghshire to join the Tweed 1 m. below Galashiels. Its length is 21 m.

GALBA, SERVIUS SULPICIUS (3 B.C.-A.D. 69). Roman emperor. After holding several provincial governorships with credit, he was proclaimed emperor in June, 68, but his reign lasted only till the following December, his harshness and parsimony making him extremely unpopular. He was murdered by the soldiery.



Servius Galba, Roman emperor. Front a bust

GALBANUM. Gum resin used in medicine for chronic catarrh and rheumatism. Believed to be a resin from an umbelliferous

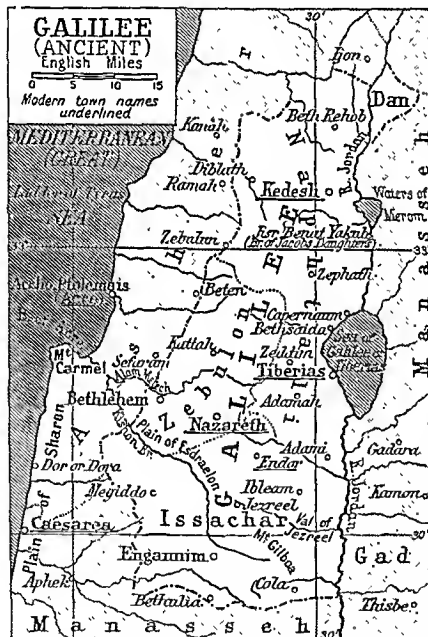
plant, *Ferula galbaniflua*, found in Persia, it occurs in large masses, yellow in colour, and possessing an odour of balsam

GALEN OR **CLAUDIUS GALENUS** (c. A.D. 130-200). Greek physician. Born at Pergamum, Asia Minor, he was intimate with Marcus Aurelius, and author of some 500 treatises on medical and philosophical subjects. Of these 83 are extant. As a physician he ranks second only to Hippocrates; he was great as a practical anatomist, but as a physiologist orred on the side of theory. He coordinated all the medical knowledge of his time



Claudius Galen,
Greek physician
From a bust in the Coll.
of Physicians, London

GALENA OR **LEAD GLANCE**. The most important ore of lead and the source of most of the lead of the world. Widely distributed in granite, limestone, argillaceous, and sandstone rocks, it is often associated with ores of zinc, silver, and copper. When pure it contains 86.55 p.c. of lead and 13.45 of sulphur, and is a sulphide of lead. It usually contains silver. It is used in crystal detectors. See Lead: Silver



Galilee. Map of the province as in New Testament times

GALERIUS, VALERIUS MAXIMIANUS (d. 311). Roman emperor A.D. 305-311, also known as Maximianus II. At the quadripartite division of the empire by Diocletian in 293, Galerius became one of the Caesars or junior rulers, and on the abdication of Diocletian in 305 he became senior emperor.

GALGACUS. Caledonian chief. He commanded the native tribes when Caledonia was invaded by the Romans under Agricola (q.v.), and after a determined resistance was defeated about A.D. 85 at the battle of Mons Graupius, probably the modern Grampians.

GALICIA. District of Europe. Before 1919 it was a province of Austria, but now most of it is within the republic of Poland. Galicia extends for rather more than 300 m. along the N. W. of the Carpathian Mts., from the common lead, 4 ft. of Poland and Czechoslovakia in the metal. will in Tsin (Tesechen) to the front proportions of the Dniester and the whole area is a natural lead mine. The whole area is a natural lead mine. Some have an importance have been worked for

centuries. Drohobycz is the chief centre of the famous oil district. There are important textile manufactures; coal, timber, spelter, and agricultural produce are exported.

Northwards drains the Bug, one of the chief tributaries of the Vistula, southwards the Dniester and its main affluent, the Sereth, and the Pruth drain to the Black Sea. The inhabitants in the W. are Roman Catholic Poles, and in the E. Greek Orthodox Ruthenes or Little Russians. In the towns there are many Jews. Galicia was the scene of heavy fighting between Russians and Austro-Germans in 1916.

Galicia is also the name of a former kingdom and prov. of N.W. Spain.

GALILEE. Prov. of N. Palestine. After the Captivity it was ceded by the Assyrians to the Israelites. It contains Nazareth. Tiberias was its chief city. Once a fertile and populous district, it is now little better than a wilderness.

The Sea of Galilee, also called the Lake of Tiberias and Lake of Gennesareth, is formed by an expansion of the Jordan. About 13 m. long by 8 m. broad, it is subject to sudden and violent storms. On its shores stood Tiberias and Capernaum.

GALILEE CHAPEL. In ecclesiastical architecture this is the name applied to a chapel at the west end of Durham Cathedral, and also to large porches such as those to be seen in Ely and Lincoln cathedrals. See Ely.

GALILEI, GALILEO (1564-1642). Italian astronomer. Born at Pisa, Feb. 15, 1564, he was the son of a Florentine nobleman. In 1592 he went as professor of mathematics to Padua. A report from Flanders in 1609 of the invention, by Hans Lippershey, of a glass which made remote objects appear near, led to his constructing a telescope, and its first application to astronomical observation. He made a thermometer and the first pendulum.



Galileo Galilei,
Italian astronomer
From a picture in
Trin. Coll., Camb

Specially notable was his discovery of the satellites of Jupiter, confirming the planetary theory of Copernicus (q.v.). Later, as mathematician to the duke of Tuscany in Florence, he observed sun spots and the formation of Saturn. In 1632 appeared his great work, *The Dialogue of Two Systems of the World*, and the Holy Office obliged him to recant the doctrine that the earth moved round the sun. Becoming blind in 1637, he died on Jan. 8, 1642, and was buried in the church of Santa Croce in Florence. See Astronomy.

GALL. Word used in different senses according to its etymology. (1) The fluid secreted from the liver, more generally known as bile (Gr. *chole*, Lat. *fel*). The phrase gall and wormwood is used to express anything specially painful or unpleasant. (2) The gall-nut or oak-apple (Lat. *galla*), a swelling on the oak tree resulting from the attacks of certain parasitic insects. From this probably comes the meaning of a soft tumour or sore on a horse's back, the result of rubbing, the verb to gall being used in the sense of to chafe. See Gall Fly.

GALL STONES. Also called biliary calculi, these are masses consisting of cholesterol and bile pigments formed in the gall bladder, and less frequently in the substance of the liver. In the gall bladder the number of calculi may vary from a single stone, perhaps measuring as much as four inches across, to many hundreds of small stones; those formed in the liver are usually small grains. The essential cause of gall-stones appears to be catarrhal inflammation of the mucous membrane of the gall bladder,

which is probably set up by micro-organisms. In a considerable number of cases the condition has followed enteric fever. Sedentary occupation, over-eating, and constipation are predisposing factors. Severe cases may demand surgical treatment.



Galilee, looking across the sea towards Tiberias

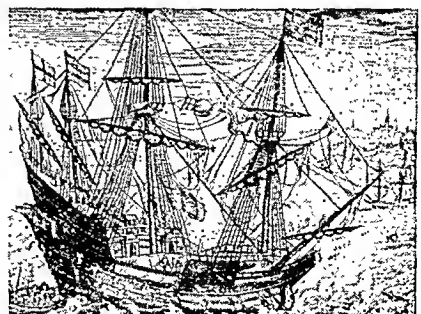
GALLA OX OR **SANGA**. Domesticated breed of humped cattle, found only in Abyssinia and the surrounding country. It is remarkable for its massive horns.

GALLE OR **POINT DE GALLE**. Seaport of Ceylon, on the S.W. coast of the island. Its harbour has deep water close to the land, but lacks adequate shelter. Pop. 39,073

GALLEON (Span. *galeón*). Spanish ship of the 15th-17th centuries. Sometimes with three or four gun decks, it was used both for war and in the Indies trade. The name is sometimes used loosely of any large ship.

GALLERY (Fr. *galerie*). Upper floor extending over a part of the room below it. In secular architecture the use of a gallery may be traced, in Great Britain, to the Norman keep (q.v.), the hall of which was often surrounded by a gallery lighted by an upper tier of windows. As a domestic feature the gallery did not attain importance till the Elizabethan Long Gallery was introduced.

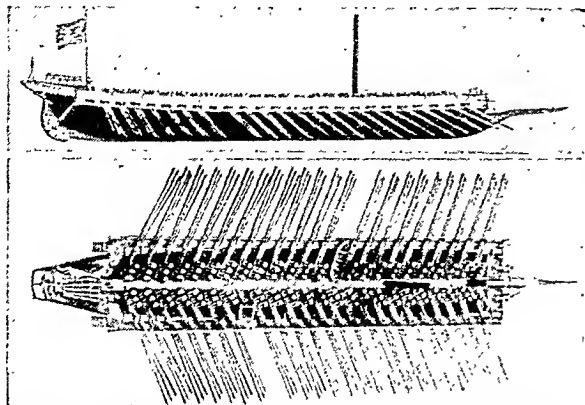
When it became the fashion to collect family portraits and other works of art, the gallery was selected for their accommodation; hence the application of the term to a museum of art treasures. The minstrels' gallery is a well-known feature of the hall of the fortified manor house. Church interiors, in the Middle Ages, were often fitted with galleries. The word gallery is also used to describe a level or drive in a mine.



Galleon such as formed part of the Spanish Armada
From an old print

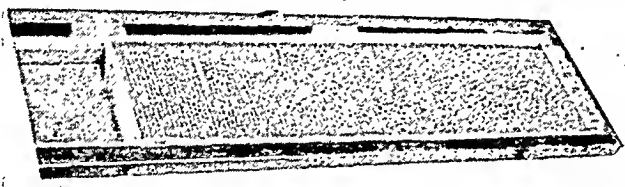
GALLEY (late Lat. *galca*). Six-oared boat in a warship, used by the captain. It is the largest single-banked (i.e. not having two oars abreast) boat in the ship. An admiral's boat is called a barge. Large galleys were the earliest form of fighting ship. The last great battle between galleys was that of Lepanto (1571). In modern vessels the place where cooking is done is called the galley. See Boat.

In printing, a galley is a flat tray of metal or wood used for holding type after it has been set. It is oblong or quarto in size, with flanges on each side and at one end. See Printing.



Galley. Medieval Venetian trireme; the rowers sat in groups of three, the oars of each group passing through the same rowlock-port. From *l'incat*, 'Le Trireme'.

GALL FLY. Group of hymenopterous (membrane-winged) insects, nearly related to the wasps, and more correctly called gall wasps. They are all small, black or brown in colour, and the insect in its larval stage is usually parasitic on plants. The galls found on the stems and leaves of trees are caused by the attacks of these insects; though certain beetles, flies, and aphides are also responsible for causing them.



Galley of type as set up before making up into pages

GALLIC ACID ($\text{H}_2\text{C}_2\text{H}_2\text{O}_5 \cdot \text{H}_2\text{O}$). Substance with an astringent taste. It occurs naturally in small quantities in galls, sumach, and divi divi. Prepared in two ways, gallic acid is used in medicine as an astringent, and in photography on account of its power of reducing gold and silver salts.



Gall Fly. Galls formed on oak by *Cynips kollari*

GALLI-CURCI, AMELITA (b. 1889). Italian singer. Born in Milan, Nov. 18, 1889, she made her first public appearance in Rome in 1909 as Gilda in *Rigoletto*. She has appeared in Chicago, New York, and in London, and is a coloratura soprano and an accomplished pianist.

GALLIÉNI, JOSEPH SIMON (1849-1916). French soldier. Born at S. Bât, Haute Garonne, April 24, 1849, he entered the French army in 1870 and was governor of Madagascar from 1896-1905, organizing the island as a French colony. During the Great War he was military governor of Paris, and his plans helped to decide the victory of the Marne, Sept., 1914. In Oct., 1915, he was minister of war in the cabinet of M. Briand, but, compelled to resign by ill-health in March, 1916, he died on May 27. He was posthumously created a marshal in 1921.



Joseph S. Gallieni, French soldier

ment from 253 onwards, and succeeded him. During his reign hordes of Goths penetrated the N.E. frontier, while plague reduced the empire's population. Usurpers arose in all parts, and while dealing with one of these, named Aureolus, Gallienus was murdered by his own soldiery in 268.

GALLIO. Proconsul of Achaia in the middle of the 1st century A.D. He was a brother of the stoic philosopher, Seneca. Paul was brought before him at Corinth. He typified Roman impartiality towards the controversies around him, as implied by the phrase "he cared for none of these things" (Acts 18, 17).

GALLIOT (late Lat. galeota, small galley). Type of Dutch trader somewhat akin to the British barge, now almost obsolete. The galliot is a long, narrow, two-masted craft of about 100 tons burden. She carries a mainmast

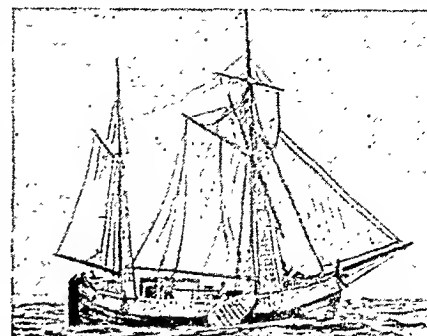
and a mizzen, but the sail on the latter is of small area and used principally to assist in steering the vessel. See Barge.

GALLIOPOLI. Peninsula of Europe. It is 52 m. in length from the isthmus of Bulair in the N. to Cape Helles (Helles Burnu) in the S. and varies in width from 2 m. to 12 m. The E. shore is of enormous strategical importance. The peninsula is covered with rocky ridges and hills, some of which rise nearly 1,000 ft. The coast has only two good openings, Suvla Bay on the W. and Morto Bay on the S. From the town of Gallipoli there is a poorly paved road S. to Maidos. The other roads of the peninsula are mere tracks.

The population is sparse, and apart from the town of Gallipoli there are only some small and squalid villages. The most important place is Kilit Bahr, at the foot of the Pasha Dag, 700 ft. high. Mohammed II, who took Constantinople in 1453, founded it, and it came to be termed the castle of Europe, just as Chanak opposite it was called the castle of Asia. In the 17th century the Turks constructed fortifications at Sedd-el-Bahr, at the S. end, and at Kum Kale, at the entrance to the Dardanelles from the Aegean. Gallipoli is within the zone of the straits under a commission appointed by the League of Nations.

Gallipoli is the name of a seaport of Greece, formerly belonging to Turkey. Situated at the N.E. end of the Dardanelles, on the peninsula of the same name, it is 130 m. S.W. of Constantinople (Istanbul). There are two good harbours, of which the Allies made full use during the Crimean War. Pop. 7,842.

Gallipoli is also the name of a seaport and city of Italy, in the prov. of Lecce. It stands on the Gulf of Taranto, on an island connected by a bridge with the mainland, 23 m. W. of Otranto. Pop. 12,751.



Galliot, a Dutch sailing vessel

GALLIOLI, CAMPAIGN IN. Campaign of the Great War undertaken by the Allies to relieve the pressure on the Russian army in the Caucasus. It lasted from Feb. 19, 1915, till Jan. 9, 1916. A naval attack on the Turkish forts commanding the Dardanelles (Feb. 19-March 18) having resulted in heavy losses, an attempt was made to open the straits by the capture of Gallipoli, with Constantinople as the ultimate objective. On March 12 Sir Ian Hamilton was appointed to command the allied forces.

The landing, which was made on exposed beaches, began on April 25 with a total force of about 90,000 British and French, and by the evening of the 27th the British had established themselves on a line about 3 m. long from N.E. of Tekke Burnu to Eski Hissarlik Point. They found themselves short of artillery and ammunition, still shorter of water, and confronted by a superior Turkish force well entrenched and with ample supplies. The utmost heroism was displayed by the attacking force, which included, in addition to Australian and New Zealand troops, the 2nd S. Wales Borderers, the K.O.S.B., Plymouth (Marine) battalion R.N.R., 2nd R. Fusiliers, Lancashire Fusiliers, Dublin Fusiliers, Munster Fusiliers, Hampshire, West Riding Field Company, and various other units.

Reinforcements were sent out, but by the second week of October the Allied force had fallen to 50,000 fit men. Sir Ian Hamilton was replaced by Sir C. C. Monro, and in Nov. the British

Government decided to evacuate the peninsula. This was carried out by Jan 8-9, 1916, without any casualties.

In the campaign 468,987 men were employed by the British, with losses of 33,522 killed, 7,636 missing, and 78,420 wounded. The French force employed was probably over 80,000, with proportionate casualties.

On Nov. 8, 1918, under the conditions of the armistice with Turkey, the Gallipoli forts and peninsula were occupied by British troops, and four days later Constantinople was reached. See Dardanelles; Hamilton, Sir Ian; Krithia.

GALLIUM. Metal belonging to the zinc group. It was discovered in 1875 by Lecoq de Boisbaudran, in samples of zinc blende obtained in the Pyrenees. Its chemical symbol is Ga; atomic weight, 69.9; atomic number, 31. Its melting point is only 86° F.



Gallipoli. Map showing the scene of the campaign

GALLON. British standard measure of liquid and dry capacity. It was standardised by the Act 5, Geo. IV, c. 74, in 1824, as containing 277.274 cubic ins. The gallon is divided into four quarts or eight pints, and equals 4.54346 litres. Two gallons make one peck. The gallon in the U.S.A. and Canada is 231 cub. ins.

GALLOWAY. District of S.W. Scotland. Comprising the counties of Kirkcudbright and Wigtown, it is noted for a breed of horses and hornless cattle. The Mull of Galloway is a promontory, the extreme S. point of Scotland. On it is a lighthouse.



Gallows. Wayside gibbet once used for malefactors

The crimina was slowly strangled. See Execution; Gibbet; Tyburn.

GALLUS, TREBONIANUS. Roman emperor, A.D. 251-253. Governor of Lower Moesia during the campaign of Decius against the Goths, with whom, when he had been proclaimed, he concluded a humiliating peace. In 253 he was defeated and slain at Interamna by the usurper Aemilianus.

Galop (Fr.). Dance popular in England at the end of the 19th century. It is danced to two-four time.

GALSTON. Burgh and market town of Ayrshire. It stands on the Irvine, 5 m. E. by S. of Kilmarnock on the L.M.S. Rly. Market day, Wed. Pop. 4,977.

GALSWORTHY, JOHN (b. 1867). British novelist and dramatist. Born at Coombe, Surrey, he was educated at Harrow and at Oxford. He became a barrister, but passed his time in travel and writing, at first under the name of John Sinjohn. Soon he began to write under his own name, and one after another novels appeared from his pen. These include *The Island Pharisees*, *The Dark Flower*, and *The Freelanders*, but the most notable are the series



John Galsworthy, British novelist, Russell

which deal with the fate of the imaginary family of Forsyte. These, which appeared as *The Man of Property*, *To Let*, *In Chancery*, *The Silver Spoon*, *The White Monkey*, *Swan Song*, and other titles, are concerned with the wealthy classes of England in his own time, and their lives and ideas are described with remarkable fidelity and insight.

Galsworthy is also a dramatist of note. In his plays he turns a searching light on the

social and moral conventions of contemporary society; of the administration of justice in *The Silver Box*, on Capital and Labour in *Strife*, on prison problems in *Justice*, and on changes in English country life in *The Skin Game*. Others include *Loyalties*, *Escape*, and *Exiled*. In 1929 he was given the O.M. Consult John Galsworthy, S. Kay-Smith, 1916.

GALT. Town of Ontario, Canada, in Waterloo co. It stands on the Grand river, 24 m. N.N.W. of Hamilton. It is served by the C.P.R. and C.N.R., and electric rlys. connect it with Hamilton and other adjacent towns. Galt is a manufacturing town, producing iron and cotton goods, electric power being obtained from the Niagara. Pop. 13,216.

GALT, JOHN (1779-1830). Scottish novelist. Born May 2, 1779, at Irvine, Ayrshire, his best known book is *The Annals of the Parish*, 1821. The years 1826-29 he spent in Canada as agent of the Canada Company. Later he brought out *Lawrie Todd*, 1830, and *Boyle Corbet*, 1831, novels of settler life in America, and a *Life of Lord Byron*, 1830. He died April 11, 1839.



John Galt, Scottish novelist

His son, Sir Alexander Tilloch Galt (1817-93) was from 1880-83 high commissioner for Canada in London.

GALTON, SIR FRANCIS (1822-1911). British anthropologist and meteorologist. Born near Birmingham, Feb. 16, 1822, a cousin of Charles Darwin, he formulated the theory of anticyclones and new methods of weather-charting, embodied in *Meteorographica*, 1863. His *Hereditary Genius*, 1869, and *Inquiries Into Human Faculty*, 1883, established the principles of eugenics, in furtherance of which he founded a laboratory, 1904, bequeathing £45,000 for a chair in London. He systematised finger print methods. He was knighted in 1909, and died Jan. 17th, 1911. See *Finger Print*.



Sir Francis Galton, British scientist

GALTONIA. Small genus of bulbous herbs of the natural order Liliaceae. Natives of S. Africa, they have more or less erect strap-shaped leaves, about 30 ins. long. They have also a tall scape (4 ft.) bearing at its summit a loose truss of drooping bells, which in the case of *G. candicans* are pure white.

Galty or GALTÉE. Range of mts. in the Irish Free State. It extends for 15 m. through the counties of Tipperary and Limerick.

GALVANI, LUIGI (1737-98). Italian scientist. Born at Bologna, Italy, Sept. 9, 1737, he became, in 1762, professor of anatomy at Bologna University, resigning, for political reasons, in 1797. By experiment, largely on frogs, he



Luigi Galvani, Italian physiologist

discovered animal electricity, and his investigations are commemorated in certain electrical manifestations and terms, e.g. galvanism and



Galway. Map of the second largest county in the Irish Free State, with Galway Bay and the adjacent islands. See article below

galvanometer. His collected works were published 1841-42. He died Dec. 4, 1798.

GALVANISING. Method of coating iron with zinc. It was devised by Paul Jacques Malouin, the French chemist, in 1742. In galvanising, the zinc coating does not merely lie on the surface of the iron as a sheet of paper might, but actually combines or alloys with the iron. The modern process is in all essentials as proposed by Malouin, the principal departure being the use of sal-ammoniac as a covering to the molten zinc and as a flux, a modification patented by H. W. Crawford in 1837. The process is chiefly applied to the coating of thin sheets of iron or steel intended to be used for roofing and other building purposes, and to wire. See *Zinc*.

Galvanometer. Instrument for detecting the passage of an electric current, or, in its refined form, for measuring small currents.

GALVESTON. City and port of Texas, U.S.A., the co. seat of Galveston co. Situated at the N.E. end of Galveston Island at the entrance to Galveston Bay, it is served by several rlys., is the leading port of the Union for the exportation of cotton, and is a flourishing seaside resort. Galveston has regular steamship communication with Europe, Asia, S. America, and the ports of the U.S.A. Pop. 49,700.

GALWAY. County of the Irish Free State. In the prov. of Connaught, its area is 2,370 sq. m. It has a coastline of about 400 m. on the Atlantic, where are several bays with excellent harbours, and off which are a number of islands. The country is one of the wildest and most beautiful parts of Ireland, especially its western portion. The Shannon flows along

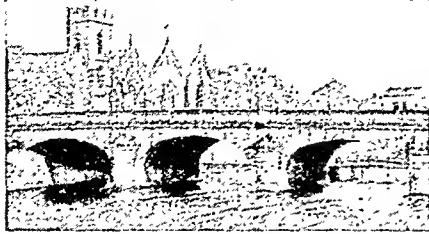


Galtonia leaf and truss of bell-shaped flowers

its borders. Lough Corrib is the most notable lake.

The industries are the rearing of cattle, sheep, and poultry, and fishing. Oats and potatoes are grown, limestone and marble are worked. The co. is served by the Gt. Southern Rlys. There are cathedrals at Tuam and Clonfert. Pop. 169,366. See map above.

GALWAY. Seaport, market town, and co. town of Galway, Irish Free State. It stands on the N. side of Galway Bay (an inlet between co. Galway and co. Clare), at the mouth of the Corrib, and is 130 m. from Dublin on the Gt. Southern Rlys. It has a good harbour, fisheries, and a considerable



Galway. Bridge over river Corrib, dividing the town proper from one of its suburbs

shipping trade; its other industries include flour mills, distilling, and marble polishing. Market days, Wed. and Sat. Pop. 14,227.

Viscount Galway is an Irish title borne since 1727 by the family of Monckton-Arundell. In 1887 George (b. 1844) the 7th viscount was made a peer of the United Kingdom as Baron Monckton. Pron. Gaulway.

GAMALIEL (d. c. 52). Jewish rabbi. The grandson of Hillel, he was a member of the Sanhedrin. S. Paul as a youth attended his school at Jerusalem.

GAMBETTA, LÉON MICHEL (1838-82). French statesman. Born at Cahors, Lot, April 2, 1838, son of a grocer of Genoese origin, he was elected to the Chamber in May, 1869, and became a leader of the uncompromising anti-imperialist party. After Sedan he was one of the proclaimers of the republic, and became minister of war and of the interior, Sept. 4, 1870. He founded the newspaper *La République Française* in Nov., 1871, and was elected president of the chamber in Jan., 1879, and was premier from Nov., 1881, to Jan., 1882. An accidental wound from a pistol brought about his death at his villa at Ville d'Avray, near Sèvres, on Dec. 31, 1882.



Léon Gambetta, French statesman

GAMBIA. River of W. Africa. It rises in Futa-Jallon in French Guinea, and flows for over 500 m. to the Atlantic at Bathurst. At its estuary it is 12 m. broad, and it is navigable for 300 m.

GAMBIA. British colony in W. Africa. It is situated on the lower river Gambia, and includes the colony of St. Mary's Island and the five provinces, North Bank, South Bank, etc., which form a protectorate. The area of the colony proper is 4 sq. m., and that of the protectorate about 4,500 sq. m. The capital is Bathurst, on the island of St. Mary. The pop. (about 200,000) consists of Mandingos, Jolas, Sarahulis, and Fulas, four-fifths being Mahomedans. Ground-nuts, rubber, rice, hides, wax, and palm kernels are exported. See Africa; Bathurst.



1st Baron Gambier, British sailor

After Sir W. Beechen, R.A.

GAMBIER, JAMES GAMBIER, BARON (1756-1833). British sailor. Born at New Providence, Oct. 13, 1756, he went to sea at 11 and fought with distinction under Lord Howe in 1794. In 1805 he became admiral, and in 1807 bombarded Copenhagen and captured the Danish fleet. For this he was raised to

the peerage. Promoted admiral of the fleet in 1830, he died April 19, 1833.

The name **Gambier** is given to a group of seven small coral islands in the Pacific Ocean, belonging to France. The total land area is 6 sq. m. Pop. 500.

GAMBIER, GAMBR, OR PALE CATECHU. Extract prepared from the leaves and young shoots of *Uncaria gambier*, a climbing shrub of the Malay Archipelago. It is used chiefly for tanning, the purer qualities being employed in medicine as an astringent.

GAMBLING. Staking money or other valuable commodity upon the as yet undecided issue of an event, particularly of a sporting event or of a game. See Betting.

GAMBOGE. Gum resin of a rich brownish yellow tint, obtained from *Garcinia Hanburii*, a tree which grows in Siam, near the S.W. coast of Cambodia, whence its name. It is used in medicine as a drastic purgative and in water-colour painting.

GAME. Name given to certain undomesticated animals taken in field sports by coursing or shooting, and to their flesh when used for food. Game includes hares, pheasants, partridges, grouse, heath or moor game, black game, and bustards, and, for some legal purposes, woodcock, snipe, quails, landrails, and rabbits. Gamekeepers are servants employed by landowners to rear and preserve game, prevent poaching, and check the depredations of vermin and birds of prey. A licence is required to shoot or to deal in game.

Game fowl are domestic fowls descended from those used in the cockpits for fighting purposes. See Cockfighting.

Game laws in England are the Acts which deal with poaching and trespassing in pursuit of game; and those which impose restrictions on the killing of game. See Poaching.

GANDHI, MOHANDAS KARAMCHAND (b. 1869). Indian Nationalist leader. Born Oct. 2, 1869, he practised law in Bombay. In 1893 in S. Africa he organized an opposition to anti-Asiatic legislation by passive resistance, which resulted in the Indians' Relief Act. In 1919 he launched a crusade against the British raj by means of non-cooperation and the boycott of British goods, but advocated peaceful methods. Arrested in 1922 on a charge of promoting sedition, he was sentenced, March 18, to six years' imprisonment. In 1924 he was released. In 1930 Gandhi began another campaign against the British rule, leading to serious disorder. In May he was arrested.

GANGES. Most important river of India. It rises in two headstreams—the Bhagirathi and the Alaknanda—on the southern slopes of the Himalayas. From its source to Allahabad, except in the rainy season, it is a series of pools and shoals, with occasional rapids. At Allahabad it receives the waters of its largest tributary, the Jumna. Its course is now through the United Provinces and Bengal to the Bay of Bengal. Its length is 1,537 m.

The Ganges is navigable as far as Garmuttesar, 850 m. from the sea, and is the most sacred river of India. The vast region embraced by its delta is from 80 m. to 220 m. in breadth. The drainage area is estimated at 391,100 sq. m. See Allahabad; Hooghli; India.

Ganges was the name of a naval training ship at Shotley, broken up Feb., 1930.

GANGLION (Gr. tumour under the skin). In physiology, a collection of nerve cells. Instances are the spinal ganglia on the posterior roots of the spinal nerves, and the gasserian ganglion lying deep in the temporal region of the skull.

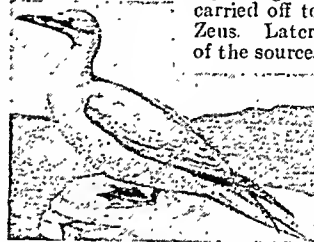
In pathology, a ganglion is a cyst-like swelling which forms in connexion with a tendon sheath or joint, most frequently the tendons at the back of the wrist or the fingers. See Brain; Nervous System

GANGRENE (Gr. gangraina) or MORTIFICATION. Death of a mass of tissue. Clinically, gangrene is divided into two forms: dry gangrene, in which there is little fluid in the tissues and the part becomes dry, hard, shrunken, and black; and moist gangrene, in which the affected part is swollen with fluid and is putrescent.

GANNET or SOLAN GOOSE (*Sula bassana*). Group of large and widely distributed sea fowl. The European gannet, which nests in vast numbers on the Bass Rock, is almost 3 ft. in length and has pure white plumage with the exception of some black feathers on the wings and a slight yellowish buff tinge on the head and neck. Gannets work havoc in the herring and pilchard fisheries.

GANYMEDES or GANYMEDE. In Greek mythology, a Phrygian youth. He was carried off to heaven to be the cup-bearer of Zeus. Later, he was identified with the spirit of the sources of the river Nile.

GAPES. Common disease in poultry affecting young chickens, in which it produces a heavy mortality. It is due to the presence of a worm, which is found sometimes in great numbers in the wind-pipe. See Poultry



Gannet or Solan Goose, *Sula bassana*

GAPON, GEORGE (c. 1870-1906). Russian labour leader. Becoming a priest at St. Petersburg (Leningrad), he founded an organization for factory workers, and in 1904 organized a general strike at the Putiloff works. Escaping the massacre at Narva Bridge (Jan. 22), he fled the country, and visited Paris and London. On April 14, 1906, he was found dead at St. Petersburg, having been assassinated as a traitor by the revolutionaries.

GARCIA, MANUEL DEL PÓPOLO VICENTE (1775-1832). Spanish singer and composer and teacher of singing. Born at Seville, Jan. 22, 1775, he was a chorister in the cathedral there, and soon made himself known as a composer, conductor, singer, and actor. He died June 2, 1832. His daughters, Mmes. Malibran and Viardot, became famous singers.

His son Manuel (1805-1906), a noted teacher of singing, invented the laryngoscope.

Manuel's son, Gustav (1837-1925), had a noted operatic career, and his son Albert also adopted a musical career as singer and teacher.

GARDA, LAGO DI (Lat. Lacus Benacus). Lake of Italy. It is the easternmost of the Italian lakes, and lies between Lombardy and Venetia, running a few miles into Tirol. Some 34 m. long and from 3 m. to 10 m. broad, with a maximum depth of 1,900 ft., it has an area of about 180 sq. m.

GARDELEGEN. Town of Germany, in Prussian Saxony. It came into prominence during the Great War on account of its prisoners-of-war camp, which was notorious by reason of an epidemic of typhoid which broke out there in Feb., 1915. The pestilence lasted four months, involving 2,000 cases. Pop. 9,073. See Wittenberg.

GARDEN. Enclosed ground, wherein flowers, shrubs, fruit, and vegetables are grown. There are two main divisions of gardens, ornamental and useful, many of the latter being known as market gardens. Ornamental



M. K. Gandhi, Indian leader

or flower gardens are classified according to the way in which they are laid out, e.g. in the Dutch or Italian style, or according to what flowers and shrubs they contain, e.g. a rose garden. Public places of amusement which are ornamented with flowers and shrubs are sometimes called gardens (e.g. the old Cremorne Gardens, in London), and there are zoological gardens and botanical gardens. Rows of houses, especially in the west of London, are often known as gardens, e.g. Sussex Gardens.

According to modern usage the complete garden should include an exotic house, a temperate house, and a cool greenhouse. In addition, there should be one or two houses for the cultivation of such things as grapes and tomatoes, supplemented by a number of cold frames. The outdoor arrangements should provide for a tennis lawn or bowling green, formal beds and borders near the house, rock garden, wild garden, water garden, kitchen garden, and shrubbery. Of gardens within gardens the rose garden is the most popular form.

GARDENING When planning gardens of modest dimensions, the lawn as a playground disappears, and its surface is cut up and studded with flower beds, the shrubbery is dispersed, and shrubs grown only as specimens. As far as glass is concerned, one heated house, supplemented by cold frames, must do all that is necessary. Speaking generally, it is more profitable to grow vegetables than fruit in a small garden. The small back garden of the suburban house gives the best results if devoted entirely to the culture of flowers.

That portion of the garden devoted to fruit and vegetables should have a S. or W. aspect, but where this not possible protection from N. winds should be furnished by a wall or fence. See Flower.

GARDEN CITY. Industrial town in which overcrowding is avoided and residents enjoy the benefits of country life. The garden city movement owes its origin to Ebenezer Howard's book *To-morrow: a Peaceful Path to Social Reform*, published in 1898.

The first attempt to build a garden city in England was made in 1904, when Letchworth Garden City was established in Hertfordshire, 35 m. from London. Here the workers have good houses, with adequate sunlight and air space, gardens, and allotments; the factories are within walking distance; there are good shops and schools; an active social and civic life; and the open country is ten minutes' walk from the centre of the town. The industrial features are sufficient space in a specially planned factory area, with sidings, roads, power, etc.; great reduction of loss of time among workmen, and healthy buildings.

The development of the movement is now in the direction of satellite towns like Welwyn around the great cities. The movement is growing throughout the British Empire, and there are garden city associations in France, Germany, Austria, Poland, and Spain. See Bournville.

GARDENIA. Genus of evergreen trees and shrubs. Of the natural order Rubiaceae, they are natives of tropical Asia and S. Africa. They have sweet-scented, white funnel-shaped or salver-shaped flowers.

GARDINER, SAMUEL RAWSON (1829-1902). British historian. Born at Ropley, Hants, March 4, 1829, he was educated at Winchester and Christ Church, Oxford. He wrote the *History of England from the Accession of James I to the outbreak of Civil War, 1883-84*; *History of the Great Civil War, 1886-91*; and *History of the Commonwealth and Protectorate, 1894-1903*, the last-named un-

finished. He collected and edited *Constitutional Documents of the Puritan Revolution, 1889*; wrote *What Gunpowder Plot Was, 1897*; *Oliver Cromwell, 1899*; *A Student's History of England, 1890-91*, new ed. taking the work down to 1910. He died at Sevenoaks, Feb. 14, 1902.

GARDINER, STEPHEN (c. 1493-1555). English prelate and statesman. Son of a Bury St. Edmunds cloth worker, he was educated at Trinity Hall, Cambridge, and in 1528 was sent by Henry VIII to Rome to conduct negotiations for his divorce from Catherine of Aragon. In 1531 he became bishop of Winchester. Under Edward VI he spent over five years in prison for his opposition to doctrinal changes, but on Mary's accession he was made lord chancellor. He died in London, Nov. 12, 1555, and was buried in Winchester Cathedral.



Stephen Gardiner.
English prelate.

GARELOCH. Arm of the Firth of Clyde, Dumbartonshire. Around it are pleasure resorts, among them being Garelochhead, Rosencath, and Shandon.

GARFIELD, JAMES ABRAM (1831-81). American statesman. Born at Orange, Ohio, Nov. 19, 1831, in humble circumstances, he

began his active political career in 1856, and after distinguished service in the Civil War was in March, 1881, elected president. His advocacy of civil service reform and selection of his Cabinet almost entirely from his own section of the Republican party aroused hostility. He was shot at Washington, July 2, 1881, but survived until Sept. 19, when he died at Elberon, New Jersey. His assassin, who was hanged, was Charles J. Guiteau, a Chicago lawyer of French Canadian extraction, who had asked for, but failed to obtain, the American consulship at Marseilles.



James Garfield,
American statesman.

GAR-FISH (Belone). Group of fishes of long and slender form. They have the jaws produced to form a sword-like beak, and bones of a green colour. They include about 50 species, one of which is quite common around the British coasts.

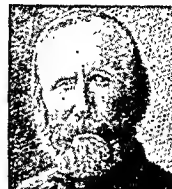
GARGANTUA. Central figure of Rabelais's *Les horribles faictz et prouesses es-pouventables de Pantagruel*, 1535. Gargantua, father of Pantagruel, is a huge giant with a vast capacity for eating and drinking. From his name is derived the adjective gargantuan. See Rabelais.

GARGOYLE (Fr. gargouille, throat). Projecting spout attached to the gutter of a roof for shooting rainwater clear of the walls. In Gothic architecture it was made of stone fashioned into a grotesque animal or human face. See Gothic Architecture; Notre Dame.

GARIBALDI, GIUSEPPE (1807-82). Italian patriot. A fisherman's son, he was born at Nice, July 4, 1807. In 1834 he flung himself ardently into the Young Italy movement initiated by Mazzini, joined in an insurrection, and barely escaped with his life. From 1836-48 he was in S. America. In 1848 he returned to Italy, raised troops of volunteers, and performed brilliant feats of arms. In 1854 he returned to Italy after another exile and settled in Caprera, under the Sardinian government. In 1859 Garibaldi fought for Sardinia

against Austria and, protesting against the cession to Napoleon III of Nice, he led the Sicilian insurgents against the Bourbon monarchy of Naples. Openly discountenanced but secretly encouraged by Cavour, he gathered a small army of volunteers, his "red shirts," known as Garibaldi's Thousand, threw himself into Sicily, and cleared it of the 20,000 Bourbon regular troops. Passing over into Italy, he marched to Naples, whence Francis, II took flight. When Victor Emmanuel entered Neapolitan territory, Garibaldi hailed him as king of united Italy.

In 1862 he attempted to wrest Rome from the pope; but the Italian government turned against him, and he was defeated at Aspromonte, Aug. 29. After a temporary retirement, he again commanded his irregular troops in the war with Austria, 1866; and in 1867 again attempted to capture Rome, but was defeated by its French defenders at Mentana Nov. 3. He died at Caprera, June 2, 1882. Consult Garibaldi and the Making of Italy, G. M. Trevelyan, 1920.



Giuseppe Garibaldi
Italian patriot
From a photo c. 1860

GARLIC. Pungent flavoured bulbs of the onion family, of the order Liliaceae, genus Allium. A native of the East, probably S.W. Siberia, it grows to a height of 2 ft., bearing at the top an umbel of a few whitish flowers. The plant is cultivated in a similar way to the shallot, and only the bulb part is eaten. It is used as a condiment, chiefly in S. Europe. Wild garlic, *Allium oleraceum*, is occasionally used in England as a pot-herb.



Garlic. Flowers and foliage
of *Allium oleraceum*

GARNET, GROUP of precious stones, composed of three molecules of silica, one of sesquioxide, and three of monoxide. The two last differ widely in their chemical make-up. The crystalline form is cubic; all are fairly hard. This last quality makes them of value for technical purposes—for instance, in watch-making—while garnet powder is used for polishing hard gems. Colour is always distributed uniformly in garnets. Red, brown, green, yellow, and black varieties are found in various parts of the world.

GARNETT, OR GARNET, HENRY (1555-1606). English Jesuit. Educated at Winchester, he joined the Jesuits in 1575, and in 1587 was made superior of the English province. He became involved in the Gunpowder Plot (q.v.), and after hiding in Hindlip Hall, near Droitwich, gave himself up, maintaining to the end that he did not approve of the plot, though admitting his knowledge of it. He was executed in London, May 3, 1606.



Gargoyle. Example from the church
at Horsley, Derbyshire, c. 1450

GARNISHEE (Old Fr. garnir, to warn). Term used in English law. It is the procedure whereby a judgement creditor can obtain an

order from the court directing a person who owes money to the judgement debtor to pay it over to the judgement creditor.

GARONNE. River of France. Rising in the Pyrenees and flowing for a few miles in Spain, it enters France in the dept. of Haute Garonne, and, flowing mainly N.W., reaches the sea just below Bordeaux. There it receives the Dordogne, and the two unite to form the estuary of the Gironde. Its length is about 350 m.

GARRICK, DAVID (1717-79). English actor. Born at Hereford, of Huguenot descent on Feb. 19, 1717, he was educated at Lichfield grammar school, and later at Samuel Johnson's academy there. Becoming close friends, Johnson and Garrick came to London in March, 1737. Until 1741 Garrick engaged, with scant success, in a wine business, but his main interests were in the stage. His play *Lethe* was produced in 1740, and in March, 1741, he made his first appearance on the stage as Harlequin, appearing at Goodman's Fields Theatre in Oct. of that year as Richard III.

From 1742-45 he played at Drury Lane, and after a season in Dublin where Sheridan appeared at Covent Garden during 1746-47. After this Garrick became the chief proprietor of Drury Lane, where he henceforth appeared. Specially noteworthy were his Shakespearean productions. *Hamlet*, *Lear*, *Macbeth*, and *Richard III* were among his most distinguished performances. His death on Jan. 20, 1779, called forth Johnson's famous remark that the event had "celipsed the gaiety of nations."

The Garrick Club was founded in 1831. The original club house was at 35, King Street, Covent Garden; the premises at 15, Garrick Street, London, W.C.2, were opened in 1862.

The Garrick Theatre is in Charing Cross Road, London, W.C. It was opened April 24, 1889, by Sir John Hare.

GARRISON, WILLIAM LLOYD (1805-79). American abolitionist. Born at Newburyport, Massachusetts, Dec. 12, 1805, before he was 20 he was writing articles, under the pseudonym of Aristides, attacking the institution of slavery. In 1826 he became editor of *The Newburyport Free Press*, and in 1827 of *The National Philanthropist*, the first paper founded in America to advocate temperance. In 1829 he was imprisoned for expressing his views on the slavery question. From 1831-65 he published at Boston a weekly journal, *The Liberator*. Meanwhile, he wrote *Thoughts on African Colonization*, 1832, and helped to found the Anti-Slavery Society in Philadelphia in 1843. He died May 24, 1879.



W. Lloyd Garrison, American abolitionist

GARROTTE (Span. garrote, cudgel). Spanish method of execution by strangulation. Originally the condemned person was seated in a chair fixed at the back to an upright post. A cord was placed round his neck and also round the post. Strangulation was produced by twisting the cord with a stick after the manner of a tourniquet. Later the chair was provided with a hinged iron collar, in the back of which was a sharp-pointed screw, or a lever. Death was caused by dislocation of the spinal column.

GARSTIN, SIR WILLIAM EDMUND (1849-1925). British engineer. Born Jan. 29, 1849, in 1872 he entered the India public works dept. and was employed for a time in Egypt. From

1892-1904 he was inspector-general of irrigation in Egypt, being also under-secretary for public works. Knighted in 1897, in 1904 Garstin was appointed a director of the Suez Canal Co. He died Jan. 8, 1925.

GARTER, ORDER OF THE. British order of knighthood, the most ancient and illustrious in the world. It was originally instituted as a purely military order by King Edward III in or about 1348, but in modern times is more generally bestowed on royal personages and on leading representatives of the British peerage. Each knight is allotted a stall in S. George's Chapel, Windsor Castle, on which is set up a plate engraved with his titles and coat of arms. Above each are placed his banner, sword, helmet, and crest.

The habits and insignia of the order are the garter, mantle, surcoat, hood, star, collar, George and lesser George, two jewelled figures, representing S. George and the dragon. On the death of a knight companion his insignia are returned to the sovereign. The order has the following officers: prelate, the bishop of Winchester; chancellor, the bishop of Oxford; registrar, the dean of Windsor; herald, garter king of arms; gentleman usher of the black rod; and secretary. The practice of encircling arms and crest with a garter bearing a private motto is incorrect.



Garter. Insignia of the Order. Top, star; centre, the garter; below, collar and George

GARUA. Town of French Cameroons, W. Africa. Some 40 m. E. of the Nigerian border, it is on the Benue river. It is an important station on the Benue route to the Niger. It surrendered to the Allies, June 10, 1915. Pop. about 5,000. See Cameroons.

GARY. City of Indiana, U.S.A. At the head of Lake Michigan, 30 m. S.E. of Chicago, it owes its prosperity to the United States Steel Corporation, which in 1906 selected it as the site for its chief works. Gary also has tinplate works, locomotive and car shops, and cement and tube factories. Pop. 55,378.

GAS. Gas or vapour is matter in a perfectly fluid state. Oxygen, hydrogen, and nitrogen are common gases. Both solids and liquids may change into gas by the application of heat, as gases may be transformed into liquids and solids by cold. Gases are easily soluble in many liquids, the quantity dissolved being proportional to the pressure. Gases absorb light in different ways, and have consequently absorption bands in the spectrum. They are poor conductors of heat, and as conductors of electricity vary according to their temperature, pressure, etc. When gases are subjected to an electrical discharge, or are exposed to rays given out by radio-active substances, the gases become ionised and acquire conductivity.

Through the researches of Sir J. J. Thomson and others on the behaviour of gases when exposed to cathode rays the electron theory of the atom was propounded and the whole aspect of physics was altered. (See Atom.) In the kinetic theory of gases it is assumed that the molecules of a gas are in

constant motion along straight lines; during such motion they impinge upon other molecules—gaseous, liquid or solid—and suffer a change of direction and an alteration of speed. Under similar conditions of temperature and pressure equal volumes of all gases contain an equal number of molecules. See Avogadro's Law; Boyle; Dalton.

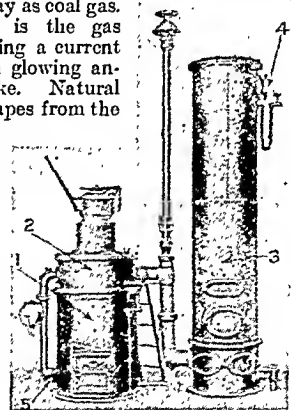
GAS MANUFACTURE. The use of coal gas for illuminating purposes was first practically demonstrated by William Murdock in 1779. In 1798 Murdock used gas as an illuminant in Boulton and Watt's works at Soho, near Birmingham, and a few years later he applied it to cotton mills in Manchester. In overcoming technical difficulties he was assisted by Clegg (1781-1861), to whom are due the invention of the water meter and the first processes of purification. In 1810 the Gas Light and Coke Company was formed.

The process of making coal gas consists in strongly heating coal in closed tubes or retorts, thus liberating the gas, which is cooled, throwing down tar oils and water, scrubbed, to take out ammonia, benzol, and other components, and purified by means of lime and iron oxide. Finally the gas is measured in the station meter and stored in gas-holders, ready for use when required.

Water gas is made by forcing steam through a mass of glowing coke. The gas is usually carburetted—i.e. enriched by oil vapours—and is supplied for domestic purposes mixed with coal gas. Oil gas is made chiefly from heavy oil, which is heated in a retort, condensed, and purified much in the same way as coal gas. Producer gas is the gas made by passing a current of air through glowing anthracite or coke. Natural gas, which escapes from the ground in some regions, is used, where available, for lighting and heating. (See Acetylene.)

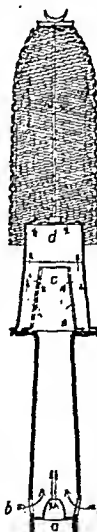
The incandescent gas mantle was introduced in 1885 by Baron von Welsbach. The mantle is woven of ramie fibre, cotton, or cellulose, and is impregnated with thorium and ceria. When the fabric is "burned off" on first lighting, a skeleton of the oxides is left, and this is raised to incandescence by the Bunsen burner (q.v.), yielding a powerful light.

Before the Great War the regular illuminating gas in use was unmixed coal gas, but this has been very largely displaced by water gas or a gas consisting of a mixture of the two. Since practically all gas lighting is by means of the incandescent mantle, which utilises the heating power of the gas, the fuel value is now the primary consideration. The Gas Regulation Act of 1920 made it obligatory for suppliers to charge consumers at a price which was based on this value. For the cubic foot a



Gas; Suction Gas Plant for Gas Engine. 1, Gas generator, filled with glowing coke or anthracite; 2, Vaporiser to raise steam; 3, Scrubber and filter; 4, Gas outlet to engine; 5, Air and steam inlet. Steam and air are drawn into generator by the suction of the engine

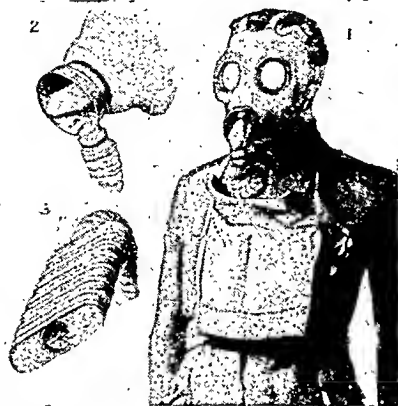
Courtesy of Dawson & Mason Gas Plant Co.



Gas Mantle. Diagram illustrating Welsbach-Kern high-pressure mantle gas burner. a, gas inlet; b, b', air inlets; c, gas and air mixer; d, burner

new unit, the gas therm (100,000 British thermal units) was substituted.

GAS WARFARE The term gas is used collectively to describe the poisonous and irritating chemicals discharged against hostile troops as one phase of modern warfare. Gas



Gas Warfare. British anti-gas respirator. 1. Military pattern, in position. 2. Detail of facepiece, aural pattern. 3. Canister containing chemicals which absorb and neutralise toxic gases

was first used in the Great War, the first attack being that made by the Germans at Ypres in April, 1915. The method employed was to discharge clouds of gas against the enemy from cylinders kept in the trenches. This method has been largely superseded by the use of shell charged with "gas," which is released when the shell explodes. The chemicals used may be lethal in their effect, or incapacitate troops either by a lachrymatory effect or by causing violent sneezing. The anti-gas mask fits to the face and is connected by tubing to a box containing chemicals which absorb the gas.

GASCOIGNE, GEORGE (c. 1525-77). English poet. Born at Cardington, Bedfordshire, he was M.P. for Bedford, fought in the Low Countries, and took part in the famous festival at Kenilworth. He died Oct. 7, 1577.

To him is due the first English prose comedy, *The Supposes*, 1566 (an English adaptation of Ariosto's *Gli Suppositi*), which supplied the underplot of Shakespeare's *The Taming of the Shrew*; one of the earliest English satires in blank verse, *The Steel Glass*, 1576; the first critical essay on English versification, *Certain Notes of Instruction in English Verse*, 1575; and *Ferdinando Jeronimi*, 1572

GASCONY. One of the old provs. of France. Bounded W. by the Atlantic, Gascony lay contiguous with Languedoc and Foix on the E., Navarre and Béarn on the S., and Guienne on the N. Gascon territory would thus fall within the modern depts. of Landes, Hautes-Pyrénées, Gers, and parts of Haute-Garonne, Lot-et-Garonne, Ariège, and Tarn-et-Garonne. The centre of government was Auch. The name comes from the Iberian tribe of the Vascones.

The Gascon dialect still prevails in the district. The exuberant and vaunting character of the Gascon people is proverbial, the term *gasconnade* being applied to bragging, flamboyant speeches, or actions. See *Aquitaine*; France; Hundred Years' War.

GAS ENGINE. Type of internal combustion engine in which gas is used as the fuel. A practical engine in which coal gas was used as a source of power was designed by a French inventor, Étienne Lenoir, in 1860. Improvements were added to Lenoir's design by Dr. Nicholas A. Otto and Eugen Langen, and in 1878 the former embodied the principle of compression in a design of engine which was

the first to attain real success. The Otto engine works on what is called a four-cycle principle, that is to say there is one impulse (explosion) in the engine cylinder to every four strokes of the piston, two forward and two back, or in two complete revolutions of the crank.

In 1886 Clerk invented a two-cycle engine, in which he introduced an extra cylinder, the purpose of which was to draw in and compress the charge and to sweep out the burnt gases from the power cylinder by a blast of air. The principle of the Clerk cycle has been embodied in many of the large gas engines of to-day, some of which have an individual rating of 5,000 h.p. See *Internal Combustion Engine*.

GASKELL, ELIZABETH CLEGHORN (1810-65). British novelist. Born at Chelsea, Sept. 29, 1810, also married William Gaskell, a Unitarian minister and professor of English literature at Manchester. Her first novel, *Mary Barton*, 1848, met with wide success, and was followed by *Ruth*, 1853, and by her best known work, *Cranford*, 1853, a charming picture of village life founded on her recollections of Knutsford, where she had lived as a child. Other works were *North and South*, 1855, *Sylvia's Lovers*, 1863, several volumes of short stories, and the excellent life of her friend, *Charlotte Brontë*, 1837. Mrs. Gaskell died Nov. 12, 1865.



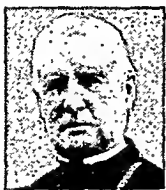
Elizabeth C. Gaskell
British novelist

GASOLINE or **GASOLINE.** One of the products of fractional distillation of petroleum. The refined oil is used for burning in vapour lamps, as a fuel in internal combustion motors, and as a solvent for oils and fats. See *Petroleum*.

GASPÉ. Peninsula forming the eastern part of the prov. of Quebec, Canada. It lies between the St. Lawrence and Chaleur Bay. The interior is forest land and on the coast are a few fishing villages. The name is also borne by a cape and a bay at the eastern end; on the latter is Gaspé Basin, where Jacques Cartier landed July 24, 1534.

GASQUET, FRANCIS AIDAN (1846-1929). British cardinal. Born in London, Oct. 5, 1846, from 1878-85 he was prior of Downside.

In 1886 he began that systematic historical research which resulted in such works as *Henry VIII and the English Monasteries*, 1888; *The Eve of the Reformation*, 1900; *The Greater Abbeys of England*, 1908; and *Monastic Life in the Middle Ages*, 1922. From 1900-14 he was abbot-president of the English Benedictine Congregation. In 1907 he was appointed president of the commission for the revision of the Vulgate. He was created a cardinal priest, by the title of S. George in Velahro, in May, 1914. He died April 5, 1929.



Francis A. Gasquet,
British cardinal
Russell

was appointed president of the commission for the revision of the Vulgate. He was created a cardinal priest, by the title of S. George in Velahro, in May, 1914. He died April 5, 1929.

GASTRIC JUICE. Fluid secreted by the mucous membrane of the stomach. Its action is fivefold. (1) It acts as an antiseptic in virtue of the hydrochloric acid it contains, tending to prevent putrefactive processes occurring in the stomach. (2) It acts on cane sugar, converting it into simpler forms. (3) It eurdles milk. (4) It splits fat up into simpler bodies. (5) It converts protein—the principal nitrogenous constituent of animal food—into proteoses which, after further change into peptones, are absorbed in the process of digestion. See *Stomach*.

GASTRITIS. Inflammation of the mucous membrane which lines the interior of the stomach. Two forms are recognized, acute and chronic. Acute gastritis is a common complaint most often caused by eating unsound or indigestible food. Irritant poisons may also give rise to it.

The symptoms are those of pain and feeling of distension in the stomach, nausea, vomiting, gaseous eructations, and headache. In most cases a purgative should be given. No food should be taken until the symptoms are abating, and then only the lightest diet.

Chronic gastritis may follow the persistent eating of unsuitable or indigestible food, or excessive taking of tea, coffee, or alcohol, or the habit of hastily taking meals and holling food which is insufficiently masticated. It may also be a symptom of constitutional disorders such as anaemia, gout, diabetes, and tuberculosis. Treatment consists in careful dieting and allowing plenty of time for meals.

GASTROPODA (Gr. *gaster*, stomach; *pod.* foot). Division of the sub-kingdom Mollusca. It includes those molluscs which have the ventral or under side of the body developed in a gliding hase. Gastropods may be roughly defined as comprising snails and slugs, terrestrial, fresh-water, and marine. The underside of a gastropod is its organ of locomotion. The body is slowly propelled forwards by a peculiar ripple or wave-like movement of the foot. Economically, certain marine gastropods are of value as food for man, as the whelk and periwinkle; and several species of land snails are consumed. Some aquatic gastropods do useful work as scavengers, while many of the terrestrial ones do great mischief in gardens by eating the plants. See *Snail*.

GATEHOUSE. Structure above and on each side of a gateway. It was used to guard the solid bridge or drawbridge that gave access to the medieval castle or fortified manor house. The Gatehouse of Westminster was built in 1370 by Walter de Warfield within the precincts of the abbey on a site now occupied by the Crimean Memorial. Used as a prison by Whitgift in connexion with the eccles. courts, and by the Star Chamber, it later served as a debtors' prison. It was demolished in 1776.

GATESHEAD. County bor. and seaport of Durham. It stands on the S. bank of the Tyne, opposite Newcastle, on the main line of the L.N.E.R. The buildings include the 15th century church of S. Mary, rebuilt in the 18th, the town hall, erected in 1868, the public library, the Shipley Gallery, mechanics' institute, and Abbot memorial industrial school. The industries include shipbuilding, iron and engineering works, and the making of glass and chemicals. The L.N.E.R. has large shops in the town. There are important shipping interests, coal being exported. Five bridges (one a swing bridge) span the river. In the vicinity, on the Team, are Ravensworth, opposite Gateshead Fell; Stella Hall, an Elizabethan mansion; and the ruins of Prudhoe Castle. Pop. 127,400.

GATH (Heb. wine-press). One of the chief cities of the Philistines, on the borders of Judah. It was famed as the birthplace of Goliath. At one time under the rule of the Egyptian kings, at another it had kings of its own. It was fortified by the Crusaders, captured by Saladin in 1191, and retaken the next year.

GATLING, RICHARD JORDAN (1818-1903). American inventor. Born in N. Carolina, Sept. 12, 1818, he invented the revolving machine gun known by his name. He also invented a hemp-breaking machine and a steam plough. He died Feb. 26, 1903.

The Gatling Gun was invented in 1862. It had six barrels mounted round a central axis,

and belongs to the class known as non-automatic, since the operations of feeding cartridges, firing, and ejecting shells were effected by the operation of a crank by the operator, and not by the force of the explosion or recoil. These guns were adopted by the British army and navy in 1871, but soon after the S. African War they were superseded.

GATTON. Village of Surrey. It is 2 m. from Reigate and was once a borough. The small town hall still stands. Gatton Park is crossed by the Pilgrims' Way. Gatton House was built by Lord Monson. In the church are wood carvings from Belgium and Nuremberg and stained glass from Aerschot.

Gatwick. Racecourse in Surrey. It is 6 m. from Reigate, and there is a station on the Southern Rly.

GAUCHOS (Araucanian, friends). Natives of Spanish paternity in Uruguay and the Argentine pampas. One strain claimed descent from the Spanish conquistadores modified in their native environment. Another is largely mixed with Guaycuru blood in Uruguay, with Araucanian on the pampas. Daring horsemen, wielding bola and lasso, they were nomad cattlemen. Pron. Gow-chôse. See illus. p. 120.

GAUDEAMUS. Title and first word of an old German students' song in dog-Latin. The theme of it is "let us rejoice while we are young" (Gaudemus . . . juvenes). It is also the title of a collection of students' and school songs by John Farmer, 1890, and is included in the Scottish Students' Song-book.

GAUGE OR GAGE. Term used for various types of measuring instruments, e.g. water gauge, pressure gauge, wire gauge, and also as a standard, e.g. railway gauge. There is a great variety of gauges. Among them are wire gauges, used for the measurement of the external diameters of wires; a marking gauge, a tool used by carpenters for scribing a line parallel to the edge of a piece of wood, etc.; rain gauges, used for measuring the rainfall; and water and steam pressure gauges attached to steam boilers, enabling the engineer to ascertain the quantity of water in the boiler and the head of steam. Railway gauge is the width between the lines.

GAUGUIN, PAUL (1848-1903). French artist. Born in Paris, June 7, 1848, he worked for a time in Brittany. In 1891 he went to the South Seas and lived for many years in Tahiti. He died May 9, 1903. Influenced by Van Gogh and Cézanne, and also by his residence in the tropics, Gauguin's work is remarkable for its decorative qualities and rich colouring, and is highly valued by collectors.

GAUL. Old name for France. It is derived from Gallia, the name given to that country by its Roman conquerors. This Gaul was larger than the modern France, as it included Belgium and parts of Germany, Holland, and Switzerland. Gaul was conquered by Julius Caesar. Its inhabitants were mainly Celts. See France.

GAUNTLET (Fr. gantelet, little glove). In armour, a glove of leather covered with scale work or overlapping metal plates which permitted the hand to close. It was originally made without separate fingers, and with a metal extension over the wrist. Throwing down a gauntlet was a recognized form of challenge in medieval times. See Armour.

GAUTIER, THÉOPHILE (1811-72). French author. Born at Tarbes, Aug. 31, 1811, and admitted young to Hugo's circle, he gained



Théophile Gautier,
French author

notoriety with two brilliant but licentious romances, *Albertus*, 1830, in verse, and *Mlle. de Maupin*, 1835, in prose. In verse his principal volumes are *La Comédie de la Mort*, 1838, and *Émaux et Camées*, 1852. His prose includes many tales and stories; a remarkable piece of archaeological fiction, *Le Roman de la Momie*, 1856; *Le Capitaine Fracasse*, 1863, a dashing historical novel of adventure; some picturesque records of travel; the semi-autobiographical *Paradis des Chats*, and *Ménagerie Intime*, 1869; and numerous volumes on the history of literature and art. He died Oct. 23, 1872.

Gautier's daughter Judith, who died in 1917, wrote historical novels and poetry, and was a distinguished Oriental scholar. She collaborated with Pierre Loti in the play *La Fille du Ciel*, 1912.

GAVARNI (1804-66). French caricaturist. He was born in Paris, Jan. 13, 1804, his real name being Guillaume Sulpice Chevalier. He adopted the pseudonym of Gavarni from the village of Gavarnie, Hautes-Pyrénées, of which he showed a drawing at the Salon, 1829. Settling in Paris, he soon became known for his drawings of fashionable women in *La Mode*. Joining the staff of *Charivari*, he disclosed his remarkable talent for caricature. In 1849 he visited England, producing Gavarni in London for *The Illustrated London News*, and his lithograph, *The Highland Piper*, his masterpiece in this style. He illustrated Eugène Sue's *The Wandering Jew*, Balzac's novels, and other books. He died Nov. 24, 1866.

GAVELKIND (A.S. gafol, trihue, eynd, kind). English name for a form of land tenure formerly found in Kent and sometimes elsewhere. Its main feature was that in cases of intestacy the land passes to all the sons equally. Land held in gavelkind could be disposed of by will and was not forfeited by treason. The widow's dower was one-half, not one-third, as was usual under other systems.

GAVIAL OR GHARIAL. Member of the crocodile family, distinguished from the others by its very long and slender snout. It is common in India, where it sometimes attains a length of twenty feet, and lives in the larger rivers. It feeds upon fish and is rarely known to attack land animals. See Crocodile.

GAVOTTE (Fr.). Graceful old dance in duple time, beginning on the second half of the bar. Many examples are to be found in the suites of Bach and other 18th century composers. The gavotte was the dance of the Gavots—or people of the Pays de Gap. It was danced at the French Court in the 16th century.

GAWSWORTH. Village of Cheshire. It is 3 m. S.W. of Macclesfield. Here is situated the old hall, once the seat of the Fytton or Fitton family. The interesting church, parts of which are attributed to the 11th century, was restored in 1851. It contains many monuments to generations of the Fytton family, the Mary of which has been, though probably with scant warrant, identified with the Dark Lady of Shakespeare's Sonnets.

GAY, JOHN (1685-1732). English poet and dramatist. Born in Devonshire, his first real success was a pastoral, *Shepherd's Week*, 1714.

This was followed by *Trivia*, 1716, a description of the moving panorama of the London streets, and by his *Fables*, 1727, which were a notable success. His best work, however, is *The Beggar's Opera*, 1728, a lyrical drama of thieves and highwaymen. It had a great vogue, and Gay followed it up with a sequel, *Polly*. Both were successfully revived at the Lyric Theatre, Hammersmith, after the Great War, by Sir Nigel Playfair. He died Dec. 4, 1732.

GAYAL (Bos frontalis). Species of ox found in the hilly regions of N.E. India. It



Gayal. Domesticated ox kept by the natives of north-east India
W. S. Berryidge, F.Z.S.

is smaller than the gaur, with which it is said to interbreed, and has straighter horns without any crest between them. It has been domesticated and is kept by the natives of N.E. India.

GAZA. Town of Palestine, the modern Guzze or Guzzeh. Recognized as the key to Palestine from the south, it was always strategically important. In Biblical times it was one of the five chief cities of the Philistines. In 332 B.C. it was captured by Alexander the Great, and afterwards figured in the chronicles of Maccabees and Moslems, Crusaders and Turks. Napoleon took it in 1799. Pop. 17,480.

Gaza gives its name to a series of battles fought between the British and the Turks in the Great War. The first was an attempt to capture the town as a preliminary to the conquest of S. Palestine. On Mar. 26, 1917, the British cavalry crossed the Wadi Ghuzze, and prepared to envelope Gaza from the N. and E., while the 53rd Division attacked the town frontally. The Turks, heavily reinforced, caused the British to fall back to the Wadi Ghuzze on March 28. On April 17 the second battle of Gaza began. The British, although they carried the Turks' outer defence, failed to carry Ali Muntar and were checked elsewhere, and the battle was broken off. It was not until Nov. 7, 1917, that the British under Allenby were able to capture Gaza, a victory that made possible the subsequent conquest of Palestine.

GAZEBO.

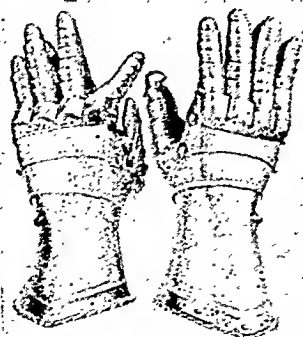
Summer-house built to command a wide view over the surrounding country, corresponding to the Italian belvedere. The word is the future form of a supposed Latin verb and means I will survey. A

bow window is sometimes called a gazebo.

GAZELLE (Arab. ghazal). Name given to a large number of species of small antelopes, chiefly found in the desert regions of the E. hemisphere. They are the lightest and most graceful of the antelopes, and usually



John Gay,
English poet



Gauntlet. Specimens of Italian work, early 16th century
Wallace Collection, London



Gazelle. Dorcas gazelle, a native of North Africa
W. S. Berryidge, F.Z.S.

have remarkably slender legs. The majority of the species are less than 30 ins. high. The upper molar teeth resemble those of the sheep.

GDYNIA (Ger. Gdingen). Polish seaport on the Gulf of Danzig. It lies just outside the free city of Danzig. Dissatisfied with the establishment of Danzig as a free city, Poland decided to build a purely Polish port at Gdynia, originally a small fishing village. Work was begun in 1921, and trade was soon passing through the port. Pop. 2,500. See Danzig.

GEAR. Toothed wheel or series of connected tooth wheels for the transmission of motion from one machine to another, or from part of a machine to another part.

Gear wheels are of varying shapes and sizes, with many different kinds of teeth cut upon them according to the speed and the direction they are required to transmit motion. A multiplying gear, as of a clock or bicycle, causes the driven part to move faster than the driving part; a reducing, or de-multiplying gear, as of a crane, acts the reverse way; a change speed gear enables the relative speeds of the driving and driven parts to be varied at will; a reversing gear alters the direction of motion.

GECKO. Family of small lizards, common throughout the tropics. They are of dull colour,



Gecko. The S. European wall gecko, *Tarentola mauritanica*

with many tubercles on the skin. In most species the toes act like suckers and enable the animals to ascend the window panes and run about the ceilings. The lizards live on insects and are harmless.

GEDDES, SIR AUCLAND CAMPBELL (b. 1879). British politician. A son of Auckland C. Geddes and a brother of Sir Eric Geddes, he became a doctor, and was professor of anatomy at McGill University, Montreal, and at the Royal College of Surgeons, Dublin. In 1916 he became director of recruiting at the War office, and minister of national service in Aug., 1917; he was then knighted and obtained a seat in Parliament. Under Mr. Lloyd George he was president of the local government board, minister of reconstruction, and president of the board of trade (1918-20). From 1920-24 he was ambassador at Washington, and on his retirement entered on a business career.

GEDDES, SIR ERIC CAMPBELL (b. 1875). British politician. Born in India, Sept. 26, 1875, he held posts in the service of railway companies in America and India, and then entered that of the North Eastern Ry. Co. In 1915 Geddes was given a post in the ministry of munitions, and in 1916 was sent to France as director-general of military rlys. Early in 1917 Lloyd George made him controller of the navy, and, later in the year, first lord of the admiralty. Geddes, who was minister of transport 1919-1921,

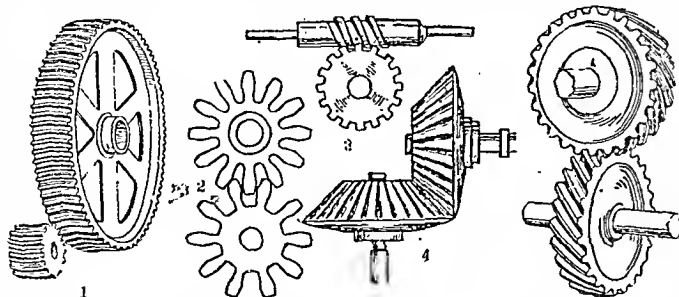


Sir Eric Geddes, British politician

presided over a committee on national expenditure 1922, and became chairman of the Dunlop Rubber Co. 1923. In 1916 he was knighted.

GEDDES, JENNY. Edinburgh kail-wife or vegetable seller. She is famed for having started a riot in St. Giles's Cathedral by hurling a stool at the dean who read Laud's liturgy there for the first time, July 23, 1637.

GEDDES, PATRICK (b. 1854). British scientist and social reformer. He became demonstrator in physiology at University College, London, was lecturer in zoology at Aberdeen and botany at Edinburgh, on natural history in the school of medicine,



Gear. 1. Double helical gear. 2. Spur gear. 3. Worm gear. 4. Bevel gear. 5. Skew gear

Edinburgh, and then professor of botany at Dundee. He travelled widely and took a leading part in educational and social work in Scotland. Geddes was director of the Cities and Town-Planning Exhibition. His writings were mainly articles on these subjects and works on biology and botany.

GEELONG. City and seaport of Victoria, Australia. Near the head of Geelong Harbour, 45 m. by rly S.W. of Melbourne, it is the port for the products of the western plains, and has some manufacturing industries. Pop. 42,300.

GEFFRYE MUSEUM. London museum of furniture design and craftsmanship. Opened in 1914, it is situated in the Kingsland Road, near Shoreditch Church, and is housed in the old Geffrye, or Ironmongers' Almshouses, founded by Sir Robert Geffrye (1613-1703), lord mayor of London and master of the Ironmongers' Company. The collection includes specimen rooms of various periods, carved mantelpieces, doorways, and grates, and much beautiful furniture.

GEHENNA. Name in Biblical and post-Biblical literature of a place of fiery torment. It is derived from Ge-Hinnom, the Valley of Hinnom, a valley on the W. of Jerusalem in which the refuse of the city and the bodies of animals and criminals were burned.

GEIKIE, SIR ARCHIBALD (1835-1924). British geologist. Born in Edinburgh, Dec. 28, 1835, he entered the geological survey in 1855, and became director of the geological survey of Scotland in 1897.

From 1871-82 he was Murchison professor of geology and mineralogy in Edinburgh University. His main life work was as director-general of the geological survey of the United Kingdom and director of the museum of practical geology, 1882-1901. His numerous works included a Text-book of Geology, 1882; Class-book of Geology, 1886; Geological Map of England and Wales, with Descriptive Notes, 1897; Scottish Reminiscences, 1904; Landscape in History, 1905; and Lives of R. I. Murchison and A. C. Ramsay. He was knighted in 1891, created K.C.B. in 1907, and given the O.M. in 1914. He died Nov. 11, 1924.



Sir Archibald Geikie, British geologist

GEISHA. Girl in Japan trained as an entertainer. Taught music, dancing, singing, and the art of conversation from an early age, these girls are engaged to provide entertainment at dinner parties and receptions, and to amuse their hosts by witty repartee.



Geisha or dancing girl of Japan, in typical costume

GELATIN OR **GELATINE.** Constituent of animal tissues, bones, hoofs, etc., which forms a transparent jelly when dissolved in water. Gelatin is essentially a purified form of glue. It is largely used for culinary purposes; as a basis for photographic sensitive surfaces; in bacteriology; as a size for paper; in dyeing; and in making printers' ink rollers. When gelatin solution is treated with a bichromate salt, allowed to solidify and exposed to light, the gelatin becomes insoluble. This property is utilised in the carbon process of photography, and in the manufacture of washable distempers.

GELDERLAND, GUELDERLAND, OR **GUELTERS.** Province of Holland Bounded N.W. by the Zuider Zee and S.E. by Prussia, it is watered chiefly by the Lower Rhine, Waal, and Yssel, while the Meuse forms the S. boundary. The good pasturage supports large numbers of cattle, small estates predominate in the agricultural districts, and corn, flax, beet, and tobacco are important crops. The capital is Arnhem.

In 1543 Gelderland passed to the emperor Charles V, and became one of the United Provinces in 1578. In 1814 it became part of the kingdom of the Netherlands (q.v.).

GELÉE, CLAUDE (1800-82). French painter, usually known as Claude Lorraine. Born in Lorraine, he spent most of his life in Italy. His works are marked by a richness of detail and grandeur of composition that few of the classical landscape painters have approached. There are good examples in the National Gallery, London. He died Nov. 21, 1882. Gelée's Libri di Verità (Books of Truth), which contain sketches of his pictures made in order to prevent forgeries of them, were reproduced in 1777.



Claude Gelée, French painter

GELIGNITE. Industrial high explosive. It contains about 65 p.c. of nitroglycerin, which has been made to the consistency of thin jelly by the solution in it of collodion cotton, 27 p.c. of potassium nitrate, and 7 p.c. of wood meal. A little calcium carbonate is present, and a small quantity of moisture. See Dynamite; Explosive; Nitroglycerin.

GELIMER. Last Vandal king. A descendant of Gaiseric, he ruled over the Vandal kingdom in Africa for about four years. In 533 a Roman force under Belisarius landed in Africa and met the Vandals in battle 10 m. from Carthage. There Gelimer's force was routed and Carthage was entered. However, the king assembled a new army, and a second time gave battle to Belisarius, but was again defeated. Gelimer walked as a captive in the procession of Belisarius at Constantinople, afterwards disappearing from history.

GELLERT. Hound given according to tradition by King John to his son-in-law, Llewellyn, in 1205. The story runs that

Llewellyn, returning from a hunt, was met by the dog covered with blood. Hurrying into his castle he found his infant heir's cradle overturned and blood-stained, and slew the dog, believing that it had killed his child; only to find that the faithful dog had killed a wolf that had attacked the boy. Gellert's grave is shown at the village of Beddgelert, in Wales, near Snowdon.

GELLIGAER OR **GELLYGAER**. Urban district and colliery centre of Glamorganshire. It is 14 m. N. of Cardiff, on the Monmouthshire boundary. Its Norman church of S Cadocus was restored in 1867. Gellygaer is near the site of a Roman hill-fort of the 1st century A.D. Its four-gated, turreted ramparts enclose 2½ acres, with headquarters, six barracks, two granaries, and extramural baths. Pop. 48,379.

GEM. Name given to precious stones, especially diamonds, rubies, sapphires, topazes, and emeralds after they have been cut and polished. It is used in a secondary sense for cameos and the less precious stones, e.g. agates, garnets, jaspers, onyxes.

CUTTING THE GEMS. There are various styles of cutting: (1) Brilliants have a flat, octagonal table, surrounded by 32 smaller facets sloping to the girdle: the lower part is pyramidal, 24 facets sloping to the flat culet. A half-brilliant is only faceted from girdle to table, having a flat base. (2) Roses are rather like the half-brilliant, the top surface being cut with six or more triangular facets of equal size, with flat back. (3) Briolettes are pear-shaped, covered with triangular facets, but without table, girdle, or culet. (4) Star cut stones are combinations of the brilliant and rose, with facets grouped in multiples of six. (5) Step or trap cut stones are often nearly rectangular. The facets are long and flat, placed parallel to the girdle. (6) Table cut stones are either four-sided double pyramids or regular octahedra, with large table, table and culet either equal or varying in size. (7) The dome-shaped cabochon is one of the oldest styles. A cabochon may be more or less convex, the convexity being equal or dissimilar on both faces, or the base may be flat.

The great art of gem cutting is to bring out the special beauty of individual specimens, removing or minimising blemishes, with as little loss to the bulk of the stone as possible.

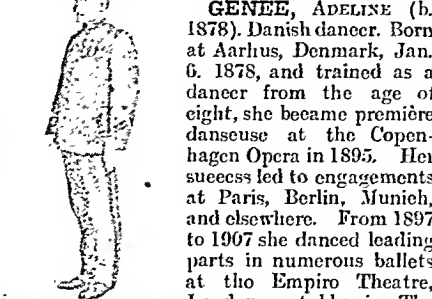


Gemsbok. Long horned antelope found in South-West Africa
W. S. H. Riddell. F.Z.S.

regions of S.W. Africa. It has long straight horns, which sometimes reach a length of 45 ins. The animal is about 4 ft. high, and is grey on the back and sides, with white below. There are black markings on the face, throat, and upper parts of the limbs.

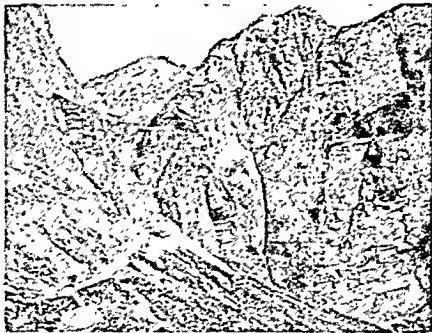
GENDARME (Irregular singular of gens d'armes, men-at-arms). Member of a military constabulary formed in France in Jan., 1791. It exists also in other countries. The gendarmes, under the control of the various ministers of the interior, are employed for the

protection of villages and country places, and for the enforcement of certain state and national legislation, and are generally subject to the orders of the civil authority. See Carabiniers.



Gendarme. French military constabulary
1905. She also appeared in U.S.A.

GENERAL OR **GENERAL OFFICER**. Name given to a military officer of the second highest rank, field-marshal being above it. It is used loosely for all officers above the rank of colonel-commandant, as well as for those who are full generals. In the British army there are major-generals, lieutenant-generals, and generals, in order of seniority. The equivalent rank in the navy is admiral. During the Great War the commanders of armies were given the rank of general, either temporary or substantive. The term is common to most armies. Generalissimo is the unofficial title conferred upon a general in supreme command of two or more allied armies or forces of different nationalities, each under the command of its own general.



Gemmi Pass. One of the gorges in the Bernese Alps threaded by a mule track

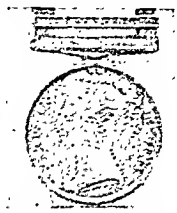
In the Roman Catholic Church the title of general is used to designate the heads of some religious orders.

GENERAL ASSEMBLY. Name given to the governing body of most of the Presbyterian churches in the world. As a rule it meets once a year, consists of both ministers and laymen representing the presbyteries of the church, and is presided over by a moderator. It is the final authority on all matters of church discipline and order. See Presbyterianism; Scotland, Church of.

GENERAL PARALYSIS OF THE INSANE. Disease of the brain characterised by progressive mental and physical deterioration, terminating in insanity and paralysis. By far the most frequent cause of the disease is syphilis. Contributory causes are worry and long-continued occupation involving severe mental strain. Medical treatment is rarely of much avail, but the effect of potassium

iodide may be tried and drugs of the salvarsan class may be administered. Within the last few years many cases have been treated by inoculation with malaria, and cured when this was done at an early stage.

GENERAL SERVICE MEDAL, NAVAL. Instituted by King George V, in 1915, to be awarded for service in minor naval warlike operations. The riband of the medal is red (four strips) and white (three strips). It was first awarded, with a clasp inscribed "Persian Gulf, 1909-14," to officers and men who were employed in operations for the suppression of arms traffic in the Arabian Sea or Persian Gulf, between Oct. 19, 1909, and Aug. 1, 1914. An earlier naval general service medal was issued in 1847.



General Service Medal issued in 1847

GENESIS (Gr. origin). First book of the Pentateuch, or rather Hexateuch. The name is taken from the Septuagint title, the Generation of the World. The Hebrew title is In the Beginning. The book falls into two main divisions: (a) Creation stories and primeval history, Gen. 1-11, 26; (b) History and stories of the patriarchs, Gen. 11, 27-50, 26. It is composed of a number of narratives, more or less independent in origin, based upon tradition.

GENETICS (Gr. genesis, origin). One of the aspects of the problem of organic evolution. It seeks to describe the characteristics—likenesses and differences—as well as the variations which occur in animals and plants which are related to each other, and to furnish theories and explanations of the origin of these. Research in genetics may be carried out by four methods: (1) The biometric method. Observers of this school deal with the facts of heredity from a statistical standpoint. (2) The Mendelian method. This is also in part statistical, but in this case the attention is directed not to the ancestry, but to the progeny. The biometric method looks backward, the Mendelian forward. (3) The cytological method, which attacks the problem from the aspect of the cell. (4) The embryological method, which has assumed greater prominence in recent years. See Biology; Cell; Embryology; Heredity; Mendelism.

GENEVA. Crescent-shaped lake between Switzerland and France, called by the French Léman. Its length is 45 m., its maximum width is 10 m., and where narrowest it is 2 m. The area is 225 sq. m. Most of the S. shore belongs to the dept. of Haute-Savoie, France. The surface is 1,220 ft. above sea level, the depth varying between 240 ft. and 1,094 ft. It is an expansion of the Rhône. See Chillon.

GENEVA (Fr. Genève; Ger. Genf). City of Switzerland. It stands at the S.W. extremity of the lake of Geneva, near the confluence of the Arve with the Rhône, 40 m. N.E. of Chambéry. The old part of the city, which is also the commercial centre, lies on the left bank of the Rhône, which divides the city into two portions, connected by bridges.

Geneva is a famous religious, scientific, and literary centre. The Protestant cathedral, founded in the 10th century and consecrated in the 11th, was rebuilt in the 12th and 13th centuries and added to in the 18th. The adjoining Gothic chapel of the Maccabees was built in 1406 and restored in 1874-88. The town hall dates from the 16th century. The academy, founded by Calvin in 1559, has a fine library. The university buildings are modern. There are manufactures of watches, clocks, gold and silver goods, and motor cars.

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(whose first assembly opened in the Reformation Hall, Nov 15, 1920), of the International Labour Office, and of the International Red Cross organization. The work of the League, which has its headquarters in the Palace of the Nations, has added much to the population and prosperity of the city. In 1929 it was decided to build a headquarters for the League in Ariana Park at an estimated cost of £1,000,000 to house the secretariat and library. The new building for the International Labour Office is near the Parc Mon Repos. Pop. 126,700.

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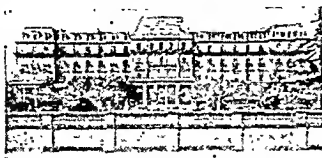
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GENIUS (Lat. *genere*, to produce). In Roman mythology, the god of productivity, in a special sense a tutelary divinity. Every man was supposed to be accompanied from the cradle to the grave by his genius, his higher and better self, by whom he was protected and influenced.

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(Gr. *geo*, daisia, land division). Science of the measurement of the globe, i.e. of geodetic surveying as distinct from the surveying of plots of land for farms, railways, etc. The system of triangulation, used for this purpose, consists in measuring a succession of angles and sides of triangles on the earth's surface. A base line is chosen, and its length measured. From this the distances of other

points can be calculated by measuring angles.

GEOGRAPHY.

Geography includes, primarily, what we may call gazetteer information, and, secondarily, the application of certain scientific conclusions to human activities; it is the study of the earth as the "home of man," of "man's place in nature," and "man and his work." From astrology the geographer borrows facts to explain the consequences for man of the daily march of the sun and the rhythmic swing of the



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Genipap. Foliage and flower head of this tropical tree

The geographer takes each country and describes it, so as to specify (1) the type or types of its physical conditions; (2) the kinds of people who inhabit it; (3) the way in which these people react to their environment in comparison with the lives of similar peoples elsewhere and with the lives of different peoples in similar areas. and (4) the relation it bears to the world as a whole.

Among the most significant geographical events of the past few years are the conquest of both poles, the reconstruction of the interiors of Asia and Australia, the partitioning of Africa, and the advances in oceanography. Side by side with the extensive work of the explorers has been the intensive study of the more advanced countries, leading to generalisations based on detailed and precise knowledge of the conditions obtaining in regions of which we have relatively trustworthy historic records for hundreds of years back.

The Royal Geographical Society, formed in 1830, has a house at Lowther Lodge, Kensington Gore, S.W. The Map Room and Museum are open to the public. Its organ, The Geographical Journal, is issued monthly.

GEOLOGY. Science which interprets the evidence afforded by the earth's crust as to its composition, structure, and history. By the aid of mineralogy and petrology it studies the minerals and rocks of the earth's crust. By tectonic or structural geology it determines the relation of the constituent layers or strata. Physical or dynamic geology deals with the effect of earthquakes, volcanic eruptions, denudation, and glacial action. Historical or stratigraphical geology compiles the history of the earth from its origin to the earliest human records. This branch of geology is largely dependent on the evidence of the animal and plant remains. The fossils themselves are the subject of palaeontology.

Rocks supply the materials for the history of the earth; they are of two main kinds. Primary or igneous rocks are formed by the solidification of molten materials. Rocks formed at a considerable depth are known as plutonic rocks; those formed by volcanic action are termed volcanic rocks. Primary rocks are unstratified and devoid of fossils.

Secondary or sedimentary rocks are formed from broken fragments of primary rocks, deposited in strata or layers, generally by water. They are often fossiliferous. Metamorphic rocks, intermediate in character, are those that have been altered by heat, or the injection of veins of molten rock, or by intense pressure.

Historical geology depends on two main principles. The first is that of superposition. As the secondary rocks of the crust are laid down in layers, one on top of the other, it follows that the lowest rock in a series is the oldest and the uppermost is the youngest. Superposition cannot, however, be implicitly trusted, since series of tilted rocks are inverted by earth movements, and it is also inapplicable to the comparison of rocks in distant parts of the world. The final determination of the age of rocks depends on the second method—the use of fossils.

The main time scale used in geology is based upon the succession of life. Sir Charles Lyell termed the group of rocks containing the oldest fossils then known the Palaeozoic or period of ancient life. It was succeeded by the Mesozoic or period of middle life, and that in turn by the Kainozoic or period of recent life. Before the Palaeozoic there are two great groups of rocks formerly classed as Azoic, or lifeless. The older of these two groups is known as the Archaean: its rocks are igneous or metamorphic. It was succeeded by the Proterozoic, a period mainly composed of unaltered secondary rocks. Together known as Precambrian—since the

oldest Palaeozoic rocks are the Cambrian—these formations were long thought to be devoid of fossil remains, but in recent years remains of annelids, arthropods, algae, and sponge-like forms have been found in Precambrian rocks of N. America.

Research in radio-active materials has led to the conclusion, based on the time needed for the transmutation of certain elements, that the age of the earth must be from 1,000,000,000 to 2,000,000,000 years.

The Geological Society has its quarters at Burlington House, Piccadilly, London, W.

The Geological Survey is a British government department. It maintains a geological collection, housed in the Museum of Practical Geology, Jernyn St., London, S.W.1.

GEOMETER MOTH. Group of moths. Their caterpillars, often called loopers, have only two pairs of pro-legs, placed close to the rear of the body, and walk by alternately drawing up the body into a loop and then extending it again. See Caterpillar.

GEOMETRY. Branch of mathematics which deals with the properties of space. Two-dimensional geometry treats of figures on plane or spherical surfaces. Solid geometry is concerned with three-dimensional figures. Euclid's Elements of Geometry were long used as a text book in the schools. The axioms and postulates on which Euclid based his system are accepted with slight modification as the foundation of trigonometry (q.v.); of analytical geometry, of graphic or projective geometry, the branch which deals with the relations and properties of figures that are not changed by projection.

GEORGE, THE. Part of the insignia of the order of the Garter. It is an enamelled gold pendant, representing S. George slaying the dragon, and is suspended from the collar. There is a "lesser George" with the same device on an enamelled ground, surrounded by an oval garter. See Garter.

GEORGE. Lake of Africa. It is in the S.W. of the Uganda protectorate, forming a north-east extension of Lake Edward, with which it is connected by a narrow channel.

GEORGE. Patron saint of England. He is generally identified with George of Cappadocia, who was put to death by Diocletian, April 23, 303. According to the Golden Legend having slain the dragon, he put off his knightly habit, gave all he had to the poor and went forth to preach Christianity, and was martyred in 287. S. George first became recognized as England's patron saint under the Norman kings. He is also the patron saint of Portugal and of Aragon.

GEORGE I (1660-1727). King of Great Britain and Ireland. Born at Hanover, March 28, 1660, he was the son of Ernest Augustus, afterwards elector of Hanover, and Sophia, a granddaughter of James I. In 1698 he became elector of Hanover and in 1701 the Act of Settlement recognized his mother and then himself as heir to the throne of Great Britain. On August 1, 1714, he became king. His ignorance of English compelled him

George I,
King of Gr. Britain
After Kneller

to leave much to his ministers, but in European politics he was constantly active. The king died at Osnabrück, June 11, 1727.

GEORGE II (1683-1760). King of Great Britain and Ireland. The son of George I, he was born at Herrenhausen when his father was only electoral prince of Hanover, Nov. 10, 1683.



George II,
King of Gr. Britain
After Zeeman

His early life was passed in Hanover, but in 1714 the prince followed his father to England, and for thirteen years he was prince of Wales. The relations between the two had been bad for some time, and in London the prince set up a court which became the centre of all opposition to George I and his ministers.

In 1727 George became king, and he reigned for 33 years, although until 1742 the government of the country was in the hands of Walpole. His own quarrels with his father were repeated in the case of himself and his son Frederick, who, driven from court, formed his own circle of opposition to the king and the ministry. George had the sense to heed the wise advice of his wife Caroline, whose influence over him was considerable. In addition to Frederick, George had a son, William Augustus, duke of Cumberland, and five daughters. He died at Kensington Palace, Oct. 25, 1760.

GEORGE III (1738-1820). King of Great Britain and Ireland. The eldest son of Frederick, prince of Wales, he was born June 4, 1738. His father died in 1751, and he was educated under the eyes of his mother, Augusta, a princess of Saxe-Coburg, and the earl of Bute, who became the head of his household when this was set up in 1756. In Oct., 1760, he became king.

His reign began with an attempt to secure power for himself, and by 1770 the king had formed his own party, the king's friends, and Lord North became premier. For twelve years George directed, through him, the affairs of the country, the period being marked by the independence of America. In 1780 the king's mind had given way, and a regency was necessary.

but he soon recovered and was able to throw his influence into the prosecution of the war against France, but fresh attacks of insanity came on, and in 1811 he was finally incapacitated. He died Jan. 29, 1820.

George was neither a wise nor a constitutional king, but in his later years his popularity was great, due in part to his homely ways, seen in his name of Farmer George. He married Charlotte, princess of Mecklenburg-Strelitz, and his family consisted of nine sons and six daughters.

GEORGE IV (1762-1830). King of Great Britain and Ireland. The eldest son of George III, he was born in London, Aug. 12, 1762. As prince of Wales he became prominent politically owing to his father's insanity, during the attacks of which he was regent.



George III,
King of Gr. Britain
After Lawrence



S. George, the patron saint of England.
From a medal by W. Wyon, E.A., 1851.



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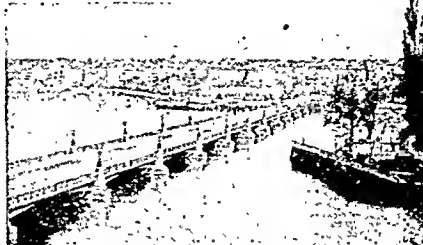
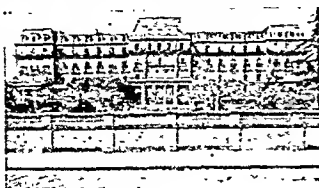
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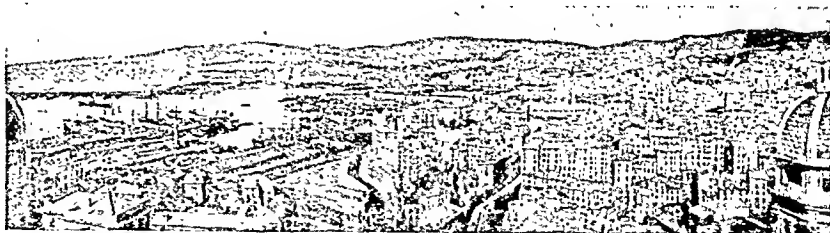


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From geology he borrows facts about the continents which preceded those now in existence, in order to explain existing land forms. The subject matter of meteorology becomes climatology for the geographer who wishes to realize the effects of air currents, winds, storms, etc., and the rains they bring, upon the labours of men. The conclusions of the biologist are useful mainly when they show the precise plant regions and the definite animal zones



Genipap. Foliage and flower head of this tropical tree

Ossetia. Tiflis is the capital. Other centres are Batumi, Sukhum, Kutais, and Poti. The area is 26,381 sq. m. Pop. 2,660,963.

Georgia comprises the rich and sheltered land along the rivers Rion and Kura and the highlands N. and S. that enclose the valley. Wheat, maize, barley, cotton, and tobacco are grown, and cattle are reared. The vine flourishes, fruit abounds, and silk is extensively produced. There are rich manganese and coal deposits and mineral springs. Oil is present. A railway runs from Batumi to Baku, with branches to Poti and other centres.

After keeping its independence for 2,000 years, Georgia was annexed by Russia in 1801. In 1918 it regained its independence, but in 1921 a Soviet government was set up, and in the following year Georgia, together with Armenia and Azerbaijan, was formed into the Transcaucasian Federation of Socialist Soviet Republics. See Caucasus.

GEORGIAN. Style of architecture which prevailed in Great Britain during the reigns of the first three Georges (1714-1820). A product of the later Renaissance, it owed its inspiration mainly to Sir Christopher Wren. Its best characteristic was simplicity of plan and elevation. Contemporary with Wren were William Kent, who designed the Horse Guards, Whitehall; Isaac Ware, who built Chesterfield House; and Sir William Chambers, who was responsible for Somerset House (q.v.), one of the best creations of Georgian classicism in London.

It is chiefly in the smaller houses that the significance and charm of Georgian may be found. In plan the Georgian house is a plain rectangle, solidly constructed, very frequently of red brick. Its façade is always of the plainest description, and is pierced by rows of tall "sash" windows symmetrically disposed. The typical Georgian doorway was enclosed by classic columns carrying their correct entablature, and surmounted by a hood which varied in shape and in the extent of its projec-

join Georgian Bay with the St. Lawrence at Montreal, thus bringing the Canadian Lake wheat ports 800 m. nearer to Liverpool.



Georgian Bay Canal. Map of the course of the projected canal, which will bring the Canadian lake wheat ports 800 miles nearer Liverpool

GEORGICS (Gr. *georgikē*, husbandry). Didactic poem by Virgil in four books. Composed 37-31 B.C., it deals



Geranium. Foliage and flowers of *Geranium lucidum*

with agriculture, fruit trees, domestic animals, and bees. It abounds in passages of great beauty.

GERANIUM. Typical genus of the order Geraniaceae. It consists mostly of small plants with small regular flowers and palmate or divided leaves, often with a pungent odour. The crane's bill and the herb robert of the English fields are wild specimens of geranium. Garden geraniums belong to a different family, and are really pelargoniums (q.v.).

GERARD, JAMES WATSON (b. 1867). American diplomatist. Born Aug. 25, 1867, he became a lawyer in 1892, and practised in New York. In 1908 he was chosen associate justice of the Supreme Court, an appointment he held until 1913, when he was sent to Berlin as ambassador. After 1914 it fell to his lot to look after British interests in Germany, especially those of the prisoners of war. He left Berlin when the United States entered the war, early in 1917, and wrote *My Four Years in Germany, 1917*, and *Face to Face with Kaiserism, 1918*, severe indictments of Germany.



J. W. Gerard, American diplomatist

GERIZIM. Hill of Samaria. Near Shechem or Nablus, it is associated with an adjoining hill, Ebal. The curses and blessings in connexion with the law were pronounced respectively from these two hills, and the Samaritan temple was built on the former.

GERMAN, SIR EDWARD (b. 1862). British composer. Born at Whitechurch, Salop, Feb. 17, 1862, he became musical director at the Globe Theatre, London, in 1888, and while there produced the incidental music to Richard III (1889) which first made his reputation, enhanced by his music to Henry VIII, written for The Lyceum in 1892. He completed Sullivan's unfinished opera, *The Emerald Isle* (1901), and composed *Merric England* (1902), *A Princess of Kensington* (1903), and *Tom Jones* (1907), as well as orchestral symphonies, suites, and songs. He was knighted in 1928.



Sir E. German, British composer

GERMANIA. Latin name for Germany. It is the title of the work of Tacitus on the tribes of Germany about the opening of the

Christian era. It is also used as a personification of the German people. An example of this is the gigantic statue of Germania, on the Niederwald, overlooking the Rhine, commemorating the war of 1870-71 and the consequent union of Germany.

GERMANICUS, CAESAR (15 B.C.-A.D. 19). Roman general. A son of Nero

Claudius Drusus, Germanicus was nephew of the emperor Tiberius. Having distinguished himself against the Pannonians (A.D. 7-9), in 12

he was consul, and as commander in Gaul and on the Rhine distinguished himself against the Germans. Recalled to Rome by the jealous Tiberius, he was sent with extensive powers to settle affairs in the East. His mission was successful, but he died at Daphne, near Antioch, probably by poison. Among his children were the future emperor Caligula and Agrippina, who became the mother of Nero.



Germanicus
From head of marble statue found at Gubbio, 1792, now in the Louvre, Paris

GERMANIUM. Rare metal. Its existence was predicted and its principal physical characters described by Mendeleeff, fifteen years before its actual discovery by Winkler (1886) in argyrodite, a rare mineral found near Freiberg, Germany. The metal has also since been found in euxenite. Its chemical symbol is Ge; atomic weight, 72.5; atomic number, 32; melting point 900° C. Silver white in colour, brittle, in many respects resembling tin, it resists atmospheric influences, and is insoluble in hydrochloric acid.

GERMAN MEASLES, RUBELLA, OR RÔTELIN. Acute infectious fever occurring among both children and adults. The organism responsible for the disease has not been identified. Slight headache and chilly feelings are followed by the appearance of a rose-red rash, first on the chest, which afterwards spreads over the whole body. The throat is sore, and the glands in the neck may be swollen. The rash disappears in a few days and the symptoms abate. Treatment consists in keeping the patient in bed and feeding him on a light diet. He should be kept isolated for a fortnight after the attack.

GERMAN SILVER. Alloy of copper, nickel, and zinc. The best proportions are probably 51.6 p.c. copper, 25.8 p.c. nickel, and 22.6 p.c. zinc, the alloy formed having a bluish white, silver colour, and being largely used for the manufacture of spoons, forks, candlesticks, and personal ornaments.

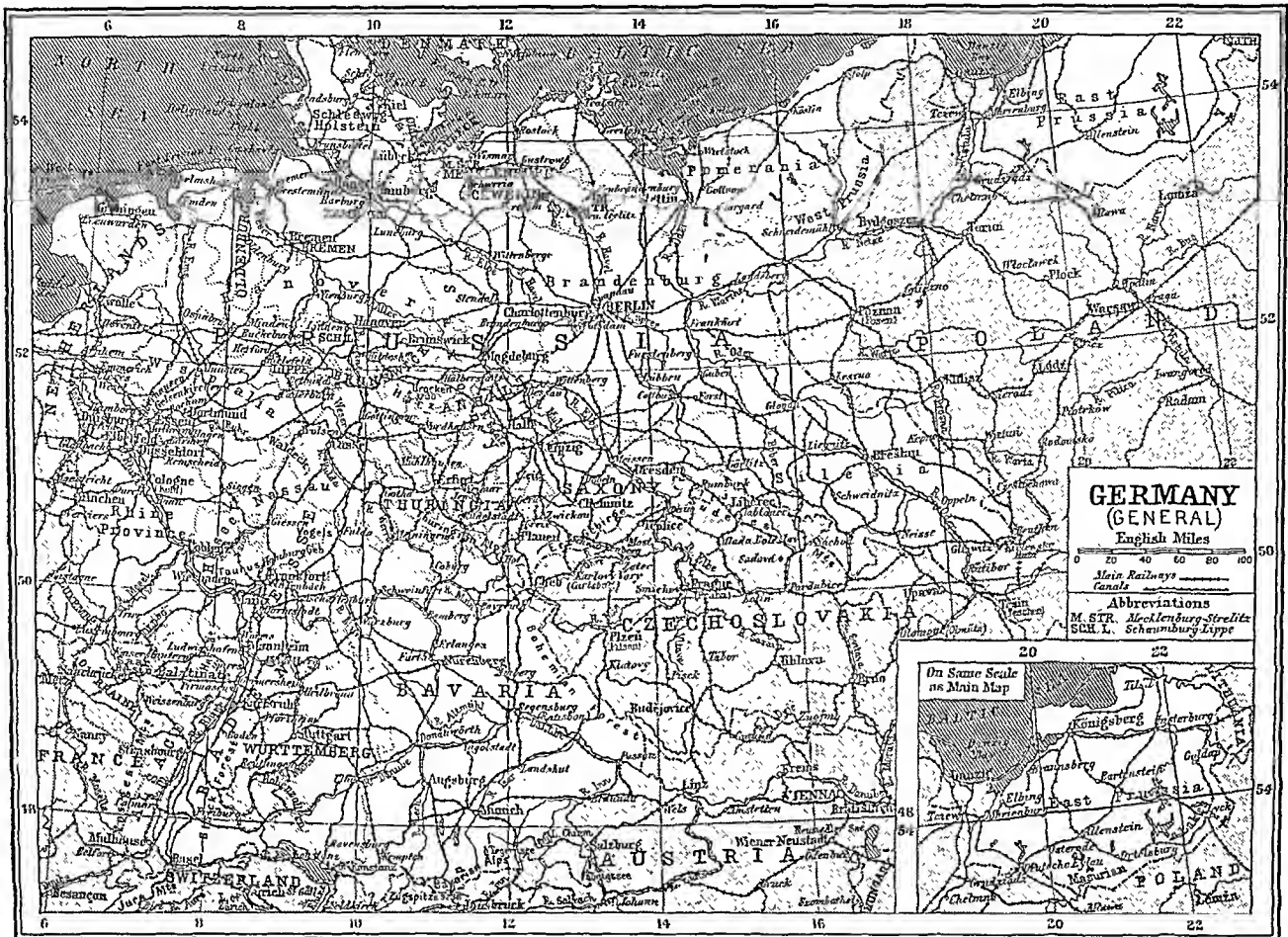
GERMANY. Republic of central Europe. The new Germany is considerably smaller than the old German Empire. Alsace-Lorraine has been ceded to France; other parts are now included in Belgium, Denmark, Poland, and Czechoslovakia; Danzig, with the surrounding territory, is a free city under the League of Nations; the Memel territory belongs to Lithuania; and the Saar basin has been placed under the control of the League of Nations until 1934. The component states of the federation are Prussia, Bavaria, Württemberg, Baden, Saxony, Mecklenburg-Schwerin, Thuringia, Hesse, Oldenburg, Brunswick, Mecklenburg-Strelitz, Anhalt, Lippe, Schaumburg-Lippe, Hamburg, Lübeck, and Bremen. Berlin is the capital. Except in the S. and E. the surface is flat. The chief rivers are the Rhine, Elbe, Weser, Oder, and Vistula. The area is 182,200 sq. m., and the population is 62,592,575.



Georgian. Mompesson House, in the Close, Salisbury, typical of this style of domestic architecture
By courtesy of Country Life

tion. The roof invariably sloped backwards from each side, and the front slope was pierced by a row of dormer windows. The interior decoration of Georgian houses culminated in the work of Robert Adam (q.v.) and his brother.

GEORGIAN BAY. Opening of Lake Huron. The N.E. arm of the lake, it is almost cut off from the main waters by a peninsula which is part of Ontario, and Grand Manitoulin Island; the opening between the two being about 30 m. wide. It is about 120 m. long and 50 m. broad. A canal has been suggested to



Germany. General map of the republic after the adjustment of frontiers in 1919. Inset, East Prussia, now separated from the main part of the country

Agriculturally, Germany is a land of small estates and peasant proprietors in the W. and S., and of large estates in the N.E. Potatoes, hay, sugar beet, oats, rye, wheat, and barley are grown, as well as vines, tobacco, and fruit. Dairy farming is important, as also is forestry. Coal and iron are obtained chiefly in Westphalia, Rhenish Prussia, Silesia, and Saxony, lignite in central Germany, and copper and silver in the Harz. Potash, rock salt, zinc, and lead are also widely found.

There are upwards of 36,000 m. of rly. In 1924 the control of the rly. system was transferred under the Dawes plan to a private company, the rlys. themselves remaining the property of the state. Rivers and canals are largely used for inland transport.

HISTORY. The history of Germany, or Deutschland, as the Germans call it, begins in the 9th century, when the empire created by Charlemagne fell to pieces. Its eastern part came to Louis, called the German, and its people began to speak a language which was quite different from that spoken by the Franks living across the Rhine. This marks the beginning of Germany's nationhood.

Germany was included in the empire restored by Otto the Great in 962, and remained its most important unit until it was dissolved in 1806. During these centuries it was divided between 300 or more rulers, whose lands, tiny as many of them were, were repeatedly

owed allegiance to the emperor, but this obligation sat very lightly upon them, especially as that potentate, from his residence in Vienna, was usually either unwilling or unable to protect them when need arose.

This state of affairs was made much worse by the Reformation, which introduced a further element of discord, not only between ruler and ruler, but often between prince and people. Moreover, the strife about the ownership of the rich lands which had been taken by the Protestants from the church was bitter and continuous. Attempts at a comprehensive settlement were made by Charles V and others, but there was no real solution save the sword, and this took shape in the Thirty Years' War.

Of the German rulers, apart from the emperor, the most important were the six electors. Three of these, the archbishops of Mainz, Cologne, and Treves, were the rulers of ecclesiastical principalities, but the other three, who ruled the Palatinate, Saxony, and Brandenburg, were temporal princes. The Reformation broke the power of the ecclesiastical electors, but it increased that of the

three lay electors, together with Bavaria, whose ruler was made an elector in 1623, and Austria, where the emperor had a real, not merely a nominal authority.

The Thirty Years' War, after inflicting incalculable miseries upon the German people, was ended by the treaty of Westphalia. By permitting the princes to make alliances with foreign powers it made them, for all practical purposes, independent rulers. Quickly they took advantage of this, but none more so than the elector of Brandenburg, whose astute policy made his country larger and stronger, and made it possible, in 1701, for him to become king of Prussia.

Prussia had long had the will, and soon had the power, to challenge the authority of the nominal ruler of all Germany, the emperor himself. The latter's strength was chiefly drawn from his hereditary duchies of Austria and his kingdoms of Bohemia and Hungary, the whole being loosely described as Austria. The struggles between Austria and Prussia, with Frederick the Great as the central figure, occupied Germany during the 18th century.

When the Napoleonic Wars, in which Napoleon dealt with the country as he willed, came to an end, Germany was only a geographical expression. Its sole bond of union, the Holy Roman Empire, had vanished in 1806. A new spirit, however, had come into the land with the rising of Prussia against Napoleon, and this found expression in 1815 in a confederation or bund. In this there were only 39 states, the remaining 270 or so having disappeared. Austria and Prussia were the most important; others were four whose rulers had been made kings—Bavaria, Hanover, Saxony, Württemberg.

German Language. Script forms of the 26 characters in the German alphabet, the capitals and small letters side by side

A a B b C c D d E e F f G g H h I i J j K k L l M m
N n O o P p Q q R r S s T t U u V v W w X x Y y Z z

German Language. Script forms of the 26 characters in the German alphabet, the capitals and small letters side by side

lay ones, and in the 17th century, the time partitioned to provide for the various sons of the Thirty Years' War, the most powerful of the princely house. Each of these rulers states in Germany were those ruled by the

The confederation survived the revolution of 1830 and, with more difficulty, that of 1848. In the latter year a national parliament met at Frankfurt to draw up a new constitution. It was there proposed to make the Prussian king the head of a new empire, but he declined the honour. In 1866, after the German powers had taken Schleswig and Holstein from Denmark, came the inevitable war between Austria and Prussia. This was closed by the utter defeat of Austria, and the confederation of 1815 came to an end. Its place was taken by a new confederation confined to the states of N. Germany with Prussia at its head. Austria and the states of S. Germany were left without a union.

In 1871, after the war with France, Prussia called into being a new empire, wholly German. From this Austria was excluded, but it was joined by Bavaria and other states of the south, in spite of a traditional hostility to Prussia. Its first emperor was the king of Prussia, William I, and its first chancellor Bismarck, and it had only two other rulers until its fall in 1918.

In Nov., 1918, the rulers of all the German states were deposed or abdicated and republics were set up. For the whole country a federal republic was declared. Its members were the states that had formed its empire of 1871-1918, less a few of the smaller ones who had been absorbed into Thuringia and other states. The constitution was mainly that of the empire: even the word Reich was retained.

The first few years after the changes of 1919 were marked by depression and disorder. The extreme socialists called Spartacists engineered a brief revolution, and there were plans for making the Rhineland a separate republic. The mark fell until it was quite worthless and the finances were in a state of chaos, while French troops occupied the Ruhr. Friedrich Ebert, elected in 1920, was president of the republic, and a socialist ministry was in office.

In 1923 Gustav Stresemann, the leader of the people's party, became head of a coalition, and in 1924, after two general elections, a more stable government was formed with him as foreign minister. The mark was stabilised and the currency reformed: Germany accepted the Dawes scheme and a loan was raised for her needs. In 1925 the pact of Locarno was signed, and in 1926 Germany entered the League of Nations. In 1925, too, Ebert having died, Hindenburg was elected president. The country had regained much of its former prosperity when Stresemann, having signed the peace pact in Paris in Aug., 1928, died in Oct., 1929. In that year at the Hague the amount of German reparations was fixed and arrangements were made for the withdrawal of British and French troops from the Rhineland.

The government is in the hands of a president elected for seven years and a cabinet with a chancellor at its head. Its legislature consists of the Reichstag, the members of which are elected by the votes of all adults on a system of proportional representation, and the Bundesrat of 68 members, chosen by the various states. The colours of the republic are black, red, and gold. See Reparations.

LANGUAGE. The language spoken by the Germans is known as High German and forms a branch of the Germanic, or Teutonic, family of Indo-European languages. The separation of High German, that is to say, the speech of the "high" lands of the S. from the parent stock, probably took place in the 7th century, and was marked by a change in the consonantal system, known as sound shifting, or, in English, as Grimm's Law. This change is exemplified by the consonants in such words as the English *ten*, German *zehn*; English *do*, German *tun*. See Grimm, J.L.K.

GERMISTON. Town of the Transvaal, S. Africa. It is 9 m. by rly. S.E. of Johannes-

burg, and 36 m. S. of Pretoria. It is an important gold-mining centre and rly. junction and the seat of the Government gold refineries. Here is a station of the Victoria Falls and Transvaal Power Co. Pop. 19,495 Europeans.

GERÔME, JEAN LÉON (1824-1904). French painter. Born at Vesoul, May 11, 1824, he studied under Paul Delaroche, making a successful début at the Salon in 1847 with *The Cook Fight*. Many of his subjects were classical, with a touch of modernity in the treatment. In 1863 he became professor of painting at the *École des Beaux Arts*, and in 1865 was elected a member of the Institute. Later he turned to sculpture, achieving success with figures of *Bellona*, *Napoleon*, *The Gladiator*, and *Tanagra*. He died in Paris, Jan. 12, 1904. See *Gladiator*.

GERONA. City of Spain. It is 52 m. from Barcelona, where the rivers Ter and Oñar unite, and is famous for its cathedral, a fine example of Gothic architecture with some unique features. There are other old

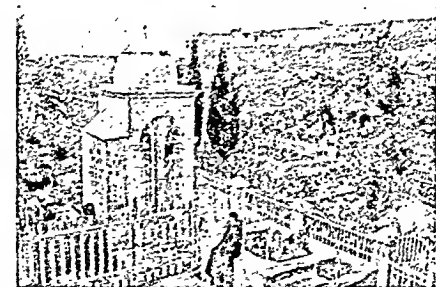


Girona. Old houses seen from the bridge over the Ogar. Left, unfinished spire of the church of S. Felix churches, including S. Felix, and remains of the town walls. Pop. 17,700.

GERRARD'S CROSS. Village of Buckinghamshire. It is 3 m. S.E. of Beaconsfield. Formerly known as Jarret's Cross, and sometimes spelled Gerard's Cross, it is served by the G.W. and L.N.E. Rlys. The church of S. James was built in 1859 by Sir W. Tite, in the Lombardo-Byzantine style. Pop. 2,208.

GERRY, ELBRIDGE (1744-1814). American politician. Born in Massachusetts, July 14, 1744, he was one of the leaders of the colonists in their revolt against Great Britain, and his name is on the Declaration of Independence. From 1810-12 he was governor of Massachusetts, where he was largely responsible for a law which divided the state into districts in such a way that the government had an advantage at election times. From this comes the word *gerrymander*. In 1813 until his death, Nov. 23, 1814, Gerry was vice-president of the United States.

GETHSEMANĒ. Retired spot on the slope of the Mt. of Olives, about $\frac{3}{4}$ m. from Jerusalem. A garden in GethsemanĒ was a



GethsemanĒ. The garden near Jerusalem which tradition marks as the scene of Christ's betrayal

favourite resort of Christ, and it was there, or near by, that He was betrayed by Judas. A garden, preserved as the actual one, is considered to be too near the city walls. Excavations have revealed remains of a 4th century and a 13th century church. See Jerusalem.

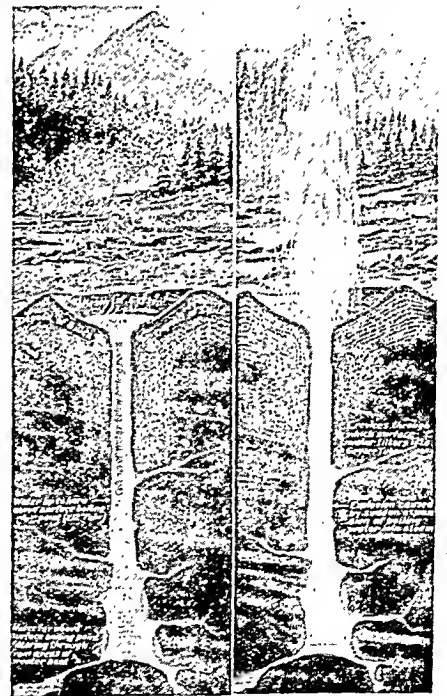
GETTYSBURG. Borough of Pennsylvania. 70 m. N. of Washington. It was the scene of one of the decisive conflicts of the American Civil War, fought July 1-3, 1863, in which the Federal Army of the Potomac, 82,000 men, under General Meade, defeated the Confederate Army of North Virginia, 73,000 men, under General Lee. The Confederate leader escaped by a masterly retreat across the Potomac. The losses were estimated as follows: Federals, 3,072 killed; 14,497 wounded; 5,434 prisoners and missing; Confederates, 2,592 killed; 12,709 wounded; 5,150 prisoners and missing. In Nov., when the battlefield was dedicated as a National Cemetery, Lincoln made the speech which has become immortal. See American Civil War.

GEUM. Handsome hardy dwarf perennial herbs of the order Rosaceae. Natives of Britain, India, and N. America, their height varies from one to two ft. The flowers are red, white, and yellow.

GEYSER (Icelandic, *geysir*). Hot spring in which the water is forced into the air like a fountain. Geysers are characteristic of vol-



Geum. The variety Lady Stratheden. Courtesy of Carters



Geysir. Diagram illustrating the principles which cause the geyser at rest, left, to spout boiling water, as seen on the right

canic areas. There are many in the Yellowstone National Park, Wyoming, U.S.A.; and in Geysersland, near Rotorua, in New Zealand.

GEYSER. Domestic appliance for the rapid supply of hot water. It consists of a long coil or spiral of copper, brass, or iron tubing through which water continually flows from the source of supply to the container. The tube is exposed to a gas or other flame, a large surface of water thereby being heated at one time. The water flows through the tube, thus constantly presenting fresh water to the heated metal surface.

GEZER. City of Palestine, 16 m. W.N.W. of Jerusalem, commanding the Philistine plains. It was the dowry of the Egyptian princess whom Solomon wedded. R. A. S. Macalister's excavations (1902-9) have revealed many interesting objects. Some pertain to thick-skulled neolithic cave-dwellers living before 3000 B.C., who practised cremation, kept domesticated animals, and used bone implements.

GHAT (Hindu, path of descent). Flight of steps upon a river bank in India. Designed primarily to facilitate bathing, drinking, and other ritual acts, they served as landing places, and are found along the Ganges at every city from Calcutta to Hardwar. At Benares (q.v.) there are 47 ghats.

GHATS. Two mt. ranges in India, called respectively the Eastern Ghats and the Western Ghats. Between them lies the Deccan. The Eastern Ghats, a line of small ranges, begin in Orissa, and continue through Ganjam to the Nilgiri plateau, where they join the Western Ghats. They approach the Bay of Bengal in Ganjam and Vizagapatnam, but afterwards their course lies inland. The Western Ghats 1,000 m. long, form a sea-wall for the W. side of the peninsula, the Palghat Gap being the main route through this barrier.

GHAZNI, GHIZNI, OR GHUZNEE. Town of Afghanistan. It is about 80 m. S.W. of Kabul, and is still of some commercial importance. Though it is over 7,300 ft. above sea level, wheat and barley are grown in the neighbourhood. In the 10th and 11th centuries it was the capital of the Ghaznavids, a race of princes whose empire included most of Afghanistan and Persia, as well as a large part of India. They gave place to the princes of Ghur, one of whom burned Ghazni, and became head of an empire even larger than that of the Ghaznavids. The ruins of the old town lie about 3 m. N.E. of the present town, which is on the caravan route from Persia to India, by the Gomal Pass. An old castle dominates the town, which was prominent in the fighting in the first Afghan war. Pop. 10,000.

GHELUVELT. Village of Belgium, in the prov. of W. Flanders, 4 m. S.E. of Ypres on the Ypres-Menin road. It was the scene of desperate fighting in the Great War, especially in the first battle of Ypres, Oct. 24-31, 1914, and no position was more hotly disputed. Captured by the British in Oct., 1917, it was lost in the spring of 1918, and finally taken at the end of Sept., 1918, in the battle for the Belgian coast. See Ypres.

GHENT (Fr. Gand). City of Belgium, capital of E. Flanders. It lies 31 m. N.W. of Brussels, at the confluence of the Schelde and Lys. A ship canal connects it with Terneuzen on the Schelde estuary. Its excellent rail and water communications make Ghent an important trade centre. The city has cotton and linen manufactures, engineering works, sugar refineries, breweries and tanneries, and trades in timber, phosphates, flax, and cement. Flowers are largely cultivated. The university was founded in 1816. In 1929, after a long agitation, it was made an educational centre for the Flemings. Pop. 208,539.

Ghent is one of the most picturesque of Belgian cities. The cathedral, founded about 940, has a 13th century choir and 16th century nave and transepts. The panels of its famous altar-piece of The Adoration of the Lamb (see illus. p. 584), dispersed in 1816, were brought together

again in 1920. The hôtel de ville dates in part from the late 15th century. The castle of the counts of Flanders is a typical medieval stronghold.

During the 13th-15th centuries Ghent became one of the greatest marts of W. Europe. The arts, too, flourished in Ghent, which the Van Eycks made a great centre of Flemish painting. The first international congress on town planning was held in Ghent in the exhibition year, 1913. The city was occupied by the Germans during the Great War on Oct. 12, 1914, and it was in their possession until recaptured by the Belgians, Nov. 11, 1918. See Belgium; Flanders.

Ghetto (Ital.). Word translated into English as Jewry, and meaning a part of a town inhabited entirely by Jews. See Jewry.

GHIBELLINES. Italian political faction. It originated in Germany, and the name was derived from Waiblingen, the castle of Conrad III. See Florence; Guelph.

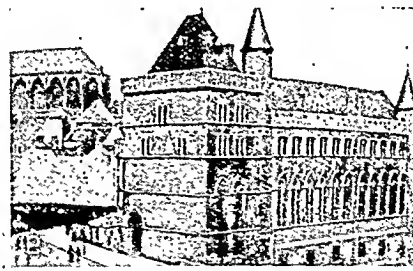
GHIRLANDAIO, DOMENICO (1449-94). Italian painter. Born at Florence, his name was Domenico Tommaso Corrado Bigordi, the adopted sobriquet indicating that he was a maker of garlands. Between 1480 and his death, Jan. 11, 1494, he produced many important works in tempera and fresco, and in mosaic. Among his most notable paintings are S. Jerome and The Last Supper, 1480, in Florence; the fresco of S. Peter and S. Andrew in the Sistine Chapel, 1483, Rome; Adoration of the Magi, 1488, Florence; the Tornabuoni frescoes, 1490, in S. Maria Novella, Florence; The Visitation, 1491, in the Louvre. His mosaic of the Annunciation, in Florence Cathedral, is justly celebrated. His son, Ridolfo (1483-1560), was also a painter of ability. Pron. Gear-lan-di-oy.

GHOST. Spirit of a dead person manifesting itself in some form perceptible to the senses of the living. Some measure of belief in such posthumous manifestations has been held in all times and by all peoples. See Psychical Research.

GHOST MOTH (*Hepialus humuli*). Common British moth. The male has shining white wings with reddish fringes, the female yellow-



Ghost Moth. Upper pair English and lower pair Shelland, form of *Hepialus humuli*



Ghent. 1. Cathedral of S. Bavo. 2. Château du Diable, 13th century. 3. North façade of the Hôtel de Ville, dating from the 15th century

ish wings with brown spots and streaks. The under surface of the wings in both sexes is brown. This moth is often seen at night,

when its peculiar flight causes the white upper side of the wings to appear and disappear at intervals, whence its name.

GIANT. Abnormally tall human being. European folklore is much concerned with stories of giants such as Blunderbore and Grim. It attributed to their activities such natural formations as the Giant's Causeway and the Giant's Kettle.

The tallest races, pre-eminently the Patagonians and the Galloway Scots, who are normally 5 ft. 10 ins., seldom reach 6 ft. 4 ins. The conventional limit of spectacular gigantism is 7 ft. The Royal College of Surgeons in London possesses the skeleton, 7 ft. 9 ins. long, of O'Brien Charles Byrne, the 18th century Irish giant. The tallest authentic measurement was the 9 ft. 3 ins. of the Russian Machnov. See Dwarf.

GIANT'S CAUSEWAY. Promontory of columnar basalt on the N. coast of co. Antrim, Northern Ireland. It consists of some 40,000 closely packed polygonal pillars, chiefly pentagonal and hexagonal. The causeway is 2½ m. N.E. of Bushmills and is divided into three natural platforms, the Little Causeway, Middle or Honeycomb Causeway, and Grand Causeway. The pillars have a diameter of from 15 to 20 ins., each consisting of several perfectly fitting joints, concave and convex at the extremities. The formation is generally ascribed to the cooling and cracking of the lava. On the neighbouring cliffs are the "Wishing Chair," "Lady's Fan," "Giant's Loom," and "Giant's Organ," presenting the appearance of organ pipes.



Giant's Causeway, composed of polygonal columns of basalt

GIBBET (Fr. gibet, crooked stick). Type of gallows having a projecting bar, and used principally for hanging malefactors in chains as a warning to passers-by, hence the term "to gibbet." These gibbets or gallows were at one time very common, and the name still survives in Galloway Hill. See Gallows; Hanging.

GIBBON (*Hylobates*). Smallest of the anthropoid apes. Rarely more than 3 ft. high, it is readily distinguished from the other anthropoids by its small slender build, its remarkably long arms, and by small naked callosities on the buttocks. There are several species, all found in Malay and the surrounding countries. They live in the trees, their food consisting of fruit and young shoots, insects, and the eggs and nestlings of birds.

GIBBON, EDWARD (1737-94). English historian. The eldest son of Edward Gibbon, an M.P. in the time of Sir Robert Walpole, he



Gibbon. The silver gibbon, a small anthropoid ape
Gambier Bolton, F.Z.S.

was born at Putney, April 27, 1737. In 1752 he went to Oxford, entering Magdalen College, and in 1753 he joined the Roman Church. His angered father took him away from Oxford and sent him to Lausanne, where for five years he lived with a Calvinist pastor. There he read widely and steadily, his retentive memory serving him well. In 1758 he returned to England, and in 1761 he published in French his first book, *An Essay on the Study of Literature*. In 1763 he set out upon a tour of Europe, and in Rome the idea of the *Decline and Fall* came to him.



Edward Gibbon,
English historian
After Sir Joshua Reynolds

In 1765 Gibbon returned home from Italy, and during the next five years he wrote on miscellaneous subjects. In 1772 he began to write, and in Feb., 1776, the first volume of the *Decline and Fall* was published. It was an instant and complete success, and he continued, pausing only in 1779 to reply, in a Vindication, to those who had criticised chapters 15 and 16 on Christianity. In 1783 he joined a Swiss friend, Georges Deyverdun, at Lausanne, and there he lived until 1793. The earlier part of this time he spent on his history, which he finished on June 27, 1787. The last three volumes were published in 1788.

He died Jan. 16, 1794. Besides the *Decline and Fall*, Gibbon wrote an *Autobiography*.



Grinling Gibbons,
English wood carver
After Kneller

GIBBONS, GRINLING (1648-1720). English wood carver. Born at Rotterdam, April 4, 1648, he came to England as a boy and did much work for Wren. His carvings in St. Paul's and other Wren churches, and at Blenheim, Chatsworth, and other great houses, are particularly fine, and there is a throne carved by him at Canterbury. He produced also some noted statues. He died Aug. 3, 1720.

GIBBONS, JAMES (1834-1921). American cardinal. Born July 23, 1834, at Baltimore, he entered the Roman Catholic priesthood in 1861, and in 1872 was appointed bishop of Richmond. In 1877 he became archbishop of Baltimore and primate of the U.S.A., and was made cardinal by Leo XIII in 1886. His chief work, *The Faith of Our Fathers*, 1871, has had a wide circulation in Britain and America. Cardinal Gibbons died Mar. 25, 1921.



James Gibbons,
American cardinal

GIBBONS, ORLANDO (1583-1625). English composer. Born at Cambridge, he was organist at the Chapel Royal, 1604, and of Westminster Abbey, 1623. His compositions, which include much church music, madrigals, and instrumental music, place him amongst the greatest of early English composers. He died at Canterbury, June 5, 1625. His son Christopher (1615-76) was organist of Winchester Cathedral and Westminster Abbey.



Orlando Gibbons,
English composer

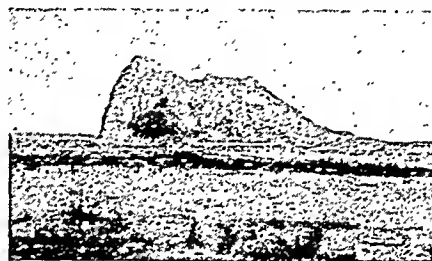
GIBBS, SIR PHILIP HAMILTON (b. 1877). British author. Born May 1, 1877, he became a journalist, serving on *The Daily Mail*, *The Tribune*, about which he wrote *The Street of Adventure*, and *The Daily Chronicle*. He was a special correspondent with the Bulgarian army in 1912, and was a war correspondent in France during the Great War. His numerous writings include *The Soul of the War*, 1915; *Realities of War*, 1920; volumes of essays, including *Ten Years After*, 1924; *The Day after To-morrow*, 1928; novels, including *The Reckless Lady*, 1925; *Darkened Rooms*, 1929, and many other works. In 1920 he was knighted, and in 1921-22 was editor of *The Review of Reviews*.



Sir Philip Gibbs,
British journalist
Russell

Gibeon. Ancient Hivite city, now known as El-Jib; 5 m. N.W. of Jerusalem; also a township of the S.W. Africa Protectorate.

GIBRALTAR (anc. Calpē). Town and rock fortress at the S. extremity of Spain, ceded to the British by the treaty of Utrecht,



Gibraltar. View of the Rock from Spain. About 2½ m. in length, its highest point is 1,408 ft.

1713. It is connected with the mainland by an isthmus 1½ m. long and ¼ m. broad. Between the British Lines and the Spanish Lines is a tract of neutral ground. S. of the British Lines are rifle ranges, a racecourse, and cemeteries. A mole affords secure anchorage for the largest vessels; and the harbour can accommodate the Mediterranean Fleet. The town is a coaling station. The population is estimated at 18,700.

Gibraltar underwent many sieges before it was taken from Spain by a combined British and Dutch force under Sir George Rooke, July 24, 1704 (O.S.) during the war of the Spanish succession. Aided by the French, Spain attempted to retake it in the following autumn and again in 1736. Then came the siege of 1779-83. Gibraltar at this time was defended by Sir G. A. Eliott, afterwards Lord Heathfield. Great loss was inflicted on the attacking forces, and the siege was raised on Feb. 6, 1783. Gibraltar is a free port, and in recent years a tourist centre. The governor is aided by an executive council of seven.

The Strait of Gibraltar is the channel separating the S. of Spain from the N. of Africa, and leading from the Atlantic to the Mediterranean. It is proposed to make a tunnel under the strait to connect Europe and Africa by rail.

GIBSON, CHARLES DANA (b. 1867). American draftsman and painter. Born Sept. 14, 1867, he made a great hit by introducing the type of American girl known as *The Gibson Girl* to illustrated literature. Later he took up portraiture.

GIDEA PARK. Suburb of Romford, Essex. It is 13½ m. E. by N. of London, with a station on the L.N.E.R. About 80 acres, with lake and wooded land adjoining, given by Sir Herbert Raphael to Romford, is known as Raphael Park. See Romford.

GIDEON. Hebrew judge and warrior. The son of Joash, he overthrew the altars and groves of Baal, routed the Midianites, and judged Israel for 40 years (Judges 6-8).

GIFFEN, SIR ROBERT (1837-1910). British economist. Born at Strathaven, Lanarkshire, July 22, 1837, after serving in a lawyer's office he took to journalism. From 1876-97 he was head of the statistical department of the board of trade. In 1895 he was knighted, and he died April 12, 1910. His works include *The Growth of Capital*, 1890; *Economic Enquiries and Studies*, 1904.

GIFFORD, WILLIAM (1756-1826). British writer. Born at Ashburton in April, 1756, he was soon an orphan. He earned a casual living until his abilities and knowledge attracted attention and he was sent to Oxford. After a period of travel he settled in London, where he died, Dec. 31, 1826. Gifford is chiefly known as a vigorous champion of Toryism and a classical scholar. He edited *The Anti-Jacobin*, 1797-98, and *The Quarterly Review*, 1809-24; wrote satires, popular in their day, translated Juvenal and Persius, and edited the works of the Elizabethan dramatists.



William Gifford,
British writer
After Hoppner

GIG. Word, suggesting lightness and speed, applied to a two-wheeled vehicle drawn by one horse. It is also used of a clinker-built racing boat, and of a narrow ship's boat propelled either by oars or sails. See Carriage.

GIGGLESWICK. Village of Yorkshire (W.R.), England. It is 14 m. N.W. of Skipton on the L.M.S. Rly. and has stone and slate quarries, and a large public school, founded in 1512. Pop. 954.

GILBERT. Group of small islands and atolls in the Pacific Ocean, belonging to Great Britain. Eighteen are inhabited; they yield pandanus fruit and coconuts, and export copra and phosphates. The total area is 166 sq. m.

GILBERT, ALFRED (b. 1854). British sculptor. Born in London, Aug. 12, 1854, he became R.A. in 1892, but retired in 1909, having been professor of sculpture since 1900. His first serious composition was *The Kiss of Victory*, 1882. Then followed *Icarus*, 1884, *The Enchanted Chair*, 1886, *The Eros* (or *Shaftesbury*)



Alfred Gilbert,
British sculptor
Elliott & Fry

Fountain, Comedy and Tragedy, 1892, the Duke of Clarence Memorial at Windsor, statue of Queen Victoria at Winchester, and of John Bright at Westminster, and many busts.

GILBERT, SIR HUMPHREY (c. 1539-83). English navigator. Born at Dartmouth, he was



Sir Humphrey Gilbert
English navigator

Raleigh's stepbrother. In 1583, with two vessels, he sailed to Newfoundland, landed at St. John's, and founded the first English colony in America. He set out on the return voyage aboard the smaller of his two vessels, the Squirrel, which foundered off the Azores with all hands, Sept. 9, 1583.



Sir John Gilbert,
British painter

GILBERT, SIR JOHN (1817-97). British artist. Born July 21, 1817, he became an artist and soon made a reputation by his illustrations for books and periodicals. He did much work for *The Illustrated London News*, and his illustrations for H. Staunton's edition of Shakespeare are notable. His pictures, several of which are in the London Guildhall, include King Charles leaving Westminster Hall. In 1871, when president of the society of painters in water colour, he was knighted; in 1872 he was elected A.R.A. and in 1876 R.A. Gilbert died at Blackheath, Oct. 5, 1897.

GILBERT, SIR WILLIAM SCHWENK (1836-1911). British dramatist. Born in London, Nov. 18, 1836, he was educated at London University. He is chiefly remembered for the remarkable series of operas in which he was associated with Sir Arthur Sullivan as music composer and Richard D'Oyly Carte as theatrical manager, 1875-96, first at the Royalty, then at the Opéra Comique, and afterwards at the Savoy Theatre. The wit and finish of his dialogue and lyrics the urbanity of his satire, and the topsy-turvydom of his humour probably contributed as much to the success of these operas as the charm of Sullivan's music. Gilbert, who was knighted in 1907, died May 29, 1911. In 1924 a Gilbert and Sullivan Society was started in London.



Sir W. S. Gilbert,
British dramatist
Russell

GILBEY, SIR WALTER (1831-1914). British merchant. Born at Bishop's Stortford, May 2, 1831, he founded, with one of his brothers, the firm of W. & A. Gilbey, wine merchants. In 1893 Gilbey was made a baronet, and on his death, Nov. 12, 1914, the title passed to his son. Gilbey was a sportsman and an agriculturist, writing books on both subjects.

Gilead. Mountainous district in Palestine E. of the Jordan. See Balm.



Gilgamesh, the
Babylonian Hercules,
strangling a lion
Louvre, Paris

Giles (Lat. Aegidius). Patron saint of lepers and beggars. Said to have been born at Athens at the end of the 7th century, he founded an abbey at Nîmes.

GILGAMESH. Hero of a Babylonian epic, by some identified as Nimrod (q.v.). He is a man of mighty strength, a great hunter, and ruler of Erech. The epic narrates the Babylonian stories of the Flood. Gilgamesh has parallels with Hercules.

GILL. Organ of respiration in animals that habitually live in water. They are found in fishes, crustaceans, many molluscs, the larval stages of batrachians, and in certain lower forms of life. They present the largest possible surface containing capillary blood vessels to the water in order that the contained oxygen may come into contact with the blood.

GILL. In engineering, the term used for the flat plate or fin fitted to the tubes of a radiator or water cooler, in order to facilitate the dissipation of heat.

GILL. Dry and liquid measure of capacity, used in Great Britain and the U.S.A. The gill equals one quarter of a pint, and contains 7.219 cubic ins. Pron. jill.

GILL, ARTHUR ERIC ROWTON (b. 1882). British sculptor. Born at Brighton, Feb. 22, 1882, he was article to an architect, but turned his attention to another branch of art. He studied in Chichester, and soon began to exhibit in London. His chief works are the Stations of the Cross in Westminster Cathedral and several war memorials, including one for the university of Leeds.

GILL, SIR DAVID (1843-1914). British astronomer. Born in Aberdeen, June 12, 1843, he was educated there. Devoting his time to astronomy, he made observations which added a good deal to the body of scientific knowledge. In 1879 he was appointed astronomer-royal at the Cape of Good Hope, and there he made a catalogue of the stars in the southern hemisphere, his greatest work. Knighted in 1900, Gill died Aug. 27, 1914.



Sir David Gill,
British astronomer
Swaine

GILLINGHAM. Market town of Dorset. It stands on the Stour, 23 m. W.S.W. of Salisbury, with a station on the S.R. It is an agricultural centre. Market day, Monday (alternate). Pop. 3,294.

GILLINGHAM. Borough of Kent. On the Medway to the E. of Chatham, of which it is virtually a suburb, it is 36 m. from London on the S.R. The industries include the making of bricks and cement. With Chatham it returns one member to Parliament. Gillingham was one of the chief stations of the navy until supplanted by Chatham. Pop. 54,038.

GILLOW, ROBERT (d. 1773). English furniture maker and designer. He came from Lancaster and opened a London house in 1761. The business was greatly developed by his sons, Richard, Robert, and Thomas, for whom designs were made, among others, by Hepplewhite and Sheraton.

GILLRAY, JAMES (1757-1815). British caricaturist. Born probably at Chelsea, he attended the R.A. Schools and studied engraving under W. W. Ryland and Bartolozzi. Between 1779, when his plate of Paddy on Horseback was published, until he died, June 1, 1815, he produced 1,500 caricatures, mostly caustic. He spared no one. His illustrations of manners and customs are invaluable to the historian.

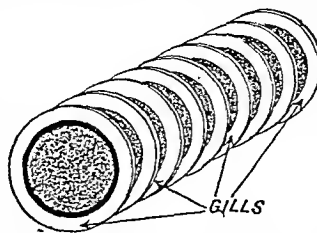


James Gillray,
British artist

GILLYFLOWER. Name originally applied to the carnation (*Dianthus caryophyllus*), but now used chiefly for stocks (*Matthiola*) and wallflower (*Cheiranthus*).

GILMOUR, SIR JOHN (b. 1876). British politician. Born May 22, 1876, he was educated at Glenalmond, in Edinburgh, and at

Trinity Hall, Cambridge. He served in S. Africa and later in the Great War, winning the D.S.O. In 1910 he was elected to Parliament as a Unionist for East Renfrewshire and in 1918 for a Glasgow division. In 1919 he was made Unionist whip for Scotland, and in 1921-22, having just succeeded to his father's baronetcy, he was a lord of the treasury. In 1924 he was made secretary for Scotland, a post he retained until 1929.



Gill. Cast-iron gilled pipe as used for heating churches, public buildings, etc.

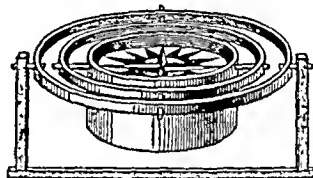
GILOLO OR HALMAHERA.

Island of the Malay Archipelago. One of the Moluccas or Spice Islands, it belongs to the Netherlands. Spices, fruits, sago, coconuts, and edible birds' nests are produced. Gilolo is the capital. Subdivided into petty states, the coastal districts are inhabited by Malays, while in the interior is a race called Alfuras. Pop. 100,000.

GIMBALS (Fr. jumelle, Lat. gemellus, twin). Brass rings in which a ship's compass is hung. They are so arranged that the compass remains horizontal, no matter how the vessel rolls and pitches. See illus. below.

GIMCRACK CLUB. English racing club. Founded in 1767, its name commemorates that of a famous racehorse. At its annual dinner the chief guest is the owner of the horse that has won the Gimcrack Stakes, a race which is run every August at York.

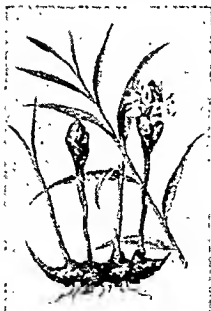
GIN. Colourless spirit flavoured with juniper berries and other aromatic herbs. It is distilled in a patent still, the grain used being maize, to which a little barley malt is added. The gin rectifier buys the neutral spirit, and then rectifies it. Each gin rectifier has his own recipes for flavouring, and very often in addition to juniper, almonds, cardamoms, cassia, orris-root, coriander seeds, or other aromatics are added. What is called Geneva (or hollands or schnapps) is a kind of gin made principally in Schiedam, Holland. The name Geneva has nothing to do with the city of that name. See Distillation; Juniper.



Gimbals, device of brass rings for keeping a mariner's compass horizontal. See above.

GINCHY. Village of France, 7 m. E. of Albert and 2 m. N.W. of Comblès. It was prominent in the battles of the Somme (q.v.). In Oct., 1928, a British memorial to the Guards who fell in the Great War was unveiled here.

GINGER (*Zingiber officinale*). Perennial herb of the order Scitamineae. It is a native of the E. Indies. It has a horizontal root-stock, which forms the ginger of commerce. The leaves are narrow, lance-shaped, up to 1 ft. long. The yellow and blue flowers are clustered in a dense oval spike on a tall, leafless stem.



Ginger. Horizontal root-stock with flowering shoots

GINNING. Separation of cotton fibre from cotton seed by the gin (a corruption of engine), an industry revolutionised in 1793, when Eli Whitney invented the saw-gin.

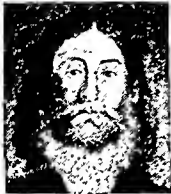
GINSENG (*Panax schinseng*). Plant of the order Araliaceae. A native of N. Asia, it has compound leaves and greenish flowers in umbels. By the Chinese ginseng root is regarded as a remedy for most diseases and a rejuvenator.

GIOLITTI, GIOVANNI (1842-1928). Italian statesman. Born Oct. 27, 1842, and educated at the university of Turin, he became minister of finance in 1889. He was prime minister for the fourth time 1911-14, and again in 1920-21. He tried to keep Italy neutral in the Great War. He died July 17, 1928.



G. Giolitti,
Italian statesman.

GIORGIONE, GIORGIO (1477-1511). Venetian painter. Born at Castelfranco, he studied under Giovanni Bellini. Among his most celebrated works are *The Sleeping Venus* (Dresden), *Evander and Pallas* (Vienna), *The Fête Champêtre* (Louvre), *The Golden Age* (National Gallery, London), and three in Venice, *Adrastus* and *Hypsipyle* (Palazzo Giovannelli), *Apollo and Daphne* (the Seminario), and *S. Mark Stilling the Storm at Sea* (the Accademia). His landscape work was distinguished, as was his portraiture.



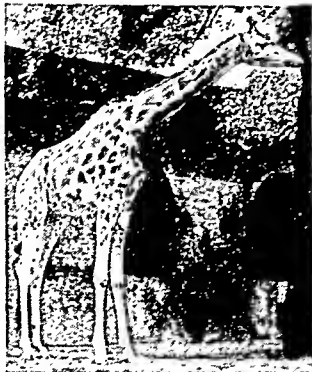
Giorgio Giorgione,
Venetian painter
Self-Portrait

GIOTTO (c. 1266-1337). Italian painter. He was born at Colle, near Florence. About 1298 he painted a famous altar piece for S. Peter's, Rome. The frescoes of the Life of S. Francis at Assisi were painted shortly after, and in 1303 he decorated the chapel of the Annunziata dell' Arena at Padua with frescoes of the History of the Virgin and Son. One of his last works was the design for the beautiful campanile of Florence Cathedral. He died at Florence, Jan. 8, 1337. See illus. p. 608.

GIPPSLAND. District in S.E. Victoria, Australia. Its area is 13,900 sq. m. Formerly well timbered with giant eucalyptus, it is now extensively cleared and settled. It is rich in dairy produce, and coal, gold, and other minerals are produced. The chief town of Gippsland is Sale.

Gipsy Hill. Residential district of London, S.E. It is 8 m. S. of London Bridge on the Southern Rly. and forms a part of Norwood.

GIRAFFE (Arab, zarāf). Member of the even-toed ungulate or hoofed mammals, remarkable for the great length of its legs and neck. The body is comparatively short, the forequarters standing much higher than the hind ones, and the tawny pelt is handsomely marked with a network of light lines. The long, narrow head is surmounted by a pair of short horn-like outgrowths, bony cores covered by the skin. The tongue is long and used to grasp the twigs and leaves of trees. Giraffes are found only in Central and S. Africa, chiefly in desert regions.

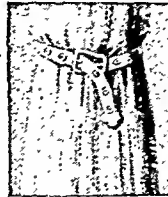


Giraffe in captivity. The males are sometimes as much as 20 feet high

GIRASOL (Ital. girasole, from girare, to turn, sole, sun). Gem which reflects bright red or yellow light apparently coming from its interior. The most remarkable form is the fire opal, which gives bright hyacinth, yellow, or fire-red reflections: the finest examples have been found at Zimapán, Mexico, and in the Faroe Islands. See Opal.

GIRDER. In buildings and bridges, a beam of steel, iron, or concrete and steel supported on walls or piers to bear the stress or weight of a superstructure. See Bridge.

GIRDLE. Belt worn round the waist to draw in loose outer garments, to keep up breeches or petticoats, or to carry weapons or other articles in constant employment. In time an article of apparel developed that has lent itself to rich decoration by armourer, brooderer, and goldsmith, and that led to the formation of the Girdlers' Company of London, incorporated in 1449. See Baldrick.



Girdle from brass in
S. Stephen's, Nor-
wich, 1460

GIRGENTI (ane. Agrigentum). City of Sicily. Situated near the coast, 84 m. by rly. S. of Palermo, its chief glories are its numerous remains of Greek temples. There is a large export trade, Porto Empedocle being the port. Pop. 20,735. See Agrigentum.



Girl Guide.
Dress of Tenderfoot

GIRL GUIDES. Organization for the training and welfare of girls. Founded by Lord Baden-Powell (q.v.), it was developed by his sister Agnes Baden-Powell. Girls between 8 and 16 are eligible for membership; those from 8 to 11 being known as Brownies. Physical training and instruction in useful arts and crafts are important features. The world membership is 894,000, of whom 518,000 are in the British Isles. See Scouting.

GIRONDE. Department of S.W. France. Named after the estuary formed by the union of the Garonne and Dordogne, its area is 4,140 sq. m. Cereals are grown, but the chief industry is the cultivation of the vine and the production of the wines known as Graves, Médoc, Sauterne, and others. Bordeaux is the capital. Pop. 827,973.

GIRONDINS or **GIRONDISTES**. Name given to a moderate political party of the French Revolution. Several of its early members had represented the dept. of Gironde in the legislative assembly. Brissot (q.v.) was their leader. Other members were Condorcet, Barbaroux, and Vergniaud, while Madame Roland was a great influence in the party. The Girondins originated in a salism in the Jacobin Club in 1791, and were overthrown in 1793 by the Jacobins (q.v.).

GIROUARD, SIR EDUARD PERCY CRANWILL (b 1867). British soldier. Born in Montreal, Jan. 26, 1867, he was educated at the R. Military College, Kingston, and entered the army in 1888. He served in the Sudan in 1896, was railway traffic manager at Woolwich, 1890-95, and director of railways in the Sudan and S. Africa, 1896-1904. He was high commissioner of N. Nigeria, 1907-8, and governor of E. Africa, 1909-12. In May, 1915, he was director-general of munitions supply.

GIRTIN, THOMAS (1775-1802), English painter. Born in Southwark, Feb. 18, 1775. he received lessons



Thomas Girtin,
English painter
After J. Opie

from Edward Dayes (1763-1804), and frequently accompanied J. M. W. Turner to sketch on the Thames side. He was the founder of the modern school of painters in water colours. Most of his best works, such as the White House, Chelsea, and Battersea Reach, are in private hands, but he is adequately represented at the British Museum. He died in London, Nov. 9, 1802.

GIRTON COLLEGE. College at Cambridge for the higher education of women. Founded in a house at Hitebin, Oct. 16, 1869, it was removed to Cambridge, Oct., 1873.

GIRVAN. Police burgh and market town of Ayrshire. It is 63 m. S.W. of Glasgow on the L.M.S. Rly. The chief industry is fishing. The town is 5 m. from the Turnberry golf courses. Market day, Mon. Pop. 7,272.

GISBORNE. Port of North Island, New Zealand, in Cook co. It stands on Poverty Bay, and is the centre of a rich pastoral and



Girton College, Cambridge. The main buildings,
designed by Alfred Waterhouse, 1872. See above

agricultural district. Here Captain Cook first landed in New Zealand in 1769. Pop. 15,540.

GISSING, GEORGE ROBERT (1857-1903). British novelist. He was born at Wakefield, Nov. 22, 1857, and educated at Owens College, Manchester. In 1882 he became tutor to Frederic Harrison's sons, and wrote three novels, *The Unclasssed*, *Demos*, and *Thyrza*, all concerned with the suffering of sensitive souls in sordid environment. More able, but equally joyless, were *The Nether World*, *New Grub Street*, *Born in Exile*, and *The Odd Women*. A scholar of parts, his qualities and tastes are revealed in his monograph on Charles Dickens, in *By the Ionian Sea*, *The Private Papers of Henry Ryecroft*, and the posthumous *Veranilda*. He died Dec. 28, 1903.



George Gissing,
British novelist

GIVENCHY. Village of France, in the dept. of Pas-de-Calais. It is 2 m. W. of La Bassée and 1 m. S.E. of Festubert. Prominent in the Great War, it was the scene of a considerable battle, Dec. 16-22, 1914. Although the objective of the Germans throughout the war, it was firmly held by the British. Fierce fighting took place here in 1915. In April, 1918, the Germans unsuccessfully attacked it. A village known as Givenchy-en-Gohelle is in the dept. of Pas-de-Calais, 5 m. S.W. of Lens. The French were engaged here with the Germans, Sept., 1915, and Jan.-Feb., 1916. It was captured by the British on April 13, 1917, in the third battle of Arras (q.v.).

GIZEH or **GIZA**. Town of Egypt. It is on the left bank of the Nile, just above Cairo. Here is the palace of Gizeh, erected by the khedive Ismail. In the neighbourhood are the Pyramids. Pop. 26,921. The prov. of the same name contains the districts of Ayat, Es Saffi, Embaba, and Gizeh. The area is about 409 sq. m. Pop. 591,390.

GIZZARD (Lat. gigeria, poultry entrails). Term used in comparative anatomy for that portion of the alimentary canal which is

specially designed for grinding food. Hence it is usually found in such animals as swallow food whole without mastication.

GLACE BAY. Town and port of Cape Breton Island, Nova Scotia. It is 14 m. from Sydney. Around it are coal mines, and its industries include machino and railway shops and fishing. Pop. 17,007.

GLACIER (Fr.). Moving mass of ice. The snow-line varies in elevation from sea level in Antarctica to 2,500 ft. in Alaska, 8,500 ft. on the Alps, and 16,000 ft. on the S. side of the Himalayas. As the snow above the snow-line accumulates the lower portions slowly change into ice, and when the mass of ice and snow becomes sufficiently thick it begins to move downwards. When the moving mass follows a definite path down a mountain valley it is a glacier. In its passage a glacier accumulates quantities of rocks. Some of these sink into the mass; others are moved to the margins.

Glaciers have been classified into four types: (1) valley glaciers, as in the Alps, Caucasus, Andes, Himalayas, and coast mts. of Alaska; (2) piedmont glaciers, when a valley glacier pushes out on to a nearly level area at the base of the mountains; (3) ice caps, as in Iceland, Greenland, and Antarctica; and (4) continental glaciers, as in Greenland, where the continental glacier is steadily pushing seawards.

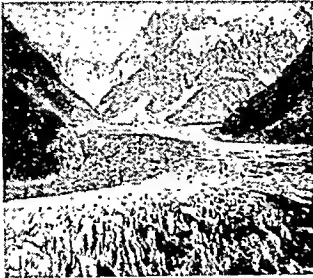
The glacial period is the earlier of the two subdivisions of quaternary time. See *Avalanche*; *Geology*; *Ice Age*.

GLACIS (Fr. *glace*, ice). Sloping ground in front of a fortification and within close rifle range. The term is also used to describe a sloping protective plate on a battleship.

GLADIATOR (Lat. *gladius*, sword). Term applied among the ancient Romans to a professional fighter who engaged in combat

Caesar, those about to die salute thee). When one combatant was overcome but not killed by another, the spectators, by turning their thumbs up (or against the breast) or down, determined the fate of the beaten gladiator. See *Amphitheatre*; *Colosseum*.

GLADIOLUS (Lat. *little sword*). Flowering bulbs of the order Iridaceae. Most of them are natives of South Africa. They flower from June to Oct., bearing a number of blossoms on stiff, almost upright, spikes.



Glacier. The Mer de Glace, which moves down the north side of Mont Blanc

GLADSTONE, HERBERT JOHN GLADSTONE, 1st Viscount (1854-1930). British politician. Born Jan. 7, 1854, the youngest son of W. E. Gladstone, he was for a few years a lecturer at Keble College, Oxford. In 1880 he entered Parliament as M.P. for West Leeds, and from 1881-85 he held a minor position in his father's ministry, as he did in 1886. From 1892-94 he was under-secretary for home affairs, and in 1894-95 first commissioner of works. From 1899-1905, when the Liberals were in opposition, he was the chief whip, and in 1905 he was rewarded by being made home secretary.

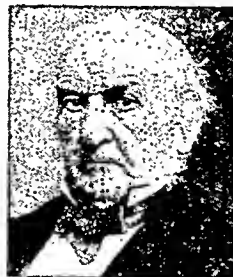
In 1910 he became governor-general of S. Africa, and was made a viscount. He returned to England in 1914, and died March 6, 1930. In 1928 he published *After Thirty Years*, reminiscences of his father.

GLADSTONE, WILLIAM EWART (1809-98). British statesman. Born at Liverpool, Dec. 29, 1809, he was the youngest son of Sir John Gladstone, Bart. (1764-1851), M.P. and merchant, by his marriage with Anne Robertson. He was educated at Eton and Christ Church, Oxford, and in Jan., 1833, he took his seat in the first reformed parliament as Tory member for the borough of Newark.

Gladstone began his long career in the public service as a junior lord of the treasury under Peel in 1834. He was under-secretary for the colonies, 1835, and vice-president of the board of trade 1841. In 1843 he became president of the board, and in 1845-46 was colonial secretary. He left office in 1846, and soon had broken with the Tory party. In 1852 he joined the coalition ministry of Lord Aberdeen and was chancellor of the exchequer till 1855. He was again chancellor, 1859-66, and on Palmerston's death, in 1865, became head of the ministry in the House of Commons. From 1847 to 1865 he represented Oxford University in Parliament. From 1865-68 he was M.P. for S. Lancashire; from 1868-80 for Greenwich, and from 1880 to the end for Midlothian.



Catherine Gladstone, wife of the Premier
London Stereoscopic Co.



William Ewart Gladstone, British statesman
London Stereoscopic Co.



Viscount Gladstone, British politician
Russell

and until 1874 filled, in addition, the office of chancellor of the exchequer. He then retired, but returned to denounce the Bulgarian atrocities, and in



Gladiolus. Flowers and leaves of a garden variety

1880, after the Midlothian campaign, again took office as premier. He was also chancellor until 1882. In 1885 came a general election and his sudden declaration for Home Rule. In Feb., 1886, he took the premiership for the third time, but was soon defeated, and until 1892 led the opposition. The next election came in 1892, and he was premier for the fourth time until March, 1894, when he retired from office and Parliament. He died at Hawarden Castle, May 19, 1898, and was buried in Westminster Abbey.

By his marriage in 1839 to Catherine, sister and heiress of Sir Stephen Glynne, 9th baronet, the castle and estate of Hawarden passed into the Gladstone family. There were four sons and four daughters of the marriage. Consult *Life*, John Morley, 1903 and 1905; *Religious Life of Gladstone*, D. C. Lathbury, 1910.

GLADWYN (*Iris foetidissima*), Perennial herb of the order Iridaceae. It is a native of W. Europe. The root-stock is thick and creeping, the leaves 2 feet long, sword-shaped, erect, and dark green, the flowers dull blue-purple, with darker veins. In late autumn the round bright orange seeds make the plant more conspicuous than when in flower. It is also called by the names of foetid iris and roast-beef plant.



Gladwyn. Fruit and, inset, flower of *Iris foetidissima*

GLAMIS.

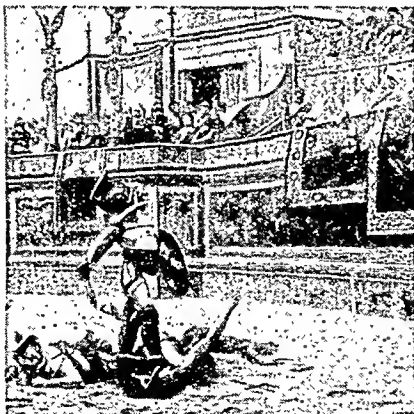
Village of Angus, Scotland. It is 6 m. W.S.W. of Forfar, on the L.M.S. Rly. Here is Glamis Castle, a seat of the earl of Strathmore, one of the oldest castles in Scotland. Pron. *Glahms*.

GLAMORGANSHIRE. Co. of S. Wales. It is bounded by the Bristol Channel and the cos. of Carmarthen, Brecknock, and Mon-



Glamis Castle. The Angus seat of the earl of Strathmore. It dates mainly from the 17th century

mouth. Owing to the development of the rich coalfields of Rhondda, Merthyr Tydfil, Aberdare, and Pontypridd it has become a great industrial centre. Between Rhymney and Neath is the agricultural region known as the vale of Glamorgan. The chief rivers are the



Gladiator. Scene in the arena, by J. L. Gérôme. The spectators are giving the signal "thumbs down"
Stewart Collection, New York

in amphitheatres with others or with wild beasts. Schools existed for training them. The bestiarius fought with wild beasts; the retiarius was armed with a trident and a net; the mirmillo, whose helmet was adorned with the figure of a fish, was usually opposed by the threx, carrying a round shield and a short sword; the andabala fought on horseback and wore a helmet which entirely covered the face; the laquearius carried a lasso.

A display began with a procession, and as they passed the emperor's seat the gladiators cried *Ave Caesar, morituri te salutant* (Hail,

Taff, Tawe, Cynon, Ogwr, Rhondda, Rhymney. In the north of the county are mts. (highest point nearly 2,000 ft.). There is some beautiful scenery, especially in the vale of Neath. Cardiff (the capital), Swansea, and Merthyr Tydfil are the largest towns. In addition to coal mining and agriculture there are tinplating, smelting, and oil-refining industries. The ruined castles include Caerphilly, Oystermouth, Llanblethian, Penarth, and Swansea. Cardiff, St. Donats, Dunraven, and Penrice have been restored. The area is just over 800 sq. m., and the pop. 1,252,481.

Gland (Lat. glans, acorn). Organ of the body which secretes fluid or material essential for the maintenance of health.

GLANDERS (Lat. glandulae, glands). Disease of horses due to infection by a bacillus (*B. mallei*). In rare instances it is communicated to man by contagion, usually through an abrasion of the skin.

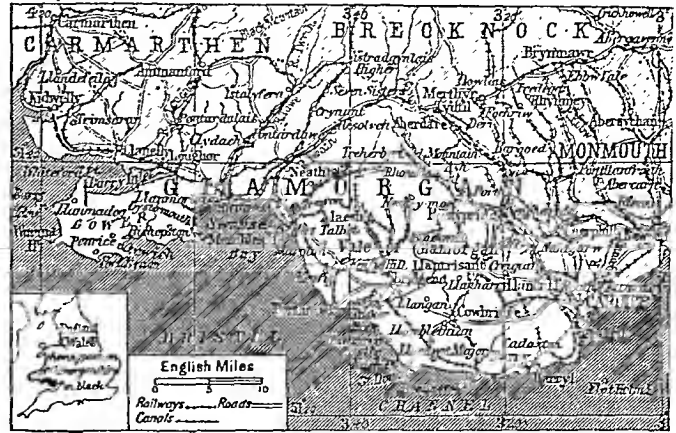
GLASGOW. Royal burgh, co. of a city, commercial capital, and largest city of Scotland, in the co. of Lanark. With an area of 29,511 acres and a pop. of 1,147,000, it is 47 m.

There are fine hospitals and infirmaries, libraries, an observatory, and botanic gardens. In addition to the university, there are several colleges for higher education, and special ones for art, technology, and theology, while schools of every size and variety abound.

Of the many parks, Kelvingrove is the most noteworthy. Others are Queen's, Bellahouston, and Alexandra, and Cathkin Braes. Rouken Glen Park is outside the city boundaries. Glasgow Green is the home of popular demonstrations. The Necropolis is a large cemetery finely placed on a hill. The boundaries

have been extended from time to time and just before the Great War Govan and Partick, previously separate municipalities, were included in the city. There is an abundant supply of water from Lochs Katrine and Arklet. The harbour, which includes extensive docks along the Clyde, is accessible for the largest vessels afloat. See Clyde; Dock.

The Glasgow School is a name associated since 1886 with a group of painters living in Glasgow. Its members have included Sir D. Y.



Glamorganshire. Map of the county containing the chief coalfields of S. Wales

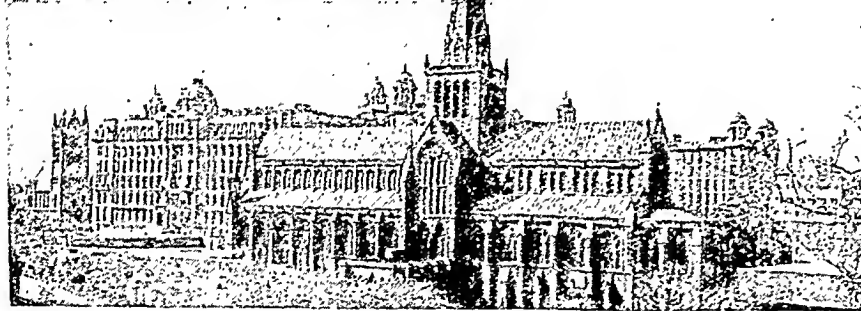
Cameron, Sir James Guthrie, P.R.S.A., Sir John Lavery, P.A., and E. A. Walton.

THE UNIVERSITY OF GLASGOW. Founded in 1450 by William Turnbull, this is housed in a magnificent pile of buildings on Gilmore Hill opened in 1870. It unites with the three other Scottish universities to send three members to Parliament.

The earl of Glasgow is a title borne since 1703 by the family of Boyle. The earl sits in the House of Lords as Baron Fairlie, a title dating from 1894, and his eldest son is known as Viscount Kelburn. The family seat is at Kelburn, Ayrshire.

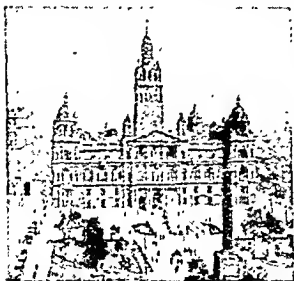
Glasgow. British light cruiser. Completed 1911, she belonged to the Bristol (q.v.) class. She took part in the battle of the Falkland Islands, Dec. 8, 1914.

GLASS. A non-crystalline, transparent mixture of fused silicates. The glasses known as "sheet" and "plate" are mixtures of the silicates of soda and lime, the ingredients being sand, carbonate of lime, and sulphate or carbonate of soda. Table or "flint" glass is usually a mixture of the silicates or potash and lead, the ingredients being sand, red lead, and carbonate of potash. The temperature at which glass mixtures melt ranges from about 1,200° C. to 1,500° C. The place where glass was first made is not known, but its origin in Egypt is dated about 1550 B.C. Much of



Glasgow. The Cathedral of St. Mungo, built 1197-1446, and, on the left, the Royal Infirmary and Barony Church. Above, the University, on Gilmore Hill, designed by Sir Gilbert Scott, 1868

W. of Edinburgh, 23 m. from the open sea at Greenock and 405½ m. from London, on the L.M.S. and L.N.E. rlys. It is governed by a town council under a lord provost and it sends 15 members to Parliament. Its chief industries are shipbuilding, coal and iron mining, engineering, spinning and weaving, distilling, tobacco, chemicals, dyeing, etc.



Glasgow. George Square, with the Municipal Buildings, the Scott Monument and the Cenotaph. Courtesy of L.M.S. Railway

style. The Art Galleries in Kelvingrove Park contain a notable collection of old masters.

The cathedral, dedicated to St. Mungo (also known as St. Kentigern), was built 1197-1446, and afterwards restored. On George Square are the municipal buildings, a magnificent block in the Italian Renaissance



Glasgow. Plan of the city, showing the principal buildings, railway stations and docks

modern glass is machine made. A department of glass technology was opened at Sheffield University in 1915. The Glass Sellers' Company of the city of London was incorporated in 1664.

GLASSITES. Scottish sect. It was founded about 1730 by John Glas (1695-1773), who taught that church establishments were unscriptural. He founded several congregations, better known as Sandemanians, after one of the more conspicuous elders, Robert Sandeman. The sect adopted community of goods and abstinence from certain kinds of food.

GLASS SNAKE (*Ophisaurus ventralis*). Popular name for the Scheltopusik, a genus of lizards found in parts of Europe, N. America, and Asia. It is snake-like in form, the limbs being either absent or rudimentary, and the body is covered with scales. It is perfectly harmless, and feeds on mice and snails. See Lizard.

GLASSWORT (*Salicornia europaea*) or **MARSH SAMPHIRE**. Annual leafless herb of the order Chenopodiaceae. A native of Europe, N. Africa, W. Asia, and N. America, it has juicy, jointed stems and branches, joints spindle-shaped. The minute flowers are in pairs, sunk in a pit in the joints of the branches, and have no petals. Glasswort grows in salt marshes, and was burnt formerly to obtain soda from its ashes for use in glass-making.

GLASTONBURY. Borough and market town of Somerset. It is 5½ m. from Wells, on the G.W. Rly., and is famous for its remains of a great Benedictine abbey, which flourished here until the Reformation.

Until 1907 the ruins were in private hands; they were then transferred to the diocese of Bath and Wells. Tradition ascribed the foundation to Joseph of Arimathea, who, it is said, built a church here and planted the thorn which bloomed once a year on Christmas Day. It was long a place of pilgrimage. The town, which grew up around the abbey, was given municipal privileges in 1706. Market day, Tues. Pop. 4,456.

The Glastonbury lake villages are two late Celtic settlements of the crannog (q.v.) type near Glastonbury.

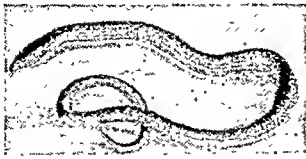
GLAUCOMA (Gr. *glaukos*, bluish green). Disease of the eye characterised by an increase of tension or pressure of the fluids within the eyeball. See Blindness; Eye.

GLAUCUS. Name of three personages in Greek mythology. They are the builder of the Argo, the ship of the Argonauts (q.v.); the father of Bellerophon; and a Lyeian hero slain by Ajax.

GLAZE. Layer of pure or mixed transparent colour thinly applied to a painting to improve its tone, to impart mellowness, to

protect the surface, and to facilitate its being cleaned without risk of injury. Glaze also plays an important part in the manufacture of pottery and porcelain. See Tiles.

GLAZE BROOK, SIR RICHARD TETLEY (b. 1854). British physicist. Born at Liverpool, Sept. 15, 1854, in 1890 he became director of the Cavendish Laboratory, Cambridge; in 1898 he was chosen principal of University College, Liverpool; and from 1899-1919 director of the National Physical Laboratory. His work lay chiefly with optics and electricity. He wrote text-books on physical optics, heat and electricity, and was knighted in 1917. In 1920 Glazebrook became foreign secretary of the Royal Society.



Glass Snake, a legless lizard, over a yard in length

GLEANING or **LEASING.** Gathering what is left after harvest, usually corn, but sometimes grapes or other produce. In England the public are not legally entitled to glean, but are seldom turned off.

GLEBE (Lat. *gleba*, clod, land). Term in ecclesiastical law for land belonging to a benefice. It was formerly held that each parish should possess a house and glebe land for the support of the parson. See Tithe.

GLEE. English vocal concerted work in three or more parts. It is for solo voices, unaccompanied and usually male, the style being non-contrapuntal.

GLENALMOND. Glen or valley of the Almond river, Perthshire. Here is Trinity College, the first school in Scotland modelled after the English public schools. In the glen is the reputed grave of Ossian.

GLENCAIRN, EARL OF. Scottish title borne by the family of Cunningham from 1488 to 1796. The first earl was Alexander Cunningham, a lord of parliament, killed when fighting for James III against some rebels in 1488. William, the 9th earl (d. 1664), was responsible for the rising in Scotland in favour of Charles II and became lord chancellor of Scotland in 1661. The 14th earl, James, who died childless in 1791, was a friend of Burns. His brother, the 15th earl, died childless in 1796, and the title became extinct.

GLENCOE. Glen in Argyllshire. It extends for 10 m. W. from Buehaille Eivie to Loch Leven, an E. arm of Loch Linnhe. It lies among magnificent mountain scenery with peaks rising to 3,800 ft. Here took place in Feb., 1692, the massacre of the Macdonalds. The Master of Stair, an old enemy of the chief of the Macdonalds, obtained an order from William III for the extirpation of the Macdonalds as dangerous irreconcilables. The order was treacherously carried out by the Campbells, who were also enemies of the Macdonalds.

The name Glencoe is given to a village of Natal, S. Africa, near which took place the opening operations of the South African War in the autumn of 1899.

GLENDALOUGH. Valley of the Irish Free State, in co. Wicklow. It is 8 m. N.W. of Rathdrum, a station on the Gt. Southern Railway, and is famous for its beauty and its eccles. ruins. The glen, 2 m. long, is enclosed by mts. and is traversed by the Glencalo, which in it forms two lakes. Glendalough was the seat of a bishop from the 6th century to the 13th, and the ruins are known as the Seven Churches. Most of them were founded by S. Kevin. There is a fine round tower.

GLENEAGLES. Pleasure resort in Perthshire, Scotland. It is 9 m. from Crieff, with a station on the L.M.S. Rly. There are excellent golf links. Pop. 486.

GLENELG. Seaport and watering place of South Australia. It is 6 m. by rly. S.W. of Adelaide. Pop. 5,000. There is a river of this name in Victoria. Its length is 260 m. Charles Grant, Baron Glenelg (1778-1866), was colonial secretary under Melbourne, 1835-39. His title, conferred on him in 1835, was taken from his estate in Scotland.

GLENFINNAN. Glen and hamlet of Inverness-shire, Scotland. A monument marks the spot where Prince Charles Edward unfurled his banner in 1745.

GLENGARIFF. Village of co. Cork, Irish Free State. It stands on Glengariff Harbour, an arm of Bantry Bay, 7 m. N.W. of Bantry and is a noted beauty spot.



Glengarry bonnet

Glengarry. Glen of Inverness-shire, Scotland. It gives its name to the Highland bonnet worn by some Scottish regiments.

GLEN INNES. Chief town in the rich New England plateau of New South Wales. It is 423 m. N. of Sydney and is an important tin-mining centre. Bismuth, wolfram, and molybdenite are also found. Pop. 4,580.

GLENLIVET or **GLENLIVAT.** Valley of Banffshire, Scotland, celebrated for its whisky. Glenlivet is also the name of a parish, situated 6 m. S.E. of Ballindalloch.

GLENMORE. Valley of Inverness-shire, Scotland. About 60 m. long, it extends from the Moray Firth to the head of Loch Linnhe. In it are the Caledonian Canal and lochs Ness, Lochy, Oich, and others. Another glen of this name is in Perthshire.

GLENROY. Valley of Inverness-shire, Scotland. About 14 m. long, it is remarkable for its three parallel roads, thought to be of glacial origin, which extend in terraces on both sides of the glen, which is watered by the river Roy.

GLENSHIEL. Valley of Ross and Cromarty, Scotland. It was formerly part of the Seaforth country, and is 26 m. in length. Glenshiel is also the name of a parish, which includes Letterteam. Pop. 339.

GLIDER. Name for any heavier-than-air vessel without a motor. It is so designed that when launched from a height, or with certain velocity, it pursues a path of gentle descent



Glendalough, Ireland. The glen with Round Tower and remains of the Seven Churches

through the air. By their experiments with gliders, Lilienthal, Chanute, the Wrights, and other pioneers opened up the way to the power-driven aeroplane.

Gliding was revived in Germany in 1920, and has since made great progress. The two

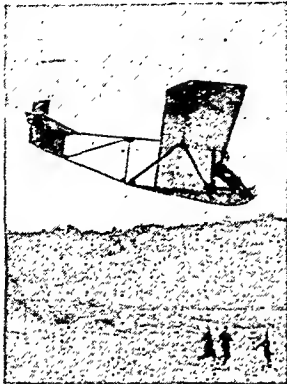


Glastonbury. The abbot's kitchen, with its four fireplaces, built about 1435
F. W. Hardie



Glenroy, looking across the glen to the three parallel roads

chief centres are the Wasserkuppe, in the Rhön mountains, and Rossitten, East Prussia. In 1929 Dinort made a glide lasting 14 hours 43 minutes at Rossitten, and Kronfeld flew on a glider from the Wasserkuppe to Baireuth, a distance of about 93 m. In England a gliding meeting was held at Itford in 1922, when Maneyroll won The Daily Mail prize of £1,000 with a flight lasting 3 hrs. 21 mins. After this little was done for some years. Early in 1930 the British Gliding Association was formed and many gliding clubs were organized.

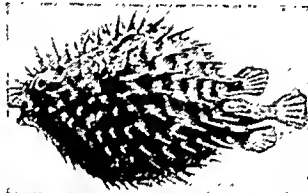


Glider. Member of the London Gliding Club making a successful flight at Aldbury, Herts

The gliders resemble those used in Germany. To launch the glider a cable of indiarubber is passed through a ring hooked to the machine, the tail of the glider is held down, and the launching party, taking hold of the two ends of the cable, advance with the cable until it is drawn out to about twice its length. The tail of the glider is then released, and the machine moves forward until it attains flying speed, the cable and ring falling to the ground.

In April, 1930, a prize of £1,000 was offered for the first pilot to cross the English Channel in a glider during the ensuing twelve months. A prize of £50 for a straight flight of 50 miles, offered in 1922, still remains unclaimed. The Daily Mail announced its intention to institute an important gliding competition for the summer of 1931. See Aeronautics; Aeroplane.

GLOBE FISH. Marine fish of the didontidae and tetrodontidae families. They are found in the tropic seas, and have the power of distending their bodies with air. The largest species are about 2 ft. in length, and most are beautifully coloured.



Globe Fish. The lesser spotted variety with distended body

GLOBE FLOWER (*Trollius europaeus*). Perennial herb of the order Ranunculaceae. It is a native of Europe. The leaves are round in general outline, but divided into five toothed lobes. The fine yellow flowers are globular, and their rich appearance is due to the numerous sepals, which are petal-like, while the true petals are small and narrow. It is cultivated in flower gardens.



Globe Flower. Leaves and flowers of this European herb

GLOBE THEATRE, THE. Former London playhouse, built on Bankside (q.v.), Southwark, in 1599, by the Burbages, Shakespeare, and four other actors. It held 1,200 spectators, and was partly open to the sky. Shakespeare acted in this theatre.

GLOBE THISTLE (*Echinops*). Genus of biennial and perennial herbs. Of the order Compositac, they are natives of Europe and W. Asia. Their long, strongly lobed and spiny leaves give them a resemblance to thistles. The flower-heads are gathered into large globular masses, each standing on a long stalk. The flowers are white or blue.



Globe Thistle. Flower heads and leaves of the *Echinops*

GLOBULARIA. Small genus of perennial herbs and shrubs, of the order Selaginaceae, natives of the Mediterranean region. They have leathery, lance-shaped leaves, and numerous small flowers gathered into flattish heads. *Globularia vulgaris* and *G. nudicaulis*, with blue flowers, are frequently grown in gardens, and *G. alypum*, a shrubby species, in the greenhouse.

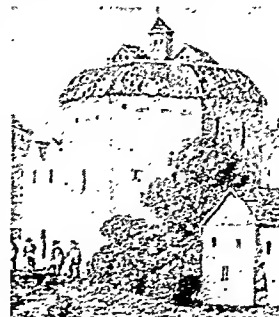
GLOBULIN. Class of protein substances which occur both in the plant and animal kingdoms. As a rule insoluble in water, they dissolve in dilute neutral salt solutions. Globulins in solution are precipitated by the process of adding a large excess of water; on beating they coagulate.

GLOCHIDIUM. Larval stage of the fresh-water mussel (*Anodonta cygnaea*). This mussel retains its eggs until they hatch, and the glochidia are found at first attached to the gills of their parent. They are cast out in the outgoing current of water and attach themselves to the fins of sticklebacks and other fishes, being thus distributed to other parts of the pond or stream. The shell develops, and the young mussels then drop to the bottom of the pond.

GLORIANA. Titular character of Spenser's allegorical poem, *The Faerie Queene*. Introduced in canto 1, 3, as "That greatest Glorious Queene of Faeryland," she personifies both Glory and Queen Elizabeth.

GLORIOUS. British aircraft carrier. Originally a cruiser, she was laid down in 1915. In 1924 alterations were begun, and in 1930, as a carrier, she joined the Mediterranean fleet. She displaces 18,600 tons, and can accommodate six flights of aircraft. She carries 16 4.7 guns.

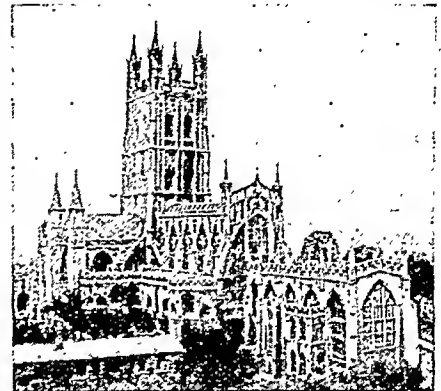
GLOSSITIS (Gr. glōssa, tongue). Inflammation of the tongue. Acute glossitis may arise from injuries, bites, stings of insects, or over-administration of mercury, and is occasionally seen in acute fevers. The tongue becomes swollen and painful, and speech, swallowing, and respiration are interfered with.



Globe Theatre, the old London playhouse associated with Shakespeare. From an engraving c.1612

GLOSSOP. Borough and market town of Derbyshire. It is 13 m. S.E. of Manchester, on the edge of the Peak district, on the L.N.E. Rly. The chief industry is the manufacture of cotton. The principal building is All Saints' church, a modern edifice. Glossop Hall, formerly the seat of the Howards, resembles a French château in style. Glossop was made a borough in 1866. Market days, Fri. and Sat. Pop. 20,870.

GLOUCESTER. City, co. bor., port and co. town of Gloucestershire. It is on the left bank of the Severn, 114 m. N.W. of London on the G.W. and L.M.S. Rlys. and the Berkeley Canal. Gloucester has engineering



Gloucester Cathedral. The oldest part dates from about 1100, while the tower was built in 1450
D. McLeish

and rly. works and machine shops. There is an important cattle market.

An abbey was established here in 681, and in 1022 a Benedictine monastery, the church of which became the cathedral in 1541, when Gloucester was constituted a separate see. Substantially Norman, the cathedral contains the shrines of Edward II (see illus. p. 546) and Osric, king of Northumbria. Other buildings include the 12th century church of S. Mary de Crypt, the episcopal palace, guildhall, prison, and the King's School. The centre of the city is the Cross, the intersection of the four main streets, the Eastgate, Northgate, Westgate, and Southgate. Remains of the ancient walls exist, and there are memorials to Hooper, the martyr, and Raikes, the founder of Sunday schools. Market days, Mon. and Sat. Pop. 53,560.

Gloucester. British light cruiser of the Bristol (q.v.) class. She became famous for her effort to prevent the escape of the Goeben.

GLOUCESTER, EARL AND DUKE OF. English titles. Like other counties, Gloucester had its earls in Norman times. The family of Clare secured the title about 1218, and retained it until Earl Gilbert was killed at Bannockburn in 1314. In 1385 Thomas of Woodstock (1355-97), a younger son of Edward III, was made duke of Gloucester. His public life almost covered the reign of his nephew, Richard II, and he virtually ruled England from 1386-89. In 1397 he was arrested on a charge of plotting against Richard, and was put to death. In 1414 Humphrey (1391-1447), youngest son of Henry IV, was created duke of Gloucester. He

acted as regent during the king's absence in France, 1420-21, and was protector during the minority of his nephew, Henry VI. He died at Bury, Feb. 23, 1447, after arrest on a doubtful charge of treason. A patron of learning, he made many gifts to Oxford. Later holders of the title were Henry, a son of Charles I; William (d. 1700), the eldest son of Queen Anne; and George III's brother, William Henry, created duke in 1764. It became extinct in 1834, but was revived in 1928.

GLOUCESTER, HENRY, DUKE OF (b. 1900). British prince. Third son of King George V, he was born at York Cottage, Sandringham, March 31, 1900, and was christened Henry William Frederick Albert. The prince was a pupil at a private school at Broadstairs. Thence he proceeded to Eton, where he joined the Officers' Training Corps. He became a captain in the 10th Hussars, and in 1928 was created duke of Gloucester. He visited S. Africa in 1928.



Prince Henry,
Duke of Gloucester
Vandyk

GLOUCESTERSHIRE. County of England. In the W., between the Severn and the Wye, is the forest of Dean; the centre district is that of the Severn valley, and the E. that of the Cotswolds. The chief rivers are the Severn, Wye, Upper and Lower Avon, and Thames. The chief range of hills is the Cotswolds. Gloucester is the county town, but Bristol is much the largest. Cirencester and Tewkesbury are noted for their architectural and historical associations. Cheltenham is a watering place and educational centre. A feature of the county is the number of picturesque market towns. Its area is 1,259 sq. m. Pop. 757,668.



Gloucestershire. Map of the irregularly shaped West of England county

Gloucestershire is mainly an agricultural county, although coal is mined in the forest of Dean. The Severn valley is noted for its

pasture land, while here much wheat is grown. Cheese is made, cattle are reared, apples and pears are grown for cider and perry. Sheep are plentiful on the Cotswolds. Cloth is manufactured. The county is served by the L.M.S. and G.W. Ryas. and by the Thames and Severn Canal. It supports several packs of hounds. It is in the Oxford circuit and mainly in the dioceses of Gloucester and Bristol.

GLOUCESTERSHIRE REGIMENT.

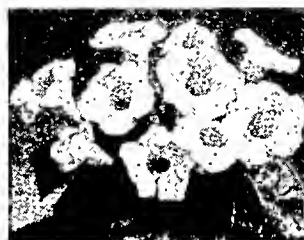
Regiment of the British army. Known by this name since 1881, it represents the old 28th and 61st regiments of foot. It helped to win the battle of Ramillies in 1706, and was present at the battle of Fontenoy in 1745, at Louisburg in 1758 and Quebec in 1759. In the battle before Alexandria (1801) the regiment repulsed the French attack on both sides, in commemoration of which the men wear the regimental badge on both front and back of their caps.

It fought in the Peninsular War, and later won distinction at Waterloo, in the Punjab campaign, the Crimean War, and the Indian Mutiny. During the S. African War the Gloucesters shared in the defence of Ladysmith, the relief of Kimberley, and in the operations which led to the occupation of Bloemfontein, March 14, 1900. The regiment fought with distinction in the Great War. The regimental depot is situated at Bristol.

GLOVE. Covering for the hand. The custom of wearing gloves goes back to immemorial times. Xenophon refers to their use by the Persians.



Gloucester Regimental badge



Gloxinia. Foliage and trumpet-shaped flowers of *G. sinningia*

Gloves are believed to have been first made in England on a large scale by the monks of Bath. In the 14th century a guild of glove-makers came into existence in London, and the trade of making them was already a profitable calling. Modern gloves are largely made from sheep, lamb, and kid skins, dressed and finished in various ways. After having been stamped out, the sewing process is carried out by machines.

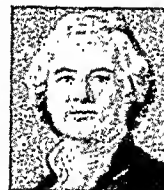
The Glovers' Company, a London city livery company, was first mentioned in 1349. Incorporated with the Leathersellers in 1502, it was separately incorporated in 1638. The offices are at 28, Sackville St., London, W.1.

GLOW-WORM. Name given to the female of the beetle *Lampyrus noctiluca*. It is common in many parts of Great Britain and throughout central and southern Europe. While the male possesses large elytra and has the usual appearance of a beetle, the female is wingless and grublike in form. It derives its name from the presence of luminous spots on the abdomen.

GLOXINIA. Hothouse plants of the order Gesneriaceae. They are natives of Central Asia and India, and were introduced into Britain in 1739. They reach an average height of 1 ft. and have elongated, bell-shaped blossoms of every possible shade and colour. There are about six species in general cultivation but the hybrids are innumerable.

GLOZEL. Village of France, near Vichy. Here in 1926-27 a number of alleged remains of prehistoric man were found. In 1927 the International Institute of Anthropology appointed a commission to inquire into the discoveries and this came to the unanimous conclusion that the remains were not genuine.

GLUCK, CHRISTOPH WILLIBALD VON (1714-87). German composer. Born in Bavaria, July 2, 1714, he studied music at Prague and later at Milan. After producing a number of operas of the conventional type, he realized the need of drastic reforms in the character of opera, and introduced these into his works. His *Orfeo ed Euridice*, produced in 1762, is a landmark in the history of opera. Another notable one was *Iphigénie en Aulide*. He died Nov. 15, 1787.



C. W. von Gluck,
German composer

GLUCOSE, DEXTROSE, OR GRAPE SUGAR. Carbohydrate present in many fruits, and in honey. It is the form of sugar which is present in the blood in the disease diabetes. Under the influence of yeast it is converted into ethyl alcohol and carbonic acid. It is made artificially on a large scale by heating starch under pressure with weak sulphuric acid. Glucose is employed in the manufacture of beer. It is used as an addition to jam to prevent crystallisation, and in confectionery.

GLUCOSIDE. Class of substances found in the vegetable kingdom. They yield glucose on fermentation or by the action of dilute acids. Several are employed in medicine, as digitalin, obtained from foxglove, and salicin, from the willow. Some glucosides yield hydrocyanic (prussic) acid, and have caused the death of cattle.

GLUE. Impure gelatin used for its adhesive qualities to hold together various substances, chiefly wood. It is prepared from both the skins and bones of animals, the skins producing a far stronger glue than the bones. Fish

and as a mark to be challenged by an enemy; and a glove was thrown down as a challenge to an enemy, who accepted battle by picking it up.

glue is prepared by boiling the skin and tissue of cod and other fish. Liquid glue is glue which has been treated with nitric or acetic acid to prevent it from gelatinising. Marine glue, which resists moisture, is a solution of rubber and shellac in naphtha or benzene.

GLUTEN. Tough, elastic substance obtained from wheat flour by washing it with water. The starch is washed away, and the gluten, about 10 to 12 p.c. of the flour, remains.

GLUTTON OR WOLVERINE (*Gulo luscus*). Carnivorous mammal of the weasel group. It is found in the northern districts of Europe, Asia, and N. America. It is nearly 3 ft. in length, has dark brown fur, and a short, bushy tail. Of heavy build, it walks with something of the action of a bear, is found in forests, is nocturnal in habit, and devours any animal which it can catch.

GLYCERIN OR GLYCEROL ($C_3H_7(OH)_3$). Thick colourless liquid with a sweet syrupy taste, obtained by the decomposition of fats and oils in the process of making soap and candles. When fats and oils are saponified with a caustic alkali, the fatty acids combine with the soda or potash, and glycerin is formed as a by-product. Much distilled glycerin is used in the manufacture of high explosives. The purest glycerin is employed for medicinal purposes. Glycerin is also used for filling gas-meters and hydraulic jacks, for giving body to light wines, in liquors, and in the manufacture of copying inks, shoe polishes, and numerous toilet preparations.

GLYCOGEN. Carbohydrate related to dextrin. It was first discovered by Bernard in the liver, and is found in small quantities in other organs of the body. Glycogen is looked upon as a reserve food deposited in the liver which is transformed into fat and sugar.

GLYPTODON

(Gr. glyptos, carved; odous, tooth). Genus of extinct armadilloes. Their fossil remains have been found in the post-tertiary deposits of S. America. Some of these fossils represent an animal 9 ft. in length. The armoured carapace was solid and continuous, like the carapace of a tortoise. The head, feet, and tail emerged from under this dome, but the head was protected by a bony cap and the tail covered by tubercled bony rings. The name was suggested by the deep ridges and grooves in the surface of the molar teeth.

GNAT. Popular name for certain small dipterous insects of the Culicidae family. Some nine species occur in Great Britain. The larval stage is passed in stagnant water, and the adult insects are most abundant in marshy districts. Blood-sucking in habit, they are also known as mosquitoes (q.v.).

GNEISENAU, AUGUST WILHELM ANTON NEIDHARDT, COUNT VON (1760-1831). German soldier. Born Oct. 27, 1760, he was in America in the British service during the war of independence, and then he entered the army of Prussia. Gneisenau helped in the work of reorganizing the Prussian army, and in the war of liberation served Blücher as chief of the staff. He was responsible for the plan of campaign of 1814, and for that of the battles

around Waterloo, and to him was due the ruthless pursuit of the French. In 1818 he was made governor of Berlin and a member of the council of state. He died Aug. 24, 1831.

The Gneisenau was a German battle cruiser, the flagship of Admiral von Spee that, after sharing in the victory of Coronel, was sunk at the battle of the Falkland Islands.

GNEISS (German). Composite rock consisting of quartz, felspar, and mica in varying proportions and arranged in parallel layers (schistose). It may be fine-grained in thin layers, or the latter may be so thick and uneven that the laminated structure is obscured. Often one of the constituent minerals predominates greatly over the others. There are many varieties.

GNOME. Small legendary being in the folk-tales of many peoples, supposed to dwell in the earth and guard the treasures hidden there. They are akin to the black dwarfs of North European folklore.

GNOSTICISM

(Gr. gnostikos, knowing). Term usually applied to the heresy with which were concerned sects that sprang up in the 1st century A.D., the members of which claimed mystical knowledge denied to the rest of the world. Gnosticism is characterised by association with the idea of emanation, a theory of creation which postulates One Supreme Being from whom lesser beings or aeons have emanated as light emanates from the sun. From the fall of one of these lesser beings into the outer void arose a Demiurge, which was regarded as the embodiment of evil.

Gnosticism assumed a new form after the rise of Christianity; and gained a strong foothold in the 2nd century, one result being the formulation by the Catholic Church of its standards of orthodoxy, of dogmatic theology based upon what could be shown historically to be derived from Christ and His apostles. Gnosticism died out in the 6th century.

GNU OR WILDEBEEST. Genus of large antelope. Its heavy head and neck somewhat suggest the appearance of a small bison. There are two species, the white-tailed and

the black-tailed variety. The animal is found only in Africa. *Gambler Bolton, F.Z.S.*



the brindled, both natives of Africa. The horns curve downwards and then upwards. The muzzle is wide, the neck has an erect mane, and the tail has long thick hair. The animal stands rather more than 4 ft. high at the shoulder, and lives in the open country.

GOA. Portuguese colony on the W. coast of India. Near the S. end of the Bombay presidency, its area is 1,301 sq. m. It contains the town of Panjim or New Goa, the capital of Portuguese India since 1843. Except for some of its churches, Old Goa, once the wealthiest city in India, is now a city of ruins. The colony has belonged to Portugal since its capture in 1510. Pop. of settlement, 508,053.

GOAT. Genus of the family Bovidae, which includes also oxen, sheep, and antelopes. The goats are placed between sheep and antelopes. Goats differ from sheep in the bony structure of the skull, and the horns are placed close together immediately above the eyes. The males are usually bearded, and have a strong odour. While they live in herds, they associate less intimately and are of more independent disposition than sheep. The goat in its wild state inhabits the Eastern hemisphere exclusively, the so-called Rocky Mountain goat of N. America not being a true goat, but belonging to a genus approaching the antelopes. About ten species of wild goat are recognized by naturalists, and of these three or four are more generally known by the name of ibex (q.v.).

Goats are kept in many countries, both for the sake of their hides and hair and as a source of dairy produce. The Angora and Cashmere breeds are noted for their valuable silky hair. See Angora; Cashmere Goat.

GOATHLAND.

Parish and village of N.R., Yorkshire, England. It is 8 m. S.W. of Whitby, on the L.N.E. Ry. A colony for disabled officers was established here after the Great War. Goathland Moor is situated 2 m. S. of the village, and is noted for its cataracts. Pop. 519.

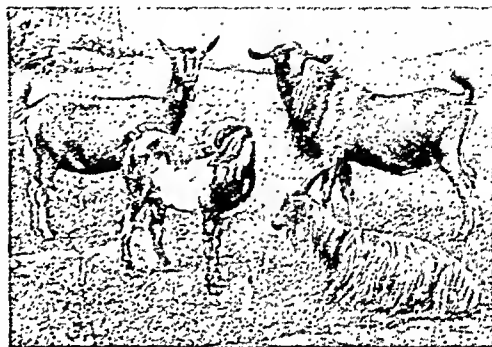
GOAT MOTH. Large moth of the genus *Cossus*, common in most parts of Great Britain. The fore wings, often over 3 ins. in expanse, are pale grey clouded with brown, with a kind of network of fine brown lines. The hind wings are grey, with very fine reticulations. The caterpillar is flesh colour, with reddish brown patches, and has an offensive goatlike smell. It lives in the wood of willow and other trees and is about 3 ins. long.

GOAT'S BEARD

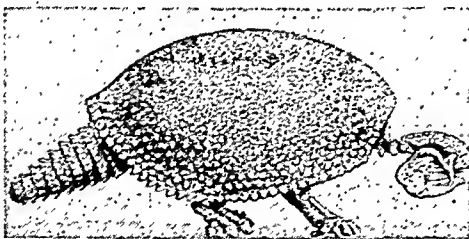
(*Tragopogon pratensis*). Perennial herb of the order Compositae. A native of Europe and N. and W. Asia, it has a tap-root with milky juice, and the slender, alternate leaves, which clasp the stem at their bases, taper to a long point. The solitary flower head is yellow, with 7 or 8 slender bracts. The head opens about 4 a.m. and closes as soon as pollinated, whence the popular name John-go-to-bed-at-noon.



Glutton or wolverine, a species of weasel. *W. S. Herridge, F.Z.S.*



Goat. 1. Toggenburg, a hornless, short-coated animal. 2. Nubian. 3. Anglo-Nubian, a good milking breed. 4. Irish.



Glyptodon. Skeleton of *G. clavipes* from the Pampa formation of Buenos Aires. *British Museum*



Goat Moth. Specimen of *Cossus ligniperda*

GOAT'S-RUE (*Galega officinalis*) Perennial herb of the order Leguminosae. A native of S. Europe, it has a stout, creeping root-stock, and the compound leaves consist of about 15 lance-shaped leaflets. The leafy stems are about 4 ft high, with a flowering branch at the base of each of the upper leaves. The pea-like flowers are blue, but there is a variety with pure white flowers.



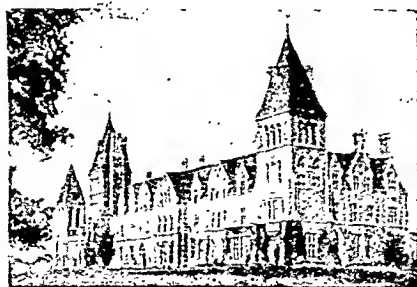
Goat's Rue, a South European herb

GOBELIN. Tapestry named from Jean Gobelin. He was a French dyer who, in 1450, founded a dye-works and cloth factory in St. Marcel, a suburb of Paris. About 1603 Henry IV purchased from the Gobelins family part of the land adjoining the dye-house, and here two tapestry sheds were erected. In 1667 Louis XIV consolidated the royal Parisian tapestry workshops in the Hôtel de Gobelins and Charles Le Brun and eminent artists provided magnificent designs such as *The History of the King*. After a period of suspension, work was resumed in 1697. Smaller tapestries were made under Louis XV, but prosperity returned with the beautiful designs of Boucher. The Revolution crippled the industry, but later the designs of Baudry brought success. Modern tapestries from designs by Galland adorn the Comédie Française. See *Tapestry*.

GOBI. Eastern section of the desert of Central Asia, known to the Chinese as Shamo. Mainly in Mongolia, it extends S.W. into Sinkiang. The climate is one of great extremes and is practically rainless. Nomad tribes are the chief inhabitants. See *Asia*; *Desert*.

GOBLETS, THE. Pair-oared boat race rowed annually at Henley-on-Thames. It was inaugurated in 1845, and its full title is *The Silver Goblets*. See *Henley*.

GOBLIN. Mischievous or evil being. The word is supposed to derive from the Gr. kobalos, a sprite, a rogue, and to be the same as the Ger. Kobold, spirit or demon of the mine. Gohlin has come to be applicable to any mysterious or frightening phantasm.



Godalming, Surrey. Buildings of Charterhouse School, which was moved from London in 1872

Frith

GODALMING. Borough of Surrey. It stands on the Wey, 35 m. S.W. of London on the Southern Rly. The church of SS. Peter and Paul contains some Norman work. There are some 17th century half-timbered houses. The place, which is mentioned in *Domesday Book*, became a borough in 1574. It was long a centre of cloth manufacture. Pop. 9,275.

Near Godalming is the Charterhouse School, removed here in 1872. See *Charterhouse*, *The*.

GODERICH. Town and port of Ontario, Canada. It stands where the river Maitland falls into Lake Huron, 135 m. W. of Toronto. It

is a terminus of the C.P.R. and a station on the C.N.R. Steamers ply to ports on the Great Lakes and the St. Lawrence. Pop. 4,107.

GODETIA (*Oenothera*). Section of the evening primrose genus, of the order Onagraceae. They are natives of the warm parts of America. Evening primroses all have yellow flowers, and do not open in sunshine; but the godetias do. They are annual herbs.

GODFATHER. Sponsor for an infant presented for baptism, required as an assurance to the Church that the child will be brought up in the faith in which it is baptized. His duty is to answer the interrogatories put to him at the font, and afterwards to see that the child is instructed according to the promises made in his name and in due time brought to the bishop for confirmation. The custom derives from the primitive church, when guarantors of the character of persons brought for baptism were a necessary precaution. See *Baptism*.

GODFREY. Family of British conductors. Charles Godfrey (1790-1863) was bandmaster of the Coldstream Guards, 1828-63. His eldest son Daniel, or Dan (1831-1903), was bandmaster of the Grenadier Guards, 1856-96. Another son, Adolphus Frederick (1837-82), was bandmaster of the Coldstream Guards, and a third son, Charles (1839-1919), was bandmaster of the Royal Horse Guards, 1859-1904, and professor of military music at the R. College of Music.



Sir Dan Godfrey, British bandmaster

A grandson, Dan Godfrey, who was director of music to the Bournemouth corporation, was knighted in 1922.

GODIVA, LADY. Wife of the 11th century Leofric of Mercia. According to legend, Leofric made harsh exactions on his people of Coventry; his wife begged for their removal, which he promised to grant if she rode naked through the town. Lady Godiva accepted the terms. The people of Coventry kept close within doors, their windows shuttered, during the ride; all save a certain tailor who, peering through a chink, was struck blind, and has ever since been known as Peeping Tom.

GODLEY, SIR ALEXANDER JOHN (b. 1867). British soldier. Born Feb. 4, 1867, he joined the Dublin Fusiliers, and in 1896 saw active service with mounted infantry in S. Africa. In 1900 he assisted in the defence of Mafeking. In 1910 Godley was sent out to New Zealand as major-general to command the defence forces there. On the outbreak of the Great War he went to Egypt and Gallipoli at the head of a division of Australians and New Zealanders and was in command of the New Zealand Expeditionary Force throughout the war. He was commander of the British Rhine army, 1922-24. He held the Southern Command from 1924 to 1928 and was appointed governor of Gibraltar in 1928.

GODMANCHESTER. Borough and market town of Huntingdonshire. It stands on the Ouse, 1 m. from Huntingdon, and has a station on the L.N.E. Rly. The chief building is S. Mary's Church, a fine Perpendicular edifice, and here are some old timbered houses. Market day, Sat. Pop. 2,035.

GODOLPHIN, SIDNEY GODOLPHIN, 1ST EARL OF (1645-1712). English politician. In 1679 he became a member of the Treasury board and one of the king's chief advisers. In

1684 he was made a secretary of state, and a little later first lord of the treasury. In 1690, after a brief absence, Godolphin returned to the treasury, but he was not loyal to William, and his secret intrigues with James II led to his resignation in 1696. In 1700, however, he was again in office. In 1702 he was made lord treasurer, and he remained in power until 1710, when he was dismissed from office. In 1706 he was made an earl. He died Sept. 15, 1712.



1st Earl of Godolphin, English politician After Kneller

GODWIN or **GODWINE** (d. 1053). English earl. In 1020 he was earl of the West Saxons, and for fifteen years he appears to have been one of Canute's chief supporters. He forwarded the selection of Hardicanute as king in 1035, as in 1042 he did that of Edward the Confessor. His daughter was married to Edward, and with his sons also in high positions he was the most powerful man in the kingdom. In 1051, however, there was a serious quarrel between the earl and the king, and Godwin and his sons were exiled. In 1053, however, he returned, and was restored to his estates and dignities. He died April 15, 1053. His name is perpetuated in the Goodwin Sands (q.v.).

GODWIN, MARY (1759-97). English writer. Born at Hoxton, London, April 27, 1759, daughter of Edward John Wollstonecraft, in 1783 she opened a school at Islington, later removed to Newington Green, but in 1787 she became assistant editor of *The Analytical Review*. In 1792 she issued her *Vindication of the Rights of Woman*. In Paris, where she witnessed the Terror, she met Gilbert Imlay, and bore him a daughter, Fanny, 1794. She tried to drown herself from Putney Bridge as a result of Imlay's desertion; married William Godwin, March 29, 1797; and on Aug. 30 in the same year bore him a daughter, Mary, who became the second wife of the poet Shelley. She died Sept. 10, 1797.

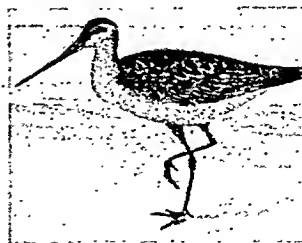


Mary Godwin, English writer After Opie

Her husband, William Godwin (1756-1836), became a freethinker and a republican, and in 1793 obtained considerable reputation by the publication of his *Enquiry concerning Political Justice*, a gospel of the purest anarchism. In 1794 he brought out *The Adventures of Caleb Williams*, a novel of extraordinary power. He died in London, April 7, 1836. Consult Shelley, Godwin and *Their Circle*, H. N. Brailsford, 1913.

GODWIT (*Limosa*). Genus of wading birds belonging to the snipe group. Two species, the har-tailed (*L. lapponica*) and the black-tailed (*L. helgica*) godwits, occur in Great Britain as birds of passage. They have long legs and beaks, the plumage barred with white and brown, and are usually found about shores and estuaries.

GOEBEN. German battle cruiser. When the Great War broke out the two ships Goeben and Breslau (q.v.) were in the Aegean Sea. On Aug. 6, 1914, the British fleet gave chase, but they escaped into the Dardanelles. Later the Goeben became very active in the Dardanelles, and for some time led the Turkish fleet. On Jan. 20, 1918, in company



Godwit. The black-tailed variety, *Limosa helgica*

with the Breslau, she made a dash from the Dardanelles and attacked the British ships off Mudros. As a result both enemy vessels were driven into minefields, where the Breslau sank and the Goeben sustained much injury. After the Armistice she was surrendered to the Allies.

GOETHALS, GEORGE WASHINGTON (1858-1928). American soldier and engineer. Born at



G. W. Goethals,
American soldier

Brooklyn, he entered the army and specialised in military engineering. In 1907 Goethals was given charge of the construction of the Panama Canal, a task which he fulfilled with such success that the canal was virtually completed some six months before the scheduled date of June 1, 1915. He died Jan. 21, 1928.

GOETHE, JOHANN WOLFGANG VON (1749-1832). German poet. Born at Frankfurt-on-Main, Aug. 28, 1749, he studied at Leipzig and subsequently at Strasbourg, where he was influenced by Herder. With his *Götz von Berlichingen*, 1773, Goethe gave the Storm and Stress movement its first tragedy, and with *Werthers Leiden*, 1774, its typical novel. To this period also belongs the drama *Clavigo*, 1774, and other works, including the earliest form of the drama of *Faust*. At the end of 1775 Goethe visited the duke of Saxe-Weimar, and Weimar remained his home for life.



J. W. von Goethe,
German poet
After J. K. Stieler

The years 1786-88 Goethe spent in Italy, and here the dramas of *Iphigenie auf Tauris*, 1787, and *Egmont*, 1788, were completed, and *Torquato Tasso*, 1790, in great part written. Having returned to Germany, in 1794 began his lasting friendship with Schiller. Goethe produced his greatest novel, *Wilhelm Meisters Lehrjahre*, 1795-96. In 1797 he published *Hermann und Dorothea*. He also threw himself zealously into scientific pursuits. In 1806 he married Christiane Vulpius.

The first part of *Faust* appeared in 1808; then came *Die Wahlverwandtschaften*, 1809, a psychological problem novel; and *Der Westösliche Divan*, 1819, a collection of poetry. In 1811 he began to publish his autobiography, *Aus meinem Leben: Dichtung und Wahrheit*, which was not carried beyond 1775, although other works, such as *Die Italienische Reise*, 1816, etc., may be regarded as a continuation. In the last year of his life he completed the second part of *Faust*. He died March 22, 1832, at Weimar, where are memorials of him.

GOG AND MAGOG. Two names in Biblical and post-Biblical literature. In Ezekiel 38, 2, God is spoken of as opposing "Gog, of the land of Magog, the prince of Rosh, Meshech and Tubal"; and in chapter 39 a battle on the mountains of Israel is predicted in which Gog is overthrown.

Gog and Magog are the names given to two huge carved figures which stand on octagonal pedestals at each angle of the wall at the west end of Guildhall, in the City of London. Each is 14 ft. 6 ins. high. They were carved in 1708, by Richard Saunders. Until recently similar figures adorned a clock in Cheapside.

GOGH, VINCENT VAN (1853-90). Dutch painter. Born at Zundert, Holland, he was at first profoundly influenced by the work of Millet, was drawn later to the Impressionists, and then became one of the three leaders of the Post-Impressionist group, being associated with Cézanne and Gauguin. Van Gogh's art aimed at expressing that aspect of a subject which most strongly appealed to his senses. Some of his best pictures were painted at Arles during three years of detention in an asylum, and he died by his own hand in 1890.

GOGMAGOG HILLS. Range of hills in Cambridgeshire. To the S.E. of Cambridge, they are a continuation of the chalk formation which runs up from the Chilterns.

GOGOL, NIKOLAI VASSILIEVITCH (1809-52). Russian novelist and dramatist. Born at Sorochintsi, Poltava, March 31, 1809, he went to St. Petersburg in 1828, and in 1831 published anonymously *Evenings at a Farmhouse near Dikanka*. In 1834 Mirgorod, another volume of stories, established his fame. In 1836 his comedy *Revizor* was produced, its satire on the conditions of Russian life, passing unnoticed in general appreciation of its humour. In April, 1920, under the name *The Government Inspector*, it was produced at the Duke of York's Theatre. From 1836-46 the author lived abroad, mostly in Rome. In 1842 he published *Dead Souls*, presenting Russian provincial life in a clear and brilliant manner and with a rare humour. Gogol died at Moscow, March 3, 1852.



Nikolai V. Gogol,
Russian novelist

GOIDEL. Earlier branch of the Celtic-speaking peoples, who carried to Britain the Goidelic or C-Celtic speech. This developed into the Irish and Scottish Gaelic and the Manx dialects. The term displaced the earlier Gadhelic or Gaelic. The Goidels either preceded or accompanied the bronze-age culture, with the practice of cremation.

GOITRE (Fr. *goître*, Lat. *guttur*, throat). Enlargement of the thyroid gland, situated in the lower part of the front of the neck. Two chief forms are recognized, simple goitre and exophthalmic goitre. Simple goitre, also known as bronchocele and Derbyshire neck, occurs most frequently in hilly regions, in Derbyshire and Gloucestershire in England, and abroad in Switzerland, Northern Italy, and Central Asia. The disease is probably due to the presence of an organism in drinking water. The administration of thyroid extract or of iodine may be tried, but with increase of the growth an operation is generally advisable.

Exophthalmic goitre, also called Graves's or Basedow's disease, is characterised, in addition to swelling of the thyroid gland, by cardiac palpitations, protrusion of the eye-



Gog and Magog, the wooden figures, carved in 1708, in Guildhall, London
London Stereoscopic Co.

balls and muscle tremors. It is a serious disease and requires skilled treatment.

GOLBORNE. Urban dist. of Lancashire. It is 5½ m. S.E. of Wigan, on the L.M.S. Rly. The chief industry is the cotton manufacture, while around are coal mines. Market day, Sat. Pop. 7,600.

GOLCAR. Urban district of Yorkshire (W.R.). It is 3 m. S.W. of Huddersfield, and has a station on the L.M.S. Rly. It is a centre of the woollen manufacture. Pop. 10,360.

GOLCONDA. Ruined city of India. About 7 m. W. of Hyderabad city, Golconda was the capital of a kingdom that flourished from 1512 until its conquest by Aurungzebe in 1687. Huge mausoleums of the former kings surround the fort, which is used by the nizams of Hyderabad as a treasury and prison. From the fact that the diamonds from the Nila Hulla mts. were cut and sold at Golconda, the name of the city has come to be associated with fabulous wealth.

GOLD. Elementary metal, chemical symbol Au (Lat. *aurum*); atomic weight 197.2, atomic number 79, specific gravity 19.32, melting point 1,061° C. Its colour when pure is bright yellow, slightly reddish, with high metallic lustre; it takes a brilliant polish; in hardness it is nearly as soft as lead, but differs from the latter in its extraordinary malleability and ductility, in which it surpasses any other metal. It may be hammered out into exceedingly thin leaves; a single grain in weight may be spread by hammering over 56.5 sq. ins. of surface, or drawn into a piece of wire 500 ft. in length. In tensile strength gold comes after iron, platinum, silver and copper. It does not combine directly with oxygen, is unaffected by air or moisture at any temperature, and resists almost all the mineral acids.

Gold is found in nearly all parts of the earth, mostly, however, in minute proportions. It chiefly occurs native in the state of metal, occasionally pure, but more generally alloyed with silver, sometimes with copper, and occasionally with palladium, rhodium, and other metals. The gold of commerce is obtained from three sources: (1) alluvial deposits, (2) quartz rock, and (3) telluride ores, the great bulk from the first two, and mostly from the second. The chief sources of supply are the Union of S. Africa, United States, Canada, Australia, and India.

In 1929 the world's production of gold was £83,500,000, of which £44,236,149 came from the Transvaal. The greater portion of the gold produced annually is consumed in the arts, in the preparation of jewelry, plate, and for gilding chiefly; about one-fourth is coined in normal times. See *Amalgam*.

GOLD STANDARD. The position of gold was entirely changed by the events of the Great War. Paper money was created on an immense scale, and over the greater part of Europe gold, as a circulating medium, disappeared. Large stocks were accumulated by the various governments, but these were nothing like sufficient to cover the great amount of paper money put into circulation. The old gold standard virtually disappeared, this being not without its effect on the great rise in prices that took place in 1918-20.

In 1925 Great Britain returned to the gold standard, though not to gold coinage for currency purposes. Other countries, too, put their coinage on a gold basis, and in 1930 China abandoned her silver standard in favour of gold. There was, however, no return to the use of gold for coinage purposes, though there were great accumulations of it in the state banks of France and the United States.

GOLD COAST. British territory of W. Africa, between French Togoland and the Ivory Coast. Stretching inland from the Gulf

of Guinea for about 480 m., with a coastline of 334 m., it comprises Gold Coast Colony proper (area, 23,490 sq. m.; pop. 1,171,913), Ashanti (area, 24,560 sq. m.; pop. 407,000), Northern Territories (area, 30,660 sq. m.; pop. 530,355), and British Togoland (area, 13,040 sq. m.; pop. 187,940). It is administered by a governor with an executive and a legislative council. The capital of the Gold Coast Colony is Accra, other important centres including Sekondi and Cape Coast. There are rlys. from Sekondi and Accra to Kumasi and from Huni Valley to Kade. See Ashanti; Togoland.

GOLDEN AGE. In classical mythology, the period when Saturn or Cronos, after being dethroned by Zeus, reigned in Latium as king. Saturn taught agriculture and the arts of civilization to his people, and the period of his reign came to be known as the Golden Age.

GOLDEN BULL (Lat. bulla, knob, seal). Name given to charters of unusual importance sealed or stamped with a golden seal or bull. The name is specially given to the document that regulated the election of the German kings from 1356 to 1806. To determine disputes the emperor Charles IV ordered a bull to be drawn up, and the princes, meeting at Metz, accepted it in Dec., 1356. Written in Latin, this Golden Bull fixed the numbers of electors at seven, nominated the seven, and prescribed their respective precedence and duties. It remained operative until the dissolution of the Empire in 1806. See Elector; Empire, Holy Roman.

GOLDEN CALF. Image made by Aaron, in response to popular appeal, during the absence of Moses on the mount (Exodus 32). It was in the form of a young bull and made from carvings of gold. Divine honours were paid to it. Jeroboam set up similar images at Dan and Bethel (1 Kings 12).

GOLDEN FLEECE. In Greek mythology, the object of the quest of Jason and the Argonauts. Phrixus and Helle, children of Athamas, king of Thebes, escaped from the wrath of their stepmother on a ram with a golden fleece and wings. Helle fell into the sea, but Phrixus arrived at Colchis, where he sacrificed the ram. Aëtes, king of the country, hung up the fleece in the sacred grove of Arès. See Argonauts; Jason.



Golden Fleece. Badge of the order

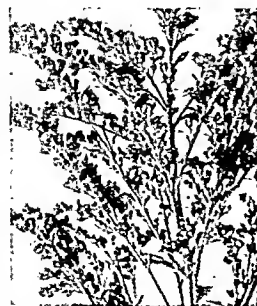
The Order of the Golden Fleece is one of the premier European orders of knighthood. It was founded Jan. 10, 1429, by Philip the Good, duke of Burgundy. The grandmastership passed by marriage to the Hapsburgs, was claimed in 1700 by the emperor Charles VI, who established the order in Vienna in 1713, and after then it existed independently in both Spain and Austria. In Austria it lapsed with the fall of the empire in 1918. The badge is a golden fleece attached by fursions, or flint-stones, emitting flames, to a red ribbon worn round the neck, or, on high occasions, to a chain of alternate flint-stones and steels intertwined to represent B (Burgundy).

GOLDEN GATE. Channel connecting San Francisco Bay, California, U.S.A., with the Pacific Ocean. It is 5 m. long and from 1 m. to 2 m. broad. See San Francisco.

GOLDEN HORN. THE. Narrow inlet of the Bosphorus (q.v.). It divides the main part of Istanbul (Constantinople) from the Galata and Pera quarters. See Istanbul.

GOLDEN ROD (*Solidago virgaurea*). Perennial herb of the order Compositae. A native of Europe and N. America, its stems

are erect and slightly branched, clad with narrow lance-shaped leaves and terminating in clusters of small yellow flower-heads. It grows on stony banks and dry ground. The golden rod of gardens (*S. canadensis*) is a N. American species.



Golden Rod. Flower heads of the wild variety

Lent, hence called Dominica rosa, originated at a very early date. Consecrated roses, as symbols of silence, were set over the doors of confessionals, and from this practice arose the phrase sub rosa, under the rose, meaning anything in confidence.

GOLDER'S GREEN. Residential district of Middlesex. On the main road between Hampstead and Hendon, it is 1½ m. N.W. of Hampstead on the Hampstead Tube Rly., the river Brent forming its N. boundary. Adjoining West Heath, Hampstead, is Golder's Hill Park, with mansion, now used as a refreshment room, lakes, enclosures for red deer, peafowl, etc. About ½ m. from the rly. station is Golder's Green Crematorium, to the N.W. of which is Hampstead Garden Suburb.



Golden Rose given by Pius II to Siena in 1458



Goldfinch, a song-bird of the British hedgerows W. S. Berridge, F.Z.S.

lays four or five eggs. It is a popular cage-bird.



Golden Horn. View from the cemetery of Eyub, looking towards Istanbul and Galata

GOLDFISH (*Carassius auratus*). Small fish of the carp family. It is a native of China and Japan. Originally brown in colour, the golden hue of the domesticated variety is the result of selective breeding in captivity. It is said to have been introduced into Great Britain late in the 17th century. Its handsome appearance and hardy constitution make it a favourite species for the aquarium. See Carp.



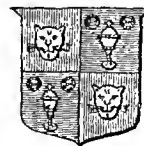
Goldfish. Variegated breed of this small exotic fish

GOLD LEAF. Thin sheet of gold chiefly used for gilding. It is prepared by first casting the metal in small ingots, rolling down the ingots each into a ribbon 10 ft. in length by 1½ ins. wide to the oz. of metal, cutting the ribbon into small pieces; piling the little squares between sheets of special paper, 150 at a time, and beating with a heavy hammer till each piece is about 4 ins. square; cutting the pieces each into four; piling and beating again, the separating material being gold-beater's skin; cutting again into four; piling again and beating finally till the pieces are about 3½ ins. square. Thus the 150 original small squares become 2,400 leaves, and the thickness one 290,000th part of an inch.

GOLDONI, CARLO (1707-93). Italian dramatist. Born at Venice, Feb. 25, 1707, he took to play-writing, and in a quick succession of comedies revolutionised the Italian stage. His works are more remarkable for their wit than their morality, such as *The Twins of Venice*, *The Weak-Headed Lady*, *The Lady of Merit*, *The Obedient Daughter*, and *The Landlady*. He died Feb. 6, 1793.

GOLDSBOROUGH. Village of Yorkshire (W.R.). It is three miles from Knaresborough with a station on the L.N.E. Rly. The hall is the property of the Earl of Harewood (formerly Viscount Lascelles), and after his marriage with Princess Mary was their country home.

GOLDSMITH. One who works in gold. The term is also applied to workers in precious metals generally and to dealers in gold and silver plate. Goldsmiths were among the earliest of the great craftsmen. The craft was brought to a high perfection in Italy, France, and Germany.



Goldsmiths' Company arms

The Goldsmiths' Company is the fifth of the twelve great London city livery companies. The first hall, in Foster Lane, E.C., was built about 1407, was destroyed in the Great Fire, and rebuilt by Wren. The existing hall was opened in 1835. In the court room is a small altar of Diana, found when the foundations were being made. The company assays plate, its hall mark being a leopard's head, and keeps the pyx (q.v.). The company built and endowed a technical institute at New Cross, London, S.E. in 1891.

GOLDSMITH, OLIVER (1728-74). Irish writer. Born at Pallas, co. Longford, Ireland, Nov. 10, 1728, the son of a clergyman, most of his boyhood was spent at the village of Lissoy, in West Meath, the Sweet Auburn of The Deserted Village. He went to Trinity College, Dublin in 1744, but failed to make progress, and later studied



Oliver Goldsmith, Irish writer. Portrait by Reynolds. Nat. Port. Gall.

medicine in Edinburgh with unsatisfactory results. From 1754-56 he wandered over Europe, and his experiences during these years are reflected in his poem *The Traveller*.

Settling in London in 1756, Goldsmith tried many ways of earning a living, without success. At last he determined to settle down as a book-seller's hack, writing on an amazing variety of subjects. This class of work he continued more or less all the rest of his life. A hook on *Natural History* and histories of England and Rome are the most notable of his hack productions. His first real contribution to English classics was the *Letters of a Citizen of the World*, published in 1762. In 1766 appeared *The Vicar of Wakefield*. His plays, *The Good Natured Man*, 1768, and *She Stoops to Conquer*, 1774, are noteworthy.

In 1761 Goldsmith became a regular member of the Johnsonian circle. His last piece of work was the satirical poem *Retaliation*. He died April 4, 1774.

GOLD STICK. British court official. In England the appointment is held in turn by the colonels of the regiments of household cavalry, each of whom is in waiting for a month at a time. The captain-general of the Royal Company of Archers is Gold Stick for Scotland.

GOLF. Game played upon a course 4 m. or more in length, laid out on links, i.e. sandy

ground by the sea, or over land set with obstacles. These links contain 18 holes of a statutory diameter of 4½ ins., into each of which it is the player's object to strike his ball successively in fewer strokes than his opponent. Sometimes two, playing alternate strokes with one ball, will play against two others doing likewise. In this form the match is called a foursome. The national game of Scotland, golf was brought to England by James I, who played it on Blackheath, near his palace of Greenwich.

representatives from England, Scotland, Ireland, and Wales. The wide popularity of golf dates from about 1860, after which grounds and links were laid out and clubs formed all over the country. Professionalism was recognized and professionals were attached to most of the clubs. Competitions of various kinds were arranged, some for two players, others for four. Soon ladies took up the game, and a little later it spread among boys, although the public schools have never encouraged it.

In the golfing world the chief matches are the open and the amateur championships. The former dates from 1860 and was played at Prestwick until 1870. It is played over 72 holes in two days. The amateur championship was started in 1886, and, like the open, can now be played on any links. In addition there are a number of other open and amateur championships—American, Irish, French, etc. International matches are regularly played by teams of amateurs and professionals. The Walker Cup, instituted in 1922, is competed for each year by teams of eight from Great Britain and the United States. It was retained by the United States in 1930.

GOLGOTHA (Heb. skull). Hill outside Jerusalem where Christ was crucified. See Calvary; Jerusalem.

GOLIATH. Philistine of Gath. He was a man of gigantic stature who challenged Saul's soldiers to single combat, and was slain by David with his sling. There appears to have been another Goliath of Gath, who was killed by Elbanan, one of David's men (1 Sam. 17, 22).

GOLIATH. British battleship. She was launched at Chatham in 1898 and carried four 12-in. and twelve 6-in. guns on a displacement of 12,950 tons. On May 13, 1915, she was attacked and destroyed by a Turkish destroyer inside the Dardanelles. See Canopus.

GOLIATH BEETLE

(Goliathus). Large tropical beetle, found in Central and Southern Africa. It frequently measures 4 ins. in length. Its colour is usually black, but it is often variegated with white. It feeds on the sap of forest trees. See Beetle.



Goliath Beetle of tropical Africa

GOLTZ, KOLMAR VON DER (1843-1916).

German soldier. Born Aug. 12, 1843, he entered the Prussian army and served on the staff during the Franco-German war. In 1883 he went to Turkey, where for the next 12 years he was occupied in re-organizing the sultan's army. Made a field-marshal in 1908, he was appointed governor-general of Belgium after its occupation in 1914, and in 1915 went to Turkey. He was directing the Turkish armies when he died, Aug. 19, 1916.

the Briarmains of Charlotte Brontë's novel *Shirley*. Pop. 3,828.

GOMMECOURT. Village of France. It is on the road from Albert to Arras, 13½ m. N. of Albert. It came into prominence in the first battle of the Somme, when on July 1, 1916, the British 46th and 56th divisions were repulsed. The failure to capture it had marked effect on the result of the battle. It was yielded up by the Germans on Feb. 27, 1917, in their retreat to the Hindenburg line. There are British cemeteries here. See Somme.

GOMORRAH. With Sodom (q.v.) one of the two cities of the plain where Lot dwelt (Gen. 18, 19). They were notorious for vice, and were destroyed by fire. See Abraham.

GOMPERS, SAMUEL (1850-1924). American labour leader. Born in London, of Jewish origin, Jan. 27, 1850, he went to the U.S.A. in 1863. There he founded the union of cigar makers. The great work of Gompers was done in connexion with the American Federation of Labour, which he founded in 1881. He was its president for many years, and under his guidance it became a very large and powerful organization. He died Dec. 13, 1924.

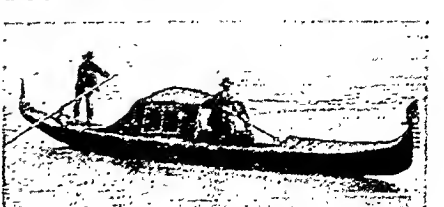
GOMUTI (Arenga saccharifera). Tree of the order Palmae, native of the Moluccas. The trunk grows to about 40 ft., and the large leaves are divided featherwise into long, narrow leaflets. The horse-hair-like fibres that cover the leafstalks are used for thatching and cordage. The juice of the flower-spikes contains much sugar, and can be converted into toddy or vinegar.

GONCOURT. Name of two brothers, famous French novelists. Edmond was born at Nancy, May 26, 1822; and Jules in Paris, Dec. 17, 1830. They collaborated at first in books of social history, *Histoire de la Société Française pendant la Révolution*, 1854; and *Histoire de Marie-Antoinette*, 1858. As collaborators in fiction (1860-70) they produced *Sœur Philomène*, 1861; *Renée Maupérin*, 1864; *Germinie Lacerteux*, 1865; *Manette Salomon*, 1867; and *Mme. Gervaisais*, 1869.

Edmond, independently, wrote *Watteau*, 1876; *Prudhon*, 1877; *L'Art Japonaise au XVIIIe Siècle*, 1891-96; and some novels. He also edited *Les Lettres de Jules de Goncourt*, 1885, and the *Journal des Goncourt*, 1887-92. Jules died June 20, 1870; and Edmond, July 16, 1896.

The Académie des Goncourt was founded to help struggling authors by money resulting from the sale of the Goncourt art collection.

GONDOLA (Ital.). Long, low, narrow, flat-bottomed boat used on the lagoons and canals of Venice. Both prow and stern curve high off the water; each end is decked, the rowers, or gondoliers, standing up to wield their sweeps. Usually, in the centre is a carriage-like cabin, with doors and windows.



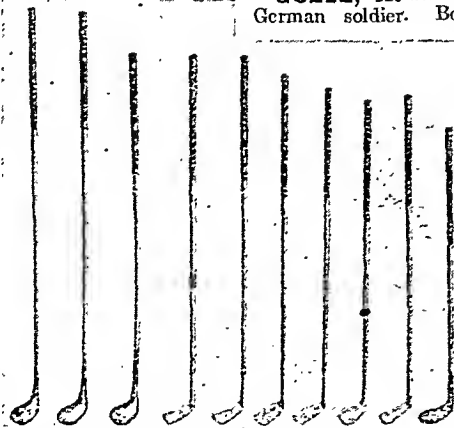
Gondola. The small cabined boat used on the lagoons and canals of Venice



Golf. Cast from Harry Vardon's hands, showing overlapping grip. Reproduced from the original at South Heris Golf Club, by courtesy of the Committee

ground by the sea, or over land set with obstacles. These links contain 18 holes of a statutory diameter of 4½ ins., into each of which it is the player's object to strike his ball successively in fewer strokes than his opponent. Sometimes two, playing alternate strokes with one ball, will play against two others doing likewise. In this form the match is called a foursome. The national game of Scotland, golf was brought to England by James I, who played it on Blackheath, near his palace of Greenwich.

In Scotland the senior club is at St. Andrews, where golf was played in 1553, and probably a century earlier. A club was founded there in 1754, and in 1834 this was given the title of the Royal and Ancient Golf Club of St. Andrews. The club is recognized by all golfers as the governing body of the game, and from its members there is appointed a Rules of Golf Committee which interprets and, if necessary, alters the laws of the game. There is also a British Golf Union Joint Advisory Committee which consists of repre-

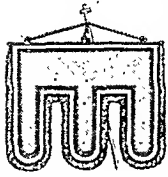


Golf. Clubs used in playing the game. 1, driver; 2, brassie, similar to driver, but with brass sole and face more laid back; 3, baffle or spoon, with larger and more sloping face than brassie; 4, cleek; 5, mid-iron; 6, mashie; 7, jigger; 8, niblick; 9, cleek putter; 10, wooden putter with lead face

chief industries are the making of worsted, cloth, and blankets, while in the neighbourhood are coal mines. The Red House here is

In aeronautics, the term gondola is used to describe the boat-shaped car fitted to an airship. The usual term now is nacelle.

GONFALON. Banner used in the Middle Ages. Formed after the fashion of the vexillum, or standard of the Roman cavalry, it consisted of a flag



Gonfalon. Banner used by medieval cities

attached to a crossbar and suspended by cords at right angles to the pole. Though at first a war banner, it subsequently became peculiar to the Church. In Florence, Venice, and other Italian cities the standard bearer, or gonfaloniere, was an influential officer.

GONORRHOEA (Gr. gonorrhoea). Acute infectious disease affecting the organs of generation. The specific organism responsible is known as the gonococcus or diplococcus gonorrhoeae. In the male the symptoms usually commence in from two to eight days after infection, frequency of micturition is increased, and the act is accompanied with pain. If the condition is neglected chronic inflammation of the urethra may be set up and lead to persistent and highly infectious discharge, lasting for months, or even years.

Treatment of the disease should always be supervised by a doctor. There are free clinics in all populous centres where skilled treatment is given under conditions of secrecy. No man who has suffered from gonorrhoea should marry before submitting himself to special tests of his freedom from the disease.

GOOD FRIDAY (Gr. Pascha Staurosmon, Pasch of the Cross; paraskeuē, Holy Friday; Lat. dies absolutiois). Name given in the R.C. and Anglican Churches to the Friday in Holy Week (q.v.) on which the Crucifixion is commemorated. In England, to which the name was for a long time peculiar, it superseded that of Long Friday, an allusion to the fast. In England and Ireland Good Friday is observed as a Sunday. See Easter.

GOOD HOPE. British armoured cruiser of the Drake (q.v.) class, completed in 1902. On Nov. 1, 1914, as flagship of Rear-admiral C. Cradock, in the action off Coronel (q.v.), she was sunk with all hands.

The Cape of Good Hope, known as the Cape, from its importance in navigation, is a promontory of S. Africa, about 30 m. from Cape Town. Its height is about 1,000 ft.

Good King Henry.

Popular name of one of the goosefoots (*Chenopodium bonus-henricus*). See Goosefoots.

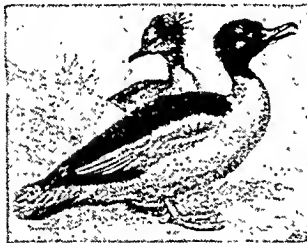
GOODWILL. Term used for the advantages, other than the material assets, buildings, furniture, etc., which go with a business or profession. It is regarded as property, and stamp duties must be paid when it is transferred from one person to another. It is also valued for death duties, and, moreover, a person is entitled to compensation if the goodwill of his business is injured. Professional goodwill means a recommendation of the purchaser by the seller to the clients, and an undertaking to refrain from competition.

GOODWIN SANDS. Dangerous sandbanks off the E. coast of Kent. They extend from N. to S. for 10 m., about 6 m. from the mainland. At low water they rise some feet above sea level, while at high water they lie 15 ft. below the sea. The extreme limits are marked by four lightships. See Godwin.

GOODWOOD. Sussex residence of the duke of Richmond and Gordon, erected during the first half of the 18th century. It is 3½ m. N.E. of Chichester. The Goodwood horse races, inaugurated in 1802, are held annually at the end of July, the chief race being for the Goodwood Cup. The course is situated on the downs adjoining Goodwood Park.

GOOLE. Market town, urban district, and seaport of Yorkshire (W.R.). It stands at the confluence of the Ouse and Don, 25 m. S.W. of Hull. It is served by the L.N.E. and L.M.S. Rlys., and has extensive docks. Steamers go from here to Hull and other European ports. The buildings include the church of S. John, a free library and market hall. Goole owes its growth to the opening of a canal, part of the Aire and Calder Navigation system, in 1826. In 1929 a new bridge across the Ouse near Goole was opened, called Boothferry bridge. Market days, Wed. and Sat. Pop. 19,118.

GOOSANDER (*Mergus merganser*). Diving duck. It visits the N. of Scotland, and occasionally breeds there. The male is black on the back and white beneath, with a greenish head, red beak, and pinkish breast, and is about 26 ins. long. In winter the goosander migrates to Southern Europe and Asia. See Merganser.



Goosander. Specimen of *Mergus castor*, a diving duck

usually kept. The former is the Michaclmas goose, while the latter is the favourite bird for Christmas, as it attains a great weight. The down is a valuable article of commerce, and its quills are still of value. A tailor's goose is a flat iron used by tailors and so named from a resemblance of the handle to the neck of a goose. See Brent Goose.

GOOSEBERRY. Fruit of a shrub of the order Grossulariaceae and genus *Ribes*. The parent species is *R. grossularia*, but varieties are numerous. Gooseberries are propagated by autumn-struck cuttings, or by seeds from ripe fruit sown just underneath the surface of the soil. Careful pruning is needed.



Gooseberry, the fruit and leaves



Goose. Bean goose, a British wild species. Above Toulouse goose

GOOSEFOOTS (*Chenopodium*). Genus of annual and perennial herbs of the order Chenopodiaceae, natives of all climates. Good King Henry (*C. bonus-henricus*) is used as a substitute for asparagus and spinach. *Chenopodium ambrosioides* of tropical America (the so-called Mexican-tea) and *C. quinoa* of Chile and Peru are employed medicinally.

Goose Grass. Variant name of cleavers (*Galium aparine*). See Cleavers.

GOOSE STEP. Popular name for a military exercise called the balance step. The body is balanced upon one leg, while the other is advanced without a jerk, the knee straight, the toe pointed out, and the shoulders square to the front. The advanced leg is then planted firmly on the ground, while the other leg is advanced in like manner. This march is in slow time, i.e. 75 paces to the minute.

GOPHER (*Geomys*). Genus of small rodents belonging to the squirrel family. The European gopher is known as the suslik, and is common in Central and Eastern Europe and Siberia. It lives in burrows in which it hibernates, and feeds upon seeds and roots, and occasionally upon birds and small mammals.



Gopher. The European species, also called the suslik

GOPHER WOOD. Material of which the ark built by Noah was constructed (Gen. 6, 14). The weight of authority favours its identification with the cypress (q.v.).

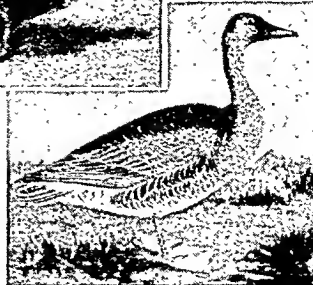
GORAL. Ruminant mammal placed by zoologists between the goats and the antelopes. Found only in the Himalayas, it somewhat resembles a goat with very short horns and no beard. It stands about 27 ins. high at the shoulder, and is brown with black stripes.

GORDIAN (Lat. Gordianus). Name of three Roman emperors, father, son, and grandson. Antonius Gordianus Africanus, a kinsman of the emperor Marcus Aurelius, was invited to assume the throne in 238. Duly recognized by the senate, he associated his son with him as joint-emperor. In the same year the younger Gordian lost his life in an engagement, whereupon the father committed suicide. The son of the younger Gordian, a boy of 12, was proclaimed emperor by the soldiery (238). He proved to be a capable general, but was murdered in a mutiny (244).

GORDIAN KNOT. In Greek legend, a knot made by Gordius, a Phrygian king. An oracle declared that whoever should loose the knot should be ruler of Asia. Alexander the Great fulfilled the oracle by cutting the knot with his sword. "Cutting the Gordian knot" has become proverbial for prompt dealing with a baffling problem.

GORDON. Name of a Scottish family. Its head is the marquis of Huntly, another branch being represented by the marquis of Aberdeen, while the duke of Richmond is a Gordon in the female line. Aberdeenshire is their special area, but there are many others throughout Scotland. Many bearers of the name have distinguished themselves.

Gordon is supposed to be taken from Gorden, in Berwickshire, where a certain Norman settled in the 11th century and took the name. His descendant, Adam Gordon, obtained from Robert Bruce, Strathbogie in



Aberdeenshire, the castle of which was long the family residence. He called this Huntly. From one of his descendants, made earl of Huntly in 1450, come the earls and marquesses of Huntly. A dukedom of Gordon was in existence from 1684 to 1836, being held by the marquesses of Huntly. Alexander, the 4th duke, was made earl of Norwich in 1784. At the death in 1836 of his son George, the 5th duke, the dukedom became extinct.

Gordon Castle, near Fochabers, was the chief seat of the dukes of Gordon until their extinction. It was built in the 18th century, and passed in 1836 to the duke of Richmond.

GORDON, ADAM LINDSAY (1833-70). Australian poet. Born in the Azores and educated in England, he left in 1853 for S. Australia, where he became successively trooper in the mounted police, horse-breaker, livery-stable-keeper, and member of the House of Assembly.

In 1867 he published two volumes of poems, *Sea Spray* and *Smoke Drift*, and *Ashtaroth*, and in 1870 *Bush Ballads* and *Galloping Rhymes*. On June 24, 1870, he shot himself at New Brighton, Melbourne. His collected poems (1880) secured him a high place in the history of Australian literature.

GORDON, CHARLES GEORGE (1833-85). British soldier. Born at Woolwich, Jan. 28, 1833, he entered the Royal Engineers in 1852.

He served in the Crimean War in 1855, and took part in the Chinese expedition of 1860, when he won the sobriquet of Chinese Gordon. In 1873 his services were lent to the khedive of Egypt, Ismail, for the organization of the district known as the Egyptian Sudan. After a brief withdrawal, he returned thither in 1877 as governor, resigning in 1880.

In 1884 the Egyptian garrisons at Suakin, Berber, and Khartoum were in danger owing to the Mahdi's rebellion, and Gordon returned to the Sudan, at the request of the British Government, to organize their withdrawal. He was shut up in Khartoum by the rebels, and defended the city for nearly a year. The relief expedition sent out under Wolsley arrived too late, the city having been captured, and Gordon killed, two days earlier.

A national monument was erected to his memory in Trafalgar Square in 1888. Other memorials are at Chatham, Rochester Cathedral, and Westminster Abbey, and his character and work are fitly commemorated in the Gordon Boys' Home for destitute lads. It is situated at West End, Woking, Surrey, and accommodates 250 boys, chosen from the homeless and destitute, between the ages of about 14 and 15½, and gives them training up to the age of 17, or thereabouts, which will fit them alike for civil life in Great Britain or its colonies, and for service in the army, navy, or mercantile marine.

GORDON, LORD GEORGE (1751-93). Son of the 3rd duke of Gordon. Born in London, Dec. 26, 1751, he entered Parliament in 1774, and took the lead in working for the repeal of the Catholic Relief Act of 1778. Following the "No-Popery" agitation and Gordon Riots of 1780, Lord George was tried for high treason, but was acquitted. In 1788, for libelling the British government and Marie Antoinette, he was imprisoned in Newgate, where he died, Nov. 1, 1793.

GORDON HIGHLANDERS. Regiment of the British army. The first battalion was raised in 1788 by Colonel Robert Abercromby, and the second in 1794 by the duke of Gordon. The Gordons fought in Egypt in 1801, and distinguished themselves at Corunna, Vittoria, Quatre Bras, and Waterloo. They took part in the Indian Mutiny, marched with Lord Roberts from Kabul to Kandahar, and won



Gordon Highlanders' badge

fresh glories in the S. African War. In the Great War the Gordons were in the retreat from Mons, at the first battle of Ypres, at Neuve Chapelle, 1915, at Festubert and Loos, 1915, at Arras, 1917, and in many other leading battles. The depot is at Aberdeen.

GORE, CHARLES (b. 1853). British prelate. Born Jan. 22, 1853, he was a son of Hon. C. A. Gore and a nephew of the 4th earl of Arran.

After a brilliant career at Oxford he went to Cuddesdon as vice-principal of the college there in 1880, and in 1884 became the first head of Pusey House, Oxford. In 1893 he left Oxford to become vicar of Radley, and in 1894 he was made canon of Westminster. In 1902 Gore was chosen bishop of Worcester, where he worked hard to found the new diocese of Birmingham, of which in 1905 he became the first bishop. From 1911 to 1919 he was bishop of Oxford. He founded the Community of the Resurrection at Mirfield; and wrote numerous theological and expository works.

GORELL, JOHN GORELL BARNES, 1ST BARON (1848-1913). British lawyer. Born May 16, 1848, he was educated at Cambridge, and became a barrister in 1876. In 1892, having made a great reputation as an advocate, he was appointed a judge, and from 1905-08 he was president of the probate, divorce, and admiralty division. Made a peer in 1909, he died April 22, 1913.

His son, Ronald Gorell Barnes (b. 1884), became the 3rd baron on the death of his brother in action in 1917. An authority on education, he became chairman of the Teachers' Registration Council and a partner in the publishing firm of John Murray. He is also the author of poems and novels.

GORGET (Fr. gorge, throat). In armour, a metal covering for the throat, protecting the gap between the breastplate and helmet. It was the last remnant of body armour worn by the infantry in England. See *Armour*.

GORGONS. In Greek mythology, three monsters named Stheno, Euryale, and Medusa, who dwelt in Libya. Instead of hair, their heads were covered with crawling serpents, and they had the property of turning into stone anyone who looked upon them. Medusa, who alone was mortal, was killed by Perseus, who struck off her head, looking at her reflection in a mirror while he did so, in order to avoid being turned into stone. Perseus presented the head to Athena, who set it in the middle of her shield.

GORGONZOLA. Town of Italy, 12 m. N.E. of Milan, with which it is connected by steam tramway. It is best known for its cheese. Pop. 3,675. See *Cheese*.

GORHAMBURY. Seat of the Earl of Verulam. It is 2 m. W. of St. Albans. The mansion, standing in a fine park, was built 1778-85, and is notable for its hall and pictures. In the grounds are ruins of the house in which Francis Bacon lived. The manor originally belonged to the abbey of St. Albans.

GORILLA. Largest of the anthropoid apes, but not so nearly related to the human genus as the chimpanzee. It is found only

in Western Equatorial Africa, where it inhabits the forests. A fine male may attain a height of slightly over 6 ft., but the female seldom exceeds 4½ ft. The gorilla is distinguished from the chimpanzee (q.v.) by its greater size, larger teeth, heavy brow ridges over the eyes, and great length of the arms—the bands reaching well below the knees when the animal stands erect. The colour is black, though some specimens show a slightly reddish tinge on the head and shoulders, and the body is covered with coarse hair. The gorilla does not walk erect, but supports itself with its hands, which are usually partly closed so that the weight is borne on the knuckles. See *Monkey*.



Gorilla. One of the four types of anthropoid ape

GORING. Village of Oxfordshire. It is on the Thames, opposite Stratley Village, 9 m. N.W. of Reading. For the two there is a station on the G.W. Rly. It is a boating and angling centre. There is a church with a Norman tower. It gives its name to the gap between the Chilterns and the Marlborough Downs through which the Thames flows. Here Icknield Street (q.v.) crossed the river. Pop. 1,989. Goring Heath is a village 3½ m. away.

Another Goring is a village of Sussex, 2½ m. W. of Worthing, in which it is now included.

GORIZIA. Town of Italy, formerly capital of the Austrian crownland of Görz and Gradisca. Picturesquely placed on the Isonzo, 23 m. N.N.W. of Trieste, it is dominated by an eminence crowned by the ancient stronghold of the Counts of Görz, now barracks. The old part of the town is enclosed in a triple shield of walls. Noteworthy buildings are the 17th century cathedral, the municipal offices, the archbishop's palace, the Jesuit college, and the house of the provincial diet. Pop. 47,010.

Gorizia was one of Italy's important objectives in the Great War. It was captured by the Italians Aug. 8, 1916, abandoned by them Oct. 28, 1917, and recovered in the autumn of 1918. See *Isonzo*.

GORKY, MAXIM (b. 1869). Russian author. He was born at Nijni Novgorod, Mar. 14, 1869, his real name being Alexei Maximovitch

Pyeshkov. He adopted a vagabond life, which later provided him with almost inexhaustible material for his pen. In 1892 his first story, *Makar Chudra*, appeared in a Tiflis journal. *Chelkash*, 1893, and other short stories were rapidly produced, and the young author became immediately popular. From 1901 collections

of his tales appeared, many volumes being translated into English. His play, *The Lower Depths*, was produced in London in 1903. On the outbreak of the Great War he served with the Russian Red Cross, and after the revolution became president of a committee for safeguarding artistic property. He later threw in his lot with the Bolsheviks, but definitely severed his connexion with them in 1920. His *Fragments from my Diary* appeared in 1924, and *Bystander* in 1930.



Maxim Gorky, Russian author



A. Lindsay Gordon, Australian poet



Charles Gore, British prelate Russell



General Gordon, British soldier

GORLESTON. Watering place of Norfolk. It is part of the borough of Great Yarmouth, 122 m. N.E. of London, and is reached by the L.N.E. Rly. See Yarmouth.

GORST, SIR JOHN ELDON (1835-1916). British politician. Born at Preston, May 24, 1835, he entered the House of Commons in 1866 as Unionist M.P. for Cambridge and sat for Chatham, 1875-92, and for Cambridge University, 1892-1906. Gorst was knighted in 1885, was solicitor-general 1885-86, under-secretary for India 1886-91, financial secretary to the treasury 1891-92, and minister of education from 1895-1902. He died April 4, 1916.

His elder son, Sir Eldon Gorst (d. 1911), succeeded Lord Cromer in 1907 as British consul-general in Egypt.

GOSCHEN, GEORGE JOACHIM GOSCHEN, 1ST VISCOUNT (1831-1907). British statesman. Born August 10, 1831, he was of German descent. After a fine career at Rugby and Oriel College, Oxford, he became a partner in the London firm of Fröhling and Goschen. In 1863 he entered Parliament as Liberal member for the City of London. From 1868-71 he was president of the poor law board, and from 1871-74 first lord of the admiralty under Gladstone. As a Liberal Unionist Goschen alone of his party took office under Salisbury in 1886, being chancellor of the exchequer until 1892. From 1895 to 1900 he was again first lord of the admiralty. In 1900 he retired and was made a viscount. He died Feb. 7, 1907. Goschen wrote a standard book on the Foreign Exchanges, and edited the Life and Times of his grandfather, a bookseller at Leipzig.

His son, George Joachim, 2nd viscount (b. 1866), was Conservative member for East Grinstead 1895-1906 and was governor of Madras, 1924-29.

Goschen's brother, Sir William Edward Goschen (1847-1924), entered the diplomatic service. In 1898 he was sent as British minister to Belgrade, and from 1900 to 1905 he was minister at Copenhagen. From 1905 to 1908 he was ambassador at Vienna. In 1908 Goschen was transferred to Berlin, and it was his lot to conduct the negotiations immediately preceding the outbreak of the Great War. He died May 20, 1924.

GOSFORTH. Urban district of Northumberland. It is 2 m. N. of Newcastle-upon-Tyne, having a station on the L.N.E. Rly. Here is Gosforth Park, where race meetings are held. Pop. 15,719.

GOSHAWK (*Astur palumbarius*). Bird of prey, resembling a large sparrow hawk. It is found in many parts of Europe and Asia, but is now very rare in Great Britain, where it was once used in the sport of hawking. The plumage is bluish grey on the back, and white barred with brown beneath.

GOSHEN. Land of ancient Egypt. It was given by Pharaoh to Joseph and his kinsmen as a dwelling place. It probably lay between the delta of the Nile and Suez.

Goshen was the name of a Boer republic, founded in Bechuanaland, beyond the borders of the Transvaal, in 1881. Its capital was Rooi Grond. Goshen and the neighbouring republic of Stellaland came to an end when Bechuanaland was annexed by the British in 1885.

GOSLING, HARRY (b. 1861). British politician. He began life as a lighterman on the Thames, and soon became an active worker in the trade union movement. In 1893 he was elected to the L.C.C., and he remained a member until 1925, for some years being leader of the Labour party therein. From 1923 he was M.P. for Whitechapel, and in 1924 he was minister of transport. In 1916 Gosling was president of the trade union congress. He wrote *Up and Down Stream*, and was made a companion of honour, 1917.

GOSPEL. Anglo-Saxon compound word, god-spel, meaning good news. The word is now used in various senses. It is the name of the biographies of Christ in the N.T.; signifies the message of redemption contained in those books; and is further used as a term for the entire Christian system of religion.

Gospellers was the name formerly applied to the followers of Wycliffe and other pioneers of the Reformation in England, who laid stress on preaching the Gospel to the people.

GOSPELS, THE FOUR. Name given to the first four books in the N.T., which are ascribed to Matthew, Mark, Luke, and John. The three first stand together and form a striking contrast to the fourth. They are called "the Synoptics," because they follow the same lines and deal with the narrative from a similar point of view. Mark is the earliest of the three and gives the story of the life of Jesus in its simplest form. Matthew adapts his narrative for Jewish readers, while Luke, being a Greek, strives to make his portrait of Jesus appeal to the Greek-speaking world. The fourth Gospel was written thirty years later than the others, and is obviously an interpretation of Christ rather than a record of events. See Bible; New Testament.

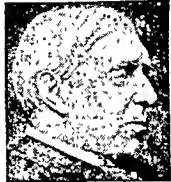
GOSPORT. Borough and seaport of Hampshire. Standing on the W. side of Portsmouth harbour, it is 86 m. from London with a station on the Southern Rly. A ferry and floating bridge connect it with Portsmouth. Here are naval establishments. Pop. 33,588.

GOSSE, SIR EDMUND WILLIAM (1849-1928). English man of letters. Born in London, Sept. 21, 1849, his father being Philip H. Gosse, the naturalist, and his mother a Hebrew and Greek scholar, he became assistant librarian of the British Museum, 1867-75, and translator to the Board of Trade, 1875-1904. He was librarian to the House of Lords, 1904-14, and was knighted in 1925. He died May 16, 1928.

Gosse's works include *Gossip in a Library*, 1891; *Questions at Issue*, 1893; *Critical Kit-Kats*, 1896; *French Profiles*, 1905; and *Portraits and Studies*, 1912. *Father and Son*, 1907, a vivid autobiographical study, was crowned by the French Academy in 1913. His *Collected Essays* appeared in 1913; and his *Diversions of a Man of Letters* in 1919. He was also the author of a number of biographical studies, Gray, Congreve, Ibsen, etc.



Sir John Gorst,
British politician
Russell



1st Viscount Goschen,
British statesman
Elliott & Fry

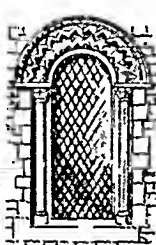


Sir William Goschen,
British diplomatist
Russell



Sir Edmund Gosse,
English writer
Russell

ANGLO-NORMAN

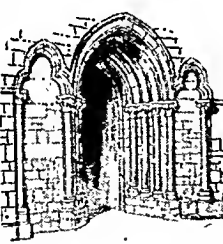


S. John's, Devizes,
1160



S. John's, Tower of London,
1078

EARLY ENGLISH

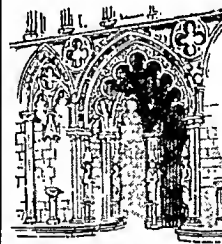


Aylesbury Church,
c. 1250

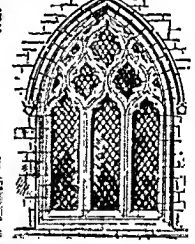


Stone, Kent,
c. 1240

DECORATED

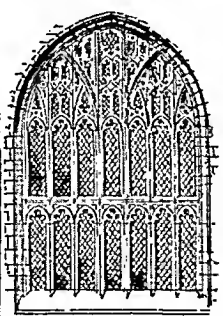


Lichfield Cathedral,
c. 1330



S. Mary Magd., Oxford,
c. 1318

PERPENDICULAR



S. Mary's, Oxford,
c. 1475

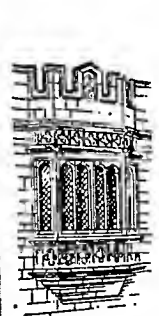


S. Mary's, Sherborne,
c. 1470

TUDOR



Sutton Place, Guildford,
1523



Montacute, Som.
c. 1580

GOTHA. German aeroplane. It was the type of heavier-than-air craft mostly used in raiding London, Paris, and other large centres during the Great War, and was capable of a speed of about 70 m. to 80 m. an hour. It was a biplane fitted with twin engines, with pusher or tractor air-screws. See Aeroplane.

GOTHAM. Village of Nottinghamshire. It is associated with the phrases "wise men of Gotham" and "mad men of Gotham," once used as synonyms for rustic simpletons.

GOTHENBURG or **GÖTEBORG.** City and seaport of Sweden, 5 m. from the mouth of the Göta, 285 m. by rly. S.W. of Stockholm. The city is traversed by numerous canals, and is served by six railways. It has a cathedral, town hall, exchange, museum, and a university and library. Exports include timber, wood pulp, joinery, paper, iron, glass, and matches. There are shipbuilding yards, saw and flour mills, tanneries, sugar refineries, and other industries. Pop. 233,303.

The Gothenburg System is a plan for dealing with the liquor traffic introduced at Gothenburg about 1871. Adopted in Stockholm in 1877, it has spread to Norway and other countries, and has been adapted in Great Britain by the Public House Trust. Under the system a company may buy up licences and open in place of the old licensed houses a limited number of establishments for the sale of pure liquor, the salaried managers of which have no pecuniary interest in the sales. Each company is under municipal control.

GOTHIC ARCHITECTURE. Manner of building practised in Western Europe, especially in France, from about 1150-1550. It developed from Romanesque as a solution of the problem of vaulting in the vast cathedrals then being built. The higher central vaults of the nave were usually sustained on either side by lower vaults over the aisles, and arched stone props, called flying buttresses, were built from the other walls of these aisles to the clerestory. These arched props were placed only at intervals between the windows; at the outer ends they rose from strong buttress masses built out from the aisle walls. At the middle point of all, over the intersection of the nave and transepts, a tall lantern tower was frequently built. The whole plan and design turned on this question of constructive balance. Pillars became very tall, and large windows spread over the walls between the supporting points.

The great springtime of Gothic art was the hundred years from 1150-1250; then came a century or so of strong maturity, and then a gradual decline. In England, Canterbury Cathedral was built by a French master-mason from about 1175. At the middle of the 13th century, Westminster Abbey and Salisbury Cathedral were being built, and great works were in progress at most of the other cathedrals and at scores of abbeys. In England the style of work most characteristic of the 13th century has been called Early English, that of the 14th century is Decorated, and that of the 15th century is Perpendicular. (See illus. p. 668.) Although the perfecting of the vaulted cathedral was the great task of Gothic architecture, yet all other building problems, as the castle, town hall, and house, were dealt with in the same spirit. See Architecture; illus. p. 688; illus. also under Amiens; Beauvais; Beverley; Canterbury; Chartres; Cologne; Westminster; York; etc. Consult Gothic Architecture in France, England, and Italy, Sir T. G. Jackson, 2 vols. 1915.

GOTHLAND or **GOTTLAND.** Island in the Baltic Sea, belonging to Sweden. It lies about 58 m. off the S.E. coast of the Scandinavian peninsula, and is 76 m. long and 30 m. broad, with an area of 1220 sq. m. From its form and situation it has been called the Eye of the Baltic. The capital is Visby. Pop. 56,752.

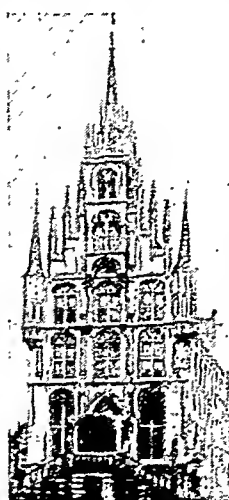
GOTHLANDIAN. System of stratified rocks, named after the island of Gothland, where they are typically developed. They consist of two main types: a great thickness of limestones, sandstones, and shales; and beds of fine-grained deposits—dark shales and mudstones.

GOTHS. Teutonic people of the Scandinavian branch. In the 1st century A.D. they appear to have been dwelling in the neighbourhood of the Baltic and the river Vistula. In the 3rd century they had migrated southwards and were spreading along the N. of the Black Sea and the Lower Danube. In the second half of that century they annihilated the army of the emperor Decius, were heavily defeated later by Claudius, and were finally allowed by Aurelian to settle in Dacia. There they were known as the Visigoths or Western Goths, while the tribes which remained in the E. were called Ostrogoths.

Under Alaric, the Visigoths rose in rebellion, and in 400 invaded Western Europe by way of N. Italy. In 410 Rome was captured and sacked. In 411, under Ataulf, Alaric's successor, they withdrew into southern Gaul and set up the Gothic kingdom of Toulouse. At the beginning of the 6th century the kingdom was overthrown by the Franks. In Spain the Gothic dominion continued until the 8th century, when the Saracens invaded Spain, and the last Gothic king, Roderic, was overthrown in the great battle of the Guadalete in 711.

The Ostrogoths had fallen under subjection to the Huns, but on the death of Attila they reappeared on the middle Danube. Thence about 470 they descended into the Balkan peninsula. Under Theodoric they invaded Italy and overthrew Odoacer, the Teutonic chief who had deposed the last of the Roman emperors. Justinian's general Belisarius (q.v.) temporarily wrested the supremacy from the Goths; after his departure they recovered their ascendancy under Totila. Belisarius failed to overthrow him, but the task was finally accomplished by Narses.

GÖTTINGEN. Town of Germany. It stands on the Leine, 67 m. from Hanover. Above the town rises the Hainberg. Among interesting buildings are the Rathaus, built in the 14th century and restored in the 18th, and the churches of S. John and S. James. In the market-place, in front of the Rathaus, is the goose-girl fountain. The chief industries are the making of chemicals, scientific instruments, and textiles, while it is a publishing centre. Göttingen is chiefly famous for its university, founded by the English King George II in 1734. The main building is on the Wilhelmsplatz. The university library is one of the richest in Germany. Pop. 41,228.



Gouda. The Gothic Stadhuys, built in 1449-59, with a Renaissance staircase, 1603

and the Stadhuys, built 1449-59. It is famed for its cheese. Pop. 28,000.

GOUGH, HUGH GOUGH, 1st Viscount (1779-1869). British soldier. Born at Woods-

town, co. Limerick, Nov. 3, 1779, he entered the army in 1794, and fought with distinction in the Peninsular War. He went to China as commander-in-chief during the war of 1840-41. In 1845 he was made commander-in-chief in India. He crushed the Sikhs, but in 1848 they rose again in arms. A victory at Gujarat put an end to their resistance and led to the surrender of the Punjab. In 1846, being already a baronet, he was made a baron, and in 1849 a viscount. He died March 2, 1869.

GOUGH, SIR HUBERT DE LA POER (h. 1870). British soldier. Born Aug. 12, 1870, of a famous Irish family of soldiers, he served in the Tirah expedition, 1897-98, and afterwards went through the S. African War. In the Great War Gough took the 3rd cavalry brigade to France in Aug., 1914, and was later given the command of a division, and in July, 1915, of the 1st corps. In July, 1916, he was placed at the head of the 5th army, which he had led during the battle of the Somme. In 1917 his tactics at the third battle of Ypres were criticised as unduly costly, and when the Germans broke through the British line in March, 1918, he was held responsible for the disaster and recalled. Gough was knighted in 1916, and made a lieutenant-general in 1917.



Sir Hubert Gough, British soldier

GOULD, SIR LOMER (1861-1929). Canadian politician. Born March 19, 1861, in 1884 he became a barrister, and in 1897 was returned to the provincial legislature by a division of Montreal. In 1900 he took office as minister for public works in Quebec, and in 1905, having just resigned, he was recognized as the man to form a strong government acceptable to the French Canadians and Roman Catholics. He did this, and remained premier of Quebec until July, 1920. In 1921-3 he was minister of justice for the Dominion. He died March 28, 1929.

GOULBURN. Town of New South Wales. A rly. junction 134 m. S.W. of Sydney on the main line to Melbourne, it stands on the Wollondilly river, in an agricultural, dairying district. It has tanneries, hoot factories, and flour and woollen mills. Pop. 12,140.

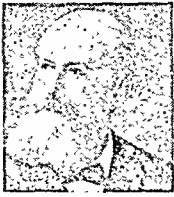
The Goulburn river, in Victoria, 345 m. long, is a tributary of the Murray, which it joins 9 m. E. of Echuca.

GOULD, SIR FRANCIS CARRUTHERS (1844-1925). British caricaturist. Born at Barnstaple, Dec. 2, 1844, after being for many years a member of the London Stock Exchange, he embarked upon the profession of caricaturist, working for The Pall Mall Gazette. Later he transferred his services to The Westminster Gazette, of which his cartoons soon became an outstanding feature. His other publications include Froissart's Modern Chronicles. He was knighted in 1906, and died Jan. 1, 1925.

GOULD, JAY (1836-92). American capitalist. He was born at Roxbury, New York, May 27, 1836, and entered an ironmongery store, but later became interested in railways. In 1856 he became president of the Erie railroad, of which he had obtained the controlling interest, and manipulated the stock to enormous profit. The Union Pacific, Missouri Pacific, Wabash, Texas Pacific, St. Louis and Northern, and St. Louis and San Francisco Rlys. were all controlled by him, whilst in 1881 he formed the Western Union Telegraph System. He died Dec. 2, 1892.

GOUNOD, FRANÇOIS CHARLES (1818-93). French composer. Born in Paris, June 17, 1818, he entered the conservatoire there in 1836, and won the Grand Prix de Rome

in 1839. His first opera, *Sappho*, was produced in 1851, and *Le Médecin malgré Lui* in 1858. Gounod's version of Goethe's *Faust*, which set him in the forefront of operatic composers, was brought out in Paris in 1859. Its first performance in London was in 1863. Then came *Philémon et Baucis*, 1860, and *La Reine de Saba*, 1862. *Mireille*, on a libretto of the Provençal poet Mistral, appeared in 1864, and his fine rendering of the story of *Romeo and Juliet* in 1867. Meanwhile he had also been writing much other music, sacred and secular, notably the *Mass* of S. Cecilia, 1855, two other *Masses*, 1876 and 1887, and the two oratorios *The Redemption* and *Mors et Vita*. Gounod died Oct. 18, 1893.



Charles Gounod.
French composer

GOURAUD, HENRI JOSEPH EUGÈNE (b. 1867). French soldier. Born at Paris, Nov. 17, 1867, he saw active service in the Sudan in 1898, and in the Congo, Senegal, and Morocco, being promoted brigadier-general, June 4, 1912. He was at the head of the 1st Colonial Army Corps in Feb., 1915. In July, 1915, he was severely wounded while in command of the French forces in Gallipoli. Returning to France, in Dec., he was given command of the Fourth Army. In July, 1918, he repulsed the Germans from Reims and in the Argonne. In 1919 he became high commissioner of France in Syria and Cilicia, and commander-in-chief of her army of the Levant. In 1923 he was appointed military governor of Paris.



Henri J. Gouraud
French soldier

GOURD (Lat. cucurbita). Half-hardy annual trailing plant of the order Cucurbitaceae, mostly native of India. Some, such as pumpkins and marrows, bear edible fruits, while others are grown merely for decorative purposes, and trained to climb over arches and upon poles and other garden structures. The rind of several varieties of gourd, including the bottle gourd (q.v.), is used by natives to form bottles for carrying liquids.

GOURMONT, RÉMY DE (1858-1915). French literary critic and scholar. Born at Bazoches, Orne dept., France, he is remembered as a champion of the symbolist movement in modern French poetry, a scholar, and a writer of distinction. From 1883-91 he held an appointment at the Bibliothèque Nationale, Paris. Afterwards he became editor of *Le Mercure de France*. Among his works were *Les Français au Canada*, 1888; *Le Pèlerin du Silence*, 1896; *Le Livre des Masques*, 1896-98; *Esthétique de la Langue Française*, 1899; *Promenades Littéraires*, 1904-6; *Promenades Philosophiques*, 1906-8; a volume of verse, *Divertissements*, 1912. His *Lettres à l'Amazone* and *Pendant la Guerre* were published posthumously, 1916. He died Sept. 27, 1915.

GOUROCK. Burgh and watering place of Renfrewshire. On the S. side of the Firth of Clyde, 3 m. from Greenock, with which and with Port Glasgow it is connected by electric trams, it is a station on the L.M.S. Rly. The industries are mainly connected with

shipping. The chief public building is the Gamble Institute. Legendary and historical associations cling to a stone called *Granny Kempoch*. Pop. 10,128.

GOUT (Lat. gutta, drop, humour) Constitutional disorder characterised by excess of uric acid in the blood and deposit of urate of sodium in the joints and their vicinity. Hereditary influences are an important predisposing cause; alcoholism and over-eating are frequent antecedents. Workers in lead are particularly liable to the disease.

Three forms are recognized: acute, chronic, and irregular gout. The acute attack most often begins in the early hours of the morning, with violent pain in the joints of the big toe, which rapidly become hot and swollen. The temperature rises to 102° or 103°. The pain lessens in a few hours, but recurs towards evening for the next two or three days. Repeated attacks result in more or less stiffness and swelling of the joints. Ultimately the condition passes into the chronic form, the joints being permanently enlarged.

In an attack of acute gout the affected limb should be raised, and the pain may be relieved by warm fomentations. Colchicum is a valuable remedy, and the administration of citrate of potash or lithium is often useful. Chronic gout must be kept under control by carefully regulated living.

Goutweed, or **Goatweed**. Variant name of the bishopweed. See *Bishopweed*.

GOVAN. Suburb of Glasgow. It lies on the S. side of the Clyde opposite Glasgow proper. It is served by the L.M.S. Rly., and is also connected with Glasgow by electric tramways and a district rly. that goes under the Clyde. The principal buildings are the parish church, with early Christian monuments in its churchyards, and S. Mary's church. Here is Elder Park. The growth of ship-building in the 19th century turned Govan from a village into a populous town, and when it was united with Glasgow in 1912 it had a pop. of about 90,000. See *Glasgow*.

GOVERNNESS CART.

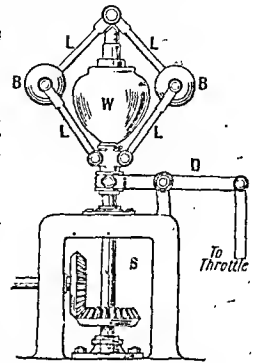
Small, two-wheeled, one-horse carriage holding four persons. It has two seats, facing inwards, and a small door at the rear. Usually it is drawn by a pony or quiet cob. See illus. below.

GOVERNMENT. (Lat. gubernare, to steer, direct). Term for the work of those who guide the ship of state, determining its course and controlling its rate of progress. The numerous services performed on behalf of the modern state are usually classified as legislative, or the making of laws; executive, or the enforcing of laws; and judicial, or the interpretation of laws.

The form of government of a state is known as its constitution, which may be defined as the sum of the principles, usages, and laws that determine who is to exercise the supreme legislative, executive, and judicial authorities respectively, together with the relations of these authorities to each other and to individual citizens. To define the relations between the legislature and the executive is the first problem under every form of constitution, and in Great Britain the solution has been found in cabinet government.

The great rival of cabinet government as a system of popular control is presidential government as exemplified in the U.S.A., where the president, appointed by an elaborate method of what is nominally double election, is not responsible to Congress. In Switzerland, again, a democratic form of polity has been established on a federal basis that seems to be entirely independent of the party system, and includes as its main feature the possibility of frequent appeals from the decisions of its houses of legislature to the people by the expedients known as the referendum and the initiative. See *Cabinet*; *Referendum*.

GOVERNOR. Apparatus for regulating the working speed of an engine under varying conditions of load. Most governors for steam engines follow the original ball governor of James Watt, and a diagram of a modern example is given S is a vertical shaft, rotated by the engine. Four links, L L L L, connect two metal balls, B B, with the top of S and with a weight, W, able to move freely up and down S. When the speed of the engine exceeds a certain limit, B B move outwards and raise W, which brings with it lever D, connected to the throttle. The supply of steam is decreased, and the speed falls. B B now move inwards; the motion of D is slightly reversed, and the supply of steam is increased.



Governor for regulating the speed of an engine. See text

GOVERNOR (Lat. gubernare, to steer) Representative in a province or colony of the supreme authority of a state. Under the British system of colonial administration governors are classified as governors-general, governors, and lieutenant-governors. The governor-general of the Empire of India is also known as the viceroy.

In the U.S.A. each state elects a governor as its chief official.

GOW, NIEL (1727-1807). Scottish violinist. Born at Inver, near Dunkeld, March 22, 1727, his skill in playing reels made him famous. Gow, who died March 1, 1807, had four sons who were all musicians, and his and their compositions are found in *The Gow Collection* of old Scottish songs.

GOWBARROW PARK. Estate in the Lake District, now public property. It is on the N. side of Ullswater, on the slopes of Gowbarrow Fell. It contains a shooting lodge called Lyulph's Tower, and the beautiful waterfall of Aira Force. Gowbarrow was bought by the National Trust and opened in 1906.

GOWER. Peninsula of Glamorganshire. It lies between the rivers Tawe and Loughor, being about 27 m. long and 7 m. across. It contains Swansea and Oystermouth, is almost surrounded by the Bristol Channel, and retains certain customs of its own. The Welsh call it Gwyr. Gower was conquered by the Normans in the 12th century, and therein some of them settled, built castles, and introduced the feudal



Governess Cart. Low, two-wheeled vehicle used on country roads

the system. In 1535 the peninsula was included in Glamorganshire.

GOWER, JOHN (c. 1325-1408). English poet, contemporary and friend of Chaucer. His chief works are *Speculum Meditantis*, written in French, which was lost for centuries and discovered at Cambridge in 1895; *Vox Clamantis*, in Latin, which deals with the rising of Wat Tyler; and *Confessio Amantis*, in English, a collection of tales after the model of Chaucer's *Canterbury Tales*.

GOWRIE, EARL OF. Scottish title borne from 1581 to 1600 by the family of Ruthven. The 1st earl was William Ruthven, 4th Lord Ruthven. He was active in the reign of Queen Mary, and was concerned in the raid of Ruthven, as the seizure of James VI at Ruthven Castle in 1582 was called. The earl was executed for treason in 1584. John Ruthven, who became the 3rd earl, is chiefly known for his share in the Gowrie conspiracy, a plot against the person of James VI in 1600. During the attempt to seize the king he was killed, Aug. 5, 1600, and the title became extinct.

GOYA Y LUCIENTES, FRANCISCO JOSÉ DE (1746-1828). Spanish painter and etcher. Born at Fuendetodos, in Aragon, he studied art under José Martínez at Saragossa. In 1775 he married the sister of Bayeu, the court painter, through whose interest he was commissioned to design the famous tapestries now in the Prado. In 1785 he became deputy director of the San Fernando Academy. He died April 16, 1828.

Goya's three most famous sets of etchings, *Los Caprichos*, the *Tauro-maquia*, and *Los Desastres de la Guerra*—the last inspired by Napoleon's invasion—express his mordantly satirical genius almost better than any of his paintings. The best of his work is at Madrid, but there are four examples in the National Gallery, London.



Francisco Goya y Lucientes, Spanish painter
Self-portrait

GOZO OR GOZZO. British island of the Maltese group. It lies 4 m. N.W. of Malta, and has an area of 26 sq. m. Lae is made. There are remains of cyclopean walls, and a tower and Roman monuments. The chief towns are Victoria, formerly Rabato, in the centre of the island, and Fort Chambray on the S.E. coast. Pop. 22,000.

GRAAFF, SIR DAVID PIETER DE VILLIERS (b. 1859). South African politician. Born March 30, 1859, he became a successful business man in Cape Town. In 1891 he entered the legislative council of the Cape, and in 1910 was elected to the first parliament of the Union of S. Africa. Under Botha he was minister of public works, 1912-14, and then minister without portfolio. In 1914 he was high commissioner in London, and in 1915-16 minister of finance. In 1911 he was made a baronet, and he retired from public life in 1920.



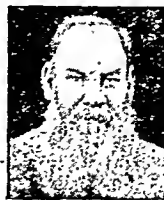
Sir David Graaff, S. African politician
Russell

GRACCHUS. Name of two reformers in ancient Rome. They were the sons of Cornelia, daughter of Scipio Africanus the Elder, by Tiberius Sempronius Gracchus, governor of Ithier Spain in 181 B.C.

The elder, Tiberius Sempronius Gracchus (163-133 B.C.), was present at the siege of Carthage and served in Spain. As tribune for the year 133 B.C. he brought forward a measure allotting public lands to the poor. This brought Tiberius into conflict with the senate and with large numbers of the wealthy classes, and he was killed in a riot.

Ten years after his death the agitation was renewed by his brother Gaius Sempronius Gracchus (133-121 B.C.), who was tribune in 123 and 122 B.C. He, too, was killed in a riot.

GRACE, WILLIAM GILBERT (1848-1915). English cricketer. Born July 18, 1848, at Downend, Gloucestershire, Grace became a member of the Gloucestershire county team. He captained the English team in its test matches against Australia until 1899, and to that country he took teams in 1873-74 and 1891-92. In 1899 he severed his connexion with Gloucestershire, and became manager of the London County club. He died Oct. 23, 1915.



W. G. Grace, English cricketer
Russell

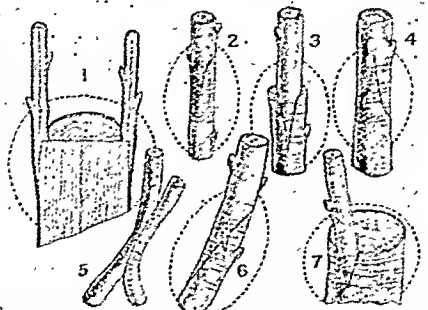
Grace's highest score in first-class cricket was 344, while on ten occasions he scored over 200. He played in a long series of Gentlemen v. Players matches from 1865 to 1899. As a bowler he took over 2,800 wickets, while in seven seasons he scored over 1,000 runs and took over 100 wickets. Two of his brothers, Henry Mills and George Frederick, also played for Gloucestershire. Grace wrote *Cricketing Reminiscences*, 1899.

GRACES. In classical mythology, the three deities of grace and beauty, called Charites by the Greeks and Gratiae by the Romans. They were the children of Zeus. See Charites.

GRADING. In 1928, by Act of Parliament, Great Britain adopted a scheme of grading and marketing agricultural produce, and a committee, with Lord Darling as chairman, was appointed to supervise it. It was first used for apples and pears, and arrangements were made to apply it in 1929 to eggs, potatoes, tomatoes, and cucumbers.

GRAFFITI. Italian word meaning ancient scribbling. Written or drawn upon walls, rocks, potsherds, and other surfaces, graffiti were scratched with sharp implements, drawn in chareol or chalks, or painted. They are universal in range, from neolithic drawings on cave walls at Gezer and rocks in the Nile valley, to scratchings by 2nd century Chinese pilgrims on Shantung tombs.

GRAFTING. Method of transferring a branch or bud of a choice variety of tree to a vigorous foster-parent. This bud is known as a "scion," the stem to which it is transferred as the "stock." The chief object of the operation is to increase the supply of a desirable variety of fruit. It is generally confined to roses and fruit trees. Various forms of grafting are known as "cleft," "tongue," and "slip." A shoot of the scion is cut down to a point and an aperture of suitable capacity prepared in the stock. The scion is firmly embedded in the stock, and is protected by a covering of clay or wax.



Grafting: 1. Crown or rind grafting. 2. Splice. 3. Cleft. 4. Saddle. 5. Inarching. 6. Whip. 7. Notch

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GRAFTING. Transference of portions of skin from one area to another to replace skin destroyed by burn or injury. In Reverdin's method small pieces of cuticle are removed from the healthy area and dotted over the denuded area, thus serving as centres of repair. In Thiersch's method large strips of cuticle are applied to the raw surface. In the Wolfe graft the whole thickness of the skin is employed. Bone-grafting has also been applied with success in modern surgery. See Autoplasty.

GRAFTON. Town of New South Wales. On the Clarence river, 45 m. from its mouth, it is the chief port of the Northern Rivers dist., 350 m. N. of Sydney. Pop. 6,000.

GRAFTON, DUKE OF. English title borne by the family of FitzRoy since 1675. Henry, son of Charles II by Barbara Villiers, duchess of Cleveland, was called FitzRoy and made duke of Grafton in 1675. His descendant, Augustus Henry, the 3rd duke, figured in the politics of the 18th century, being made first lord of the treasury in 1766, head of the ministry during Pitt's illness, and lord privy seal in 1771 and again in 1782. The duke's eldest son is known as earl of Euston, and his chief seat is Euston Hall, Thetford. His estates are mainly in Suffolk and Northamptonshire.

The Grafton Gallery is a London picture repository. It is in Grafton Street, Piccadilly, and derives its name from the dukes of Grafton.

GRAHAM, PETER (1836-1921). British artist. Born in Edinburgh, he was first successful at the R.A. with *A Spate in the Highlands*. Many other successes followed in which he showed his remarkable skill in painting Highland cattle. He was equally successful with marine pictures of rocks and sea-birds. Elected R.A., 1881, he died Oct. 19, 1921.



Cunningham Graham, British author
Hoppe

GRAHAM, ROBERT BONTINE CUNNINGHAM (b. 1852). British author and politician. Belonging to an old Scottish family, he was educated at Harrow. Having passed some years in Mexico and S. America, he returned to England and became a prominent member of the Social Democratic Federation. From 1886-92 he sat in Parliament as M.P. for North Lanarkshire, but his later attempts to secure a seat failed. His writings include essays, novels, and sketches, the best of his works dealing with life in S. America.

GRAHAM, STEPHEN (b. 1884). British author. Son of P. Anderson Graham, and attracted to Russia by its literature he spent some years among the Russian people. After extensive travel in Asia he returned to England, and in 1916 joined the Scots Guards, with which unit he served 1917-18. His books include *A Vagabond in the Caucasus*, 1911; *Undiscovered Russia*, 1912; *A Tramp's Sketches*, 1912; *Changing Russia*, 1913; *With Russian Pilgrims to Jerusalem*, 1913; *Through Russian Central Asia*, 1916; *Priest of the Ideal*, 1917; *A Private in the Guards*, 1919; *Children of the Slaves*, 1920, a study of the American negro question; and *London Nights*, 1925.



Stephen Graham, British author
Russell

GRAHAM, WILLIAM (b. 1887). British politician. Born at Peebles, July 29, 1887, he was elected to the Edinburgh city council in 1913. In 1918 he was returned as Labour M.P. for



William Graham, British politician

central Edinburgh. He was financial secretary to the Treasury, Jan.-Nov., 1924. In 1929 he was appointed President of the Board of Trade, and he was responsible for much important legislation. He wrote *The Wages of Labour*, 1921 and other books.

GRAHAME-WHITE, CLAUDE (b. 1879). British aviator and aeronautical engineer. Born Aug. 21, 1879, he became interested



C. Grahame-White,
British aviator
Elliott & Fry

in aeronautics in 1909, making his earliest flights in France, and was the first Englishman to be granted an aviator's certificate. He started a school of aviation at Pau in 1909, and in 1910 won for Great Britain the international Gordon Bennett aeroplane race in America. He formed the Grahame-White Aviation Co., which became proprietors of the aerodrome at Hendon. He wrote *The Aeroplane, Past, Present, and Future*, 1911, and several other works on aviation.

GRAHAM LAND, Island of the Antarctic. It lies due S. of Tierra del Fuego, N. of Alexander I Land and S. of Danco Land. It was discovered by John Biscoe in 1832. Norden-skjöld remained two years here in 1901-3, and it was visited by Chareot in 1904-5. On the W. coast a meteorological station was erected at the expense of the Argentine Republic. In Dec., 1928, Sir H. Wilkins discovered that it was an island, and not, as had been supposed, part of the Polar continent. See map p. 95.

GRAHAMSTOWN, City and health resort of S. Africa, in the Capo prov. The legal centre of the eastern provs., it is 40 m. by rail from the sea at Port Alfred and 106 m. from Port Elizabeth. Its buildings include the Anglican and Roman Catholic cathedrals, the town hall, public library, museum, Albany Hall and the court house. The botanic gardens cover 100 acres. Educational institutions include Rhodes university college and S. Andrew's College. Pop. 7,652 (European).

GRAIL, THE HOLY. Name given in legend to the cup used by Christ at the Last Supper. Several versions of the story of this vessel exist, some saying that it came into the hands of Joseph of Arimathea, who used it to collect the Blood which flowed from Christ on the Cross. By other authorities it is described as the sacred cup from which Christ drank while hanging on the Cross. In Arthurian romance it figures as the object of quest by the Knights of the Round Table. In the *Morte d'Arthur* of Sir Thomas Malory (15th century), the Siege (seat) Perilous at the Round Table is reserved for the perfect sinless knight who shall achieve that quest of the Grail.

GRAIN. Unit of weight. The average weight of a grain of corn taken from the middle of a ripe ear; the 1/7000 part of a pound avoirdupois. In Troy weight, 480 grains equal an ounce, while 24 grains are called a pennyweight.

GRAIN, ISLE OF, OR ST. JAMES. Parish and village of Kent. At the junction of the Thames and the Medway, it was formerly an island, but has now roadway communication with the mainland.

GRAINING. Art of imitating woods such as oak, mahogany, walnut, etc., by means of paint. Upon a ground colour is painted a coat of graining colour, and while this is still wet it is manipulated in such a manner as to remove part of it and expose the ground beneath. Oak graining is perhaps the most popular of the several processes.

GRAM. Herb of the order Leguminosae a native of India. Commonly cultivated in

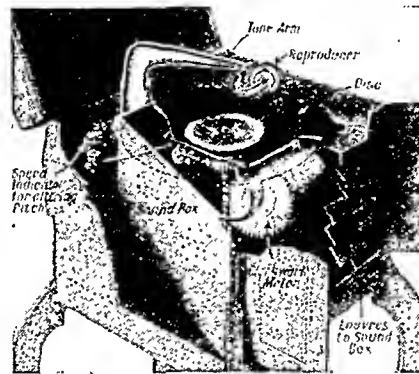
India and the Nile Valley for its edible seeds, it resembles a vetch, and has many varieties. See Chick Pea.

GRAMME. Unit of weight in the metric system. It is the thousandth part of the weight of a litre of distilled water. It equals 15.43248 grains. See Metric System.

GRAMONT, PHILIBERT DE (1621-1707). French courtier, subject of the *Mémoires* written by Anthony Hamilton. Of noble descent, Gramont served with distinction under Condé and Turenne in Flanders and Spain. Banished from the French court, he came to London, 1662, and mixed freely in the court of Charles II. There he married Elizabeth Hamilton, sister of Anthony. His exile ended in 1664, but he revisited England on diplomatic missions in 1670-71, 1676, and 1688. He died Jan. 10, 1707.

The *Mémoires de la Vie du Comte de Gramont*, published in 1713, were actually written by his brother-in-law, and give an intimate account of the more scandalous aspects of the court of Charles II.

GRAMOPHONE (Gr. gramma, letter; phōnē, sound). Talking machine allied to the phonograph and based upon the same general principles. The fundamental con-



Gramophone. Diagram illustrating the principal parts and the method of reproducing sound. Vibrations are conveyed through the tone arm into the sound box, whence they issue through the louvers, shown broken off to expose the interior of the sound box.

structional difference between the two consists in replacing the hollow cylindrical record of the phonograph by a disk upon which the sound record is cut as a spiral. The record is mounted upon a spindle rotated uniformly by a spring or electric motor controlled by a ball-governor. The chamber or reproducer containing the diaphragm carrying the stylus is supported by a tubular arm delicately poised on a bracket so that it can be readily turned aside and follow with ease the movements of the stylus in the spiral track.

In some types of sound-film apparatus a gramophone device in conjunction with thermionic valve amplifiers is used to reproduce the speech and music incidental to a talking picture. See Cinematograph.

GRAMPIANS. Mt. range in Scotland serving as the barrier between the Highlands and the Lowlands. They stretch from the coast of Aberdeenshire S.W. to Dumbartonshire, touching also the counties of Banff, Inverness, Forfar (Angus), Perth, Stirling, and Argyll. Their highest point is Ben Nevis, other high peaks including Ben Macdui, Ben Lawers, Ben Lomond, Cairngorm, Ben Alder, Ben Cruachan, and Cairntoul. Among rivers flowing from them are the Forth, Tay, Don and Dee. The mts. enclose some of the finest

scenery in Britain. In 1929 about 12,000 acres were acquired for afforestation.

There is a mountain range in W. Victoria, Australia, called the Grampians. Its N.E. extension is called the Pyrenices.

GRAMPOUND. Village of Cornwall. It is on the Fal, 9 m. from Truro and 6 from St. Austell, and has a station (G.W.R.) at Grampound Road, 2 m. away. Its old town hall still stands. The place became a town in the Middle Ages, and in 1553 began to send two members to Parliament. It had a mayor and corporation. The venality of the electors became such a scandal that in 1818 an inquiry was held, and in 1821 the borough was disfranchised. Pop. 419.



Grampus. Specimen of the large and pugnacious dolphin.

GRAMPUS OR KILLER WHALE (*Orca gladiator*). Large and ferocious cetacean of the dolphin family which attains a length of 20 ft. It ranges all over the world, and has even been found in the Thames at Chelsea. It preys upon fishes and seals, and has been known to attack the whale. See Dolphin.

GRANADA. Moorish kingdom in Spain that lasted from 1238 to 1492. The city of Granada and the district around was long ruled by the caliphs of Cordova, and was at one time the capital of an independent principality. The kingdom, however, dates from about 1238, when a certain Moor began to rule over Granada, Malaga, and other places, making this former his capital. Gradually the Christians won back Spain from the Moors. Their last ruler, Boabdil, resigned his kingdom to the Christians, who, Jan. 2, 1492, entered the city of Granada.

GRANADA, City of Spain, capital of the prov. of Granada. This old Moorish city, the last seat of the Moslem rulers of Spain, stands on the slopes of two hills and on the plain connecting them, 63 m. N.E. of Malaga. It contains in the Alhambra (q.v.) a unique memorial of Moorish power and art. The old town, Albaicin, although the poorest part, is most picturesque. There are remains of the Moorish walls and towers, the Alcázar, the Casa del Cabildo (old university), the water conduits and other buildings which once made Granada a great trading city and a seat of arts and learning. The modern town contains the cathedral, public buildings, promenades, plazas, gardens, fountains, etc. The university dates from 1531. Pop. 107,124.



Granada, Spain. The centre of the city and the cathedral, begun in 1529, from San Jeronimo.

GRANARD. Urban district of Longford, Irish Free State. The station is Ballywillan, 3 m. away. Much damage to buildings was done in Nov., 1920. Pop. 1,269.

The place gives name to the title of earl, borne since 1684 by the family of Forbes. George, the 6th earl, was made a baron of the United Kingdom in 1806. The family seat is Castle Forbes, co. Longford, and the earl's eldest son is known as Viscount Forbes.

GRANBY, MARQUESS OF. Title borne by the eldest son of the duke of Rutland. Granby being a village in Nottinghamshire, not far from Belvoir. Its most notable bearer was the English soldier John Manners (1721-1770). The eldest son of the third duke, he was born Aug. 2, 1721. In 1758, during the Seven Years' War, he went to Germany in command of a brigade of cavalry, and in 1759 became commander of the British contingent. He became commander-in-chief in 1766, his conduct in this position being attacked by Junius. For many years Granby was M.P. for Grantham, and he represented Cambridgeshire from 1754 until his death, Oct. 18, 1770. Granby is the marquess whose name is borne by many public houses in England.



John Manners.
Marquess of Granby
After Reynolds

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GRAND, SARAH. Pen-name of Frances Elizabeth M'Fall, British novelist. Daughter of Edward Clarke, R.N., she was married at the age of 16 to Surgeon Lieut.-Col. M'Fall. Her first novel was *Ideala*, but her reputation chiefly rests upon *The Heavenly Twins*, 1893, memorable for its uncompromising handling of certain sex problems, a subject skilfully developed in *The Beth Book*, 1898. Other publications include *Babs the Impossible*, 1900, *Adnam's Orehard*, 1912, *The Winged Victory*, 1916, *Variety*, 1922.



Sarah Grand,
British novelist.
Russell

GRAND BANK. Submarine elevation, extending about 200 m. to 300 m. S. by E. of Cape Race, Newfoundland. The area is about 500,000 sq. m.; the depth varies from 10 to 160 fathoms. The waters swarm with fish, especially cod. See *Fisheries*; *Newfoundland*.

GRAND DUKE. Title ranking above that of duke. It first appeared in 1557, when Pius V gave it to the duke of Tuscany. It was held by the Medici family and later by the Hapsburgs. The other grand dukes mainly date from the reorganization of Europe in 1815. There were several in Germany before 1918, and the word was used to translate the title borne by members of the imperial family of Russia before 1918. See *Duke*.

GRANDEE (Span. *grande*). Spanish title. Borne by the highest nobles, it carried many privileges. Grantees were exempt from taxes, and from arrest in the ordinary way. Their privileges were gradually curtailed and the title abolished. It was revived in 1834, though shorn of all its privileges.

GRAND FALLS. Town of Newfoundland. On the Exploits River, about 22 m. from its mouth, it is connected by railway with the port of Botwood. It takes its name from the falls, and owes its origin to the development of the water power there by the Anglo-Newfoundland Development Company, Limited, for its huge pulp and paper mills. Pop. 3,769.

The town of New Brunswick, Canada, known as Grand Falls or Colebrook, stands on the St. John river, near its falls, 200 m. N.W. of St. John. Pop. 1,327.

The Grand Falls of Labrador, on the Grand or Hamilton river, is one of the finest cataracts in N. America. It descends over 315 ft. and has a breadth of 200 ft.

GRAND JURY. In English law, a body of men, fixed between 12 and 23, who at the assizes and quarter sessions are summoned to inquire into the charges against supposed criminals. They decide whether or not there

is a prima facie case against each prisoner. If they think so they return a true bill and the prisoner goes to trial. See *Jury*.

GRAND NATIONAL. The Principal cross-country horse-race. Inaugurated in 1839, it takes place annually at Aintree, near Liverpool, on the Friday of the Liverpool Spring Meeting. The course is 4 m. 856 yds., and includes 30 jumps. The water jump is 15 ft. broad, and two other difficult obstacles are Valentine's and Becher's Brooks.

GRAND PRÉ. Village in King's co., Nova Scotia. On the shores of the basin of Minas, 46 m. N.W. of Halifax, it was the scene of the expulsion of the Acadians by the British in 1755, which forms the theme of the first part of Longfellow's poem *Evangeline*. The C.P.R. secured control of the well beside the willows on the farm tradition associates with *Evangeline's* story, and here in September, 1920, a statue of *Evangeline* was unveiled.



Grand Pré. The Evangeline statue unveiled in 1920.

GRAND RAPIDS.

City of Michigan, U.S.A. On the Grand river, at the head of navigation, it is 65 m. W.N.W. of Lansing, and is served by the Michigan Central and other lines. It contains a federal building, the city hall and the county court house. Grand Rapids trades in timber, agricultural produce and fruit, and manufactures furniture, lumber products, and agricultural implements. Gypsum is worked. Pop. 164,200.

GRAND UNION CANAL. Canal system of England. It was formed in 1928, and is a union of the Grand Junction, Regent's Park, and other canals, altogether 240 m. long. It serves to unite the Thames at Brentford with the waterways in the Birmingham area.

GRANGE OR GRANGE OVER SANDS. Urban dist. and watering place of Lancashire. It stands on Morecambe Bay, 9 m. from Carnforth, and has a station on the L.M.S. Rly. It has a hydropathic establishment. Pop. 2,920.

GRANGEMOUTH. Burgh and seaport of Stirlingshire. It stands on the south side of the Firth of Forth, 3 m. from Falkirk, and is served by the L.N.E. and L.M.S. Rlys. Two streams, the Grange and the Carron, fall into the Forth here. Mainly a modern town, it owes its prosperity largely to its position at the E. end of the Forth and Clyde canal. It has extensive docks. Coal and iron are shipped, while the ore for the ironworks of the Falkirk district is landed here. The industries include shipbuilding and rope-making. Pop. 11,000.

GRANITE (Ital. *granito*, grained, speckled). Granular crystalline rock normally composed of the minerals felspar, quartz, and mica or hornblende, with a number of other minerals in varying small percentages. The usual colour is a shade of grey, though pink, red, greenish, and yellow are found and all variations of texture. Granites are found in large masses, known as bosses, sometimes extending over hundreds of square miles. On account of its great strength and hardness the rock is largely used in all stone construction. The granites of Cornwall, the red Peterhead granite, and granites of Aberdeen are considered the best in Great Britain.

GRANT, ULYSSES SIMPSON (1822-85). American soldier and president. Born April 27, 1822, near Clermont, Ohio, he fought in

the Mexican War (1845-48), and in the Civil War he was made a brigadier-general. The event which brought him into prominence was his capture of Fort Donelson, in Tennessee, in Feb., 1862. Defeated at Shiloh, he successfully besieged Vicksburg in 1863, and defeated the confederates at Chattanooga in the same year. In March, 1864, Grant was made commander-in-chief and established his headquarters with the army of the Potomac, operating in Virginia. The battles of this campaign, The Wilderness, Spottsylvania, Cold Harbour, and others, were among the most terrible of the war. Petersburg and Richmond, the Confederate capital, fell on April 2 and 3, 1865, and with the surrender of Lee's shrunken remnant at Appomattox Court House on April 9, the war was virtually finished.

In 1868 Grant became president of the U.S.A. and held office for two terms. During his presidency the Alabama claims against Britain were settled. In 1884 he suffered financial misfortune, and in order to provide for his wife and family he began to write his *Personal Memoirs*, which enjoyed great popularity. He died July 23, 1885.

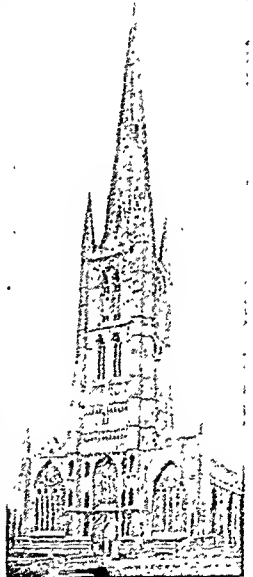


Ulysses S. Grant,
American president.

GRANTCHESTER. Village of Cambridgeshire. It stands on the Cam, 2½ m. from Cambridge, of which it is practically a suburb. Its famous mill was burned down in Oct., 1928. It is mentioned by Chaucer and probably influenced Tennyson's well-known poem entitled *The Miller's Daughter*.

GRANTHAM.

Borough and market town of Lincolnshire. It stands on the Witham, 25 m. S.S.E. of Lincoln and 105 m. from London, and is a junction on the L.N.E.R.; it is also served by a canal. The church of S. Wulfram, mainly 13th century, is noted for its window tracery, crypt, and chained library. The grammar school dates from the time of Edward VI. There are a modern guildhall and an exchange. The ancient market cross was re-erected in the large market place in 1910. The Angel Inn once belonged to the Templars. The industries include the manufacture of agricultural implements. Pop. 18,902.



Grantam. Parish church of S. Wulfram, showing the 14th century spire, 280 ft. high.

GRANT LAND. Ice-bound tract within the Arctic Circle. It is the northernmost part of Ellesmere Island, in British North America, W. of Lincoln Sea and E. of Nansen Sound. It was discovered in 1875.

GRANTON. Seaport of Midlothian, forming part of the city of Edinburgh. It has a good harbour, and is a landing place for the North Sea trawlers. See *Edinburgh*.

GRANTOWN. Burgh and health resort of Moray (Elginshire). It stands on the Spey, 23 m. S. of Forres, on the L.M.S. and L.N.E. Rlys amid magnificent forests of pine and birch. Distilling is carried on, and there is trade in cattle. Pop. 1,660.

GRANVILLE, EARL. British title borne since 1833 by the family of Leveson-Gower. The first earl was Lord Granville Leveson-Gower (1773-1846), a younger son of the 1st marquess of Stafford. He was secretary at war and ambassador in turn to Russia and France. His son, the 2nd earl (1815-91), was a leading Liberal politician in the time of Gladstone, being colonial secretary 1868-70, and foreign secretary 1870-74, and again 1880-85. He



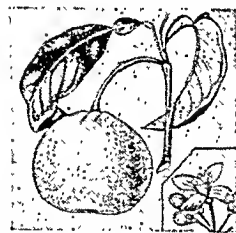
2nd Earl Granville
British statesman

followed Gladstone on Homo Rule, and in 1886 was for a short time colonial secretary. He died March 31, 1891.

GRAPE. Fruit of the vine (*Vitis vinifera*), a shrub of the order Ampelideae. The vine, which is a native of the Mediterranean region, was apparently introduced into Britain at the time of the Christian era. In the S. and W. of England grapes will ripen in the open air, on sunny borders, but they are more generally grown under glass. See Vine; Wine.

GRAPE FRUIT (*Citrus decumana*). Ever-

green tree of the natural order Rutaceae, also called shaddock. It is not known in a wild state, but is believed to be a native of Polynesia.



Grape Fruit. Leaves and fruit.
Inset, flower and buds

GRAPE HYACINTH (*Muscari racemosum*). Bulbous herb of the order Liliaceae. A native of Europe and S. Africa, it has long, slender, half-rounded leaves, and a short flower stem, bearing many round dark blue flowers.

GRAPE SHOT (Fr. *grappe*, bunch of grapes). Projectile at one time much used for smooth-bore guns. It consisted of a large number of cast-iron bullets packed in layers between thin iron plates, and then arranged in tiers (generally three), the whole being held together by an iron bolt passing through the centre of the plates, thus resembling a bunch of grapes. When fired the shot broke up and distributed the bullets in a shower. This projectile has been replaced by shrapnel (q.v.).



Grape Hyacinth, a
bulbous herb

GRAPH (Gr *graphein*, to write). Diagrammatic representation of statements, formulae, etc. Graphical methods are increasingly employed in the solution of problems, and the presentation of the results of analysis, not only in science, but in everyday affairs. Simple examples of such diagrams are charts showing variation of temperature, the rise and fall of exports and imports over a given period, etc. In mathematics, graphical methods are very largely used for the solution of problems.

GRAPHITE OR BLACK LEAD. Mineral form of carbon, soft, grey or black in colour, with greasy touch. It occurs in nature in various parts of the world. The deposits at Borrowdale in Cumberland were for many years the chief source of the graphite used for black-lead pencils. Large quantities are found in Ceylon and the United States of America. For making pencils, finely sifted graphite is blended with other substances according to the hardness of the pencil required. Plumbago crucibles are made largely from Ceylon graphite mixed with Stourbridge clay. Their advantage in metallurgical operations is that they stand changes of temperature without cracking, and do not absorb any of the metal which is melted in them. The use of graphite as a stove polish is familiar. See Carbon.

GRAPPA. Mt. of Italy, the highest in a range between the valleys of the Brenta and the Piave. The Grappa region was prominent in the Great War, and fighting took place here between the Italians and the Austro-Germans in 1917-18.

GRAPPLE PLANT (*Harpagophytum procumbens*). Prostrate perennial herb of the order Pedaliaceae. A native of S. Africa, the leaves are hand-shaped, the purple flowers funnel-shaped. The large fruits are armed with strong, sharp hooks which cling to the skins of animals. When the fruits come in contact with the lips of browsing animals they cause intolerable pain.

GRASMERE. Lake and urban district of Westmorland. The lake, one mile long and about half a mile wide, is beautifully situated in a valley in the centre of the Lake District. The district is 4 m. from Ambleside and 12 from Keswick, where the Rothay falls into the lake. It is noted for its associations with Wordsworth and other literary men. A festival, called the rush-bearing, takes place here on the Saturday after S. Oswald's Day, Aug. 5. The place has also an athletic meeting every August and a dialect play every year. S. Oswald's Church is partly of the 13th century. Grasmere is a good centre for the Lakes. Pop. 1,173. See Lake District, The.



Grasmere, Westmorland. The lake
and village from the south

GRASS. Term strictly applied to species of the order Gramineae, but in farming language also used of clovers and other kinds of herbage growing together in a field. A distinction is drawn between temporary grass, or ley, intended to be ploughed up after a certain interval, and permanent grass, which occupies the land continuously, either as pasture, which is entirely devoted to grazing, or as meadow, that may yield a hay crop every year or at regular intervals. See Bent Grass; Canary Grass; Fescue Grass, etc.

GRASSHOPPER. Orthopterous (straight-winged) insects of the Locustidae and Aecididae families. Remarkable for their long hind legs and jumping powers, they are common in fields during summer. They vary in colour

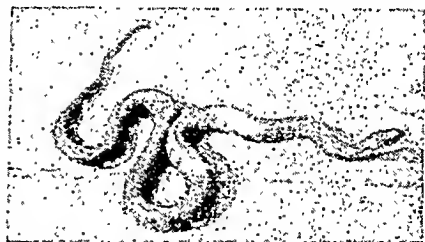
from green to brown, and the species vary much in size. The familiar chirp is produced in the former family by rubbing the wings together, and in the latter by drawing the edge of the wing along the inner side of the femur. Most of the species feed upon plants, but a few eat caterpillars and small insects. See Locust.

GRASS OF PARNASSUS (*Parnassia palustris*). Perennial herb of the order Saxifragaceae. A native of Europe, N. Africa, N. and W. Asia, and N. America, it is a bog plant with long-stalked heart-shaped leaves and large solitary white flowers which are borne on tall stems.



Grass of Parnassus,
leaves and flower

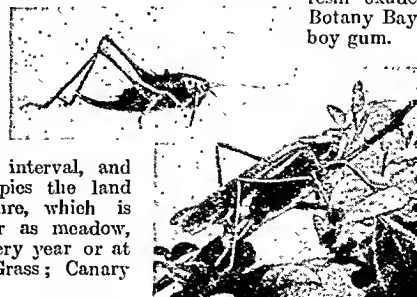
GRASS SNAKE OR RINGED SNAKE (*Tropidonotus natrix*). Common non-poisonous snake of Europe, part of Asia, N. Africa, and England, being unknown in Scotland and Ire-



Grass Snake. Harmless snake common in England.
It is brownish-grey above and light underneath

land. Greenish-grey to brown above, with black bands, it is black and white underneath. It has two white or yellowish-white spots behind its head which distinguish it some distance away. Growing to a length of three to four feet, the grass snake feeds chiefly on frogs, toads, and fish, and is usually found in damp places. See Snako.

GRASS TREE (*Xanthorrhoea*). Genus of perennials of the natural order Juncaceae. Natives of Australia, they are also known as black boy and grass gum-tree. They have short, thick trunks like those of palms, rough with the bases of former leaves, consolidated by red or yellow gum produced by the plant. The long, wiry leaves are like those of the rushes, and form a great tuft. Cattle eat the leaves. The fragrant resin exuded is known as Botany Bay resin and black boy gum.



Grasshopper. Great green grasshopper, *Locusta viridissima*. Above: *Meconema thalassimum*

GRATIAN (A.D. 359-383). Roman emperor. In 375 he succeeded his father, Valentinian I, but was quite unfitted to deal with the barbarian peril. In 383 Maximus was proclaimed emperor, and Gratian was murdered by his own soldiery. Another Gratian was a 12th century Italian jurist

GRATTAN, HENRY (1746-1820). Irish orator and statesman. Born in Dublin, July 3, 1746, he was called to the Irish bar in 1772, and in 1775 nominated to represent Charlemont in the Irish Parliament. He soon became the leader of the popular or patriot party, and in 1782 procured the passing of legislation which made the Irish Parliament independent; but failed to procure Catholic emancipation. From 1805 until his death he represented Malton and Dublin in the British Parliament. He died in London, June 4, 1820, and was buried in Westminster Abbey. Grattan's reputation rests chiefly upon his oratory.



Henry Grattan,
Irish statesman
After F. Wheatley, R.A.

GRAVE. Name of a place of burial. A collection of graves is called a cemetery. The excavation of early graves and the careful examination of their contents has been of great value in throwing light upon the manners and customs of early civilizations.

WAR GRAVES. To care for the graves of the British soldiers who fell in the Great War a commission was appointed in May, 1917. This has in its charge over 1,600 cemeteries and perhaps 600,000 graves, mainly in France and Flanders, but also in Gallipoli, Italy, Palestine, Macedonia, Egypt, Mesopotamia, and E. Africa. In each cemetery building is kept the register of each man's parentage, age, birthplace, and other particulars. The offices of the commission are at 82, Baker Street, London, W.1.

It was decided to adopt a uniform pattern of tombstone for all ranks, plain headstones measuring 2 ft. 6 ins. by 1 ft. 3 ins. They are inscribed with the soldier's regimental number, rank and name, date of death, the Cross or other symbol of his faith, the badge of his corps, and a text or other inscription chosen and paid for by his relatives. See Burial; Catacomb; Cemetery, etc.

GRAVELINES. Town and seaport of France. It stands on the Aa, 15 m. from Dunkirk, and has a trade in timber, coal, etc. Other industries include sugar refining and fish and food preserving. Pop. 2,027.

On July 13, 1558, the Spaniards under Egmont here defeated the French; and in 1588 the Armada was dispersed off Gravelines.

GRAVELOTTE. Village of Lorraine, now part of France. Here, on Aug. 18, 1870, during the Franco-Prussian War, about 200,000 Germans under King William of Prussia defeated about 120,000 French under Bazaine, who retired to Metz. The battle is also known as that of St. Privat or Rezonville.

GRAVES, ALFRED PERCEVAL (b. 1846). Irish author. Born in Dublin, July 22, 1846, he was one of the sons of Charles Graves (1812-1899), bishop of Limerick. After graduating at Dublin University he entered the home office, was H.M. inspector of schools (1875-1910), founded London educational councils, and helped to found the Irish literary and Irish and Welsh folk-song societies. Father O'Flynn, the poem by which he was first known, was written in 1872, but not published as a song until 1882. His many works include Songs of Old Ireland, Songs of Irish Wit and Humour, The Irish Song Book, and A Celtic Psalter.

GRAVES, CHARLES LARCOM (b. 1856). Author and journalist. A brother of Alfred Perceval Graves, he was born Dec. 15, 1856, and educated at Marlborough and Christ Church, Oxford. He was assistant editor of The Spectator, 1899-1917, and joined the staff of Punch in 1902. He is author of The Life and Letters of Sir George Grove, 1903;

Life and Letters of Alexander Macmillan, 1910; Life of Sir Hubert Parry, 1926; Mr. Punch's History of the Great War, 1919; and numerous other works in a light vein.

GRAVES, CLOTILDE INEZ MARY (b. 1864). Irish novelist and playwright. Born at Buttevant, co. Cork, June 3, 1864, she won popularity under the name of Richard Dehan, in 1910, with The Dop Doctor, a realistic story of life in S. Africa during the Boer War. She also wrote plays.

GRAVESEND. Borough, river port, and market town of Kent. On the right bank of the Thames estuary, 24 m. E. of London by the S.R. and L.M.S. Rly, it is opposite Tilbury, with which there is ferry communication. It is a customs and pilot station, a port under the P.L.A., and the headquarters of the Royal Thames Yacht Club. There are large paper-making works and the Amalgamated Press has large printing works here. Market day, Sat. Pop. 31,171.

GRAVITATION (Lat. gravitas, weight). Law governing the motions of all material bodies. The simplest manifestation of gravitational force is the property of a body known as its weight, in virtue of which it falls to the earth, or if supported, exerts a downward pressure. Sir Isaac Newton showed mathematically that the paths of the planets round the sun could be accounted for by ascribing to the planets a tendency to fall to the sun; and he proved that this tendency varied in intensity inversely as the square of the planet's distance from the sun. He assumed the existence of an attraction exerted by the sun on the planet, and likewise varying as the inverse square of the distance; and this attractive force is known as the force of gravity. A similar attraction accounted for the motion of the moon around the earth. Newton also showed how the small attractions of the earth's particles would combine to form the joint attraction to the centre of the earth.

Since Newton's time the theory of relativity has had a revolutionary effect on the fundamental ideas of mechanics and physics, and Einstein obtained a new law of gravitation, derived not from observation, but from pure reasoning. See Atwood's Machine; Ether; Matter; Relativity.

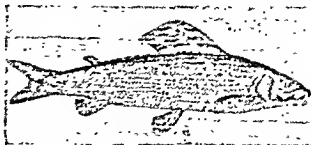


George Gray, Australian billiard player

He came to England in 1910. While playing against Harverson in London on March 17-18, 1911, he compiled, using crystallate balls, an unfinished break of 2,196 (1,944 being off the red). See Billiards.

GRAY, THOMAS (1716-71). English poet. Born in London, Dec. 26, 1716, he was educated at Eton and Peterhouse, Cambridge, where in 1768 he became professor of modern history. The inspiration of his best-known poem, Elegy Written in a Country Churchyard, came from the churchyard at Stoke Poges (q.v.). Small in bulk, all Gray's work is that

of a consummate artist. He died at Cambridge, July 30, 1771, and was buried in Stoke Poges churchyard. Here is a memorial to him.



Grayling, a British fresh-water fish of the salmon family

GRAYLING (*Thymallus vulgaris*). Fish of the salmon family. Easily recognized by its large and many-rayed dorsal fin, it occasionally attains a weight of 4 lb., and is a good table fish. It is fairly common in English rivers, but less common in those of Scotland.

GRAYLING BUTTERFLY (*Satyrus semele*). British butterfly of heathy and uncultivated lands, found also in temperate Europe, N. Africa, and W. Asia. The wings are smoky brown in tint, with a broad zigzag ochreous band near the blackish margin. The brown-striped, drab-coloured caterpillar feeds upon various wild grasses.

GRAYS OR GRAYS THURBOCK. Urban dist. of Essex. It stands on the Thames, 20 m. from London, on the L.M.S. Rly. The industries are brick and cement making. Here is the training ship known as Exmouth. Pop. 17,364. See illus. p. 582.



Gray's Inn, London. The 16th century hall with its fine panelling and hammer-beam roof

GRAY'S INN. One of the four inns of court, London. It lies in the angle formed by Holborn and Gray's Inn Road. In the hall, erected 1555-60, Shakespeare's Comedy of Errors was acted, 1594. The chapel is thought to occupy the site of the old chantry of Portpool. The library, rebuilt 1883-84, contains 30,000 volumes and MSS. A new library was added in 1929. The walks and gardens were laid out under the supervision of Bacon.

GRAZ OR GRATZ. Town of Austria, the capital of Styria. It is situated on both banks of the Mur, here crossed by seven bridges, 90 m. S.W. of Vienna. The university was founded in 1573. The buildings include some old churches and a modern town hall. The industries include steel works. Pop. 152,706.

GREAT BARRIER REEF. Coral reef 1,200 m. long, off the N.E. coast of Australia. It covers an area of 100,000 sq. m., and is the greatest oceanic feature of its kind. It acts as a vast natural breakwater, the channel separating it from the Queensland coast—10 m. to 30 m. wide—providing a safe sea passage of extraordinary tropical beauty, studded with islands. See Coral Reef.

GREAT BEAR. Lake of the N.W. Territories, Canada. It has a length of 176 m., and breadth varying from 25 m. to 46 m.; its area is 11,200 sq. m., and its average depth 270 ft. Frozen over for the greater part of the year, it abounds in fish, and discharges into the Mackenzie river by the Great Bear river.

Great Bear. Popular name of the northern constellation Ursa Major. See Constellation.

GREAT BRITAIN. Name used for England, Wales, Scotland, and the adjacent small islands. Its official use dates from 1603,

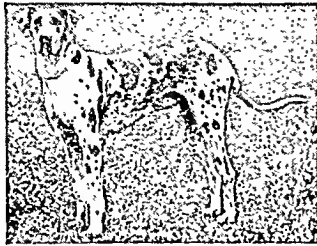


Thomas Gray,
English poet
After J. G. Eccardt
in the Nat. Port. Gal.

when James I united the crowns of England and Scotland and called himself king of Great Britain. See Britain; England; Scotland; United Kingdom.

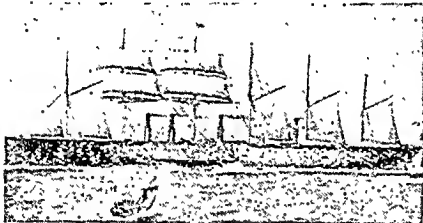
GREAT CIRCLE. Line on the earth's surface which lies in a plane through the centre of the earth, or any circle on the earth's surface which divides the world into two equal parts. The shortest line joining any two points on the earth's surface is on a great circle, hence the ascertaining of great circles is of great importance in navigation.

GREAT DANE. Breed of German boarhounds. It stands 34 inches high at the shoulder, and is employed in the Black forest for hunting purposes; but its general use is as a watchdog. It is friendly and faithful, but its great strength and determined will make it often difficult to control. See Dog.



Great Dane. Champion of this breed of German boarhound

GREAT DIVIDING RANGE. General name of the vast mountain system of E. Australia. It extends from the N. of York Peninsula in Queensland, and trends S. and S.E. to the borders of New South Wales; it then turns S.S.W. through that state and Victoria, terminating at its S.E. extremity. The westerly extension from here is known as the Australian Alps, and also as the Great Dividing Range. The highest summit is found in New South Wales, Kosciusko (7,300 ft.).



Great Eastern. The vessel on her first voyage to New York, June, 1860

From a contemporary drawing

GREAT EASTERN. British steamship, built in 1858 from the designs of Isambard Brunel. The largest steamship built to that date, she was first called the Leviathan. Her dimensions were: length 692 ft., beam 83 ft., draught 25 ft., and gross tonnage 18,915 tons. She was a screw and paddle vessel and cost about £750,000. She was employed in laying the first, fourth, and fifth Atlantic cables, the French Atlantic cable, and the Bombay-Suez cable. Sold by auction for £16,000, she was later broken up.

GREAT FIRE. London fire which lasted four days and nights, beginning about 2 a.m. on Sunday, Sept. 2, 1666, near London Bridge. See London.

GREAT FISH. River of Canada, also called the Back. It rises near the N. shore of Lake Aylmer, N.E. of Great Slave Lake, and discharges into an inlet of the Arctic Ocean after a course of about 500 m. Sir George Back explored its shores.

The name is also given to an inlet of the Atlantic off S.W. Africa, and to a river of Cape Province, S. Africa.

Great Gable. Mt. peak of Cumberland. It is about 7 m. S. of Keswick and is 2,950 ft. in alt. Near is Green Gable, 2,500 ft. high.

GREAT HARRY. English warship. Built by Henry VIII, she was the first double-decked ship constructed in England, and was of 1,000 tons burthen. She is considered to mark the beginning of the Royal Navy.

GREAT LAKES, THE. Chain of five fresh-water lakes in N. America. Situated between Canada and the U.S.A., they belong to the basin of the St. Lawrence river, by which they are drained to the Atlantic Ocean. In order of size they are Superior, Michigan, Huron, Erie, and Ontario, and their entire water expanse is about 94,100 sq. m.

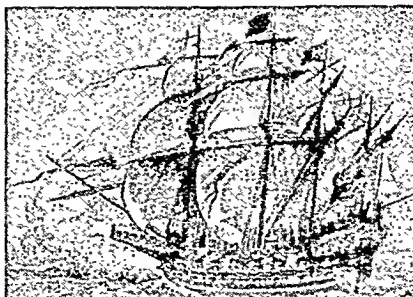
The region surrounding the Great Lakes is one of the most productive in North America, and the cheapness of transport afforded by these waterways has enabled the farming, fruit-growing, and mining industries to be developed on a greater scale. See Erie; Huron; Michigan; Ontario; Superior.

GREAT POWERS. Term used in the 19th century for the dominating countries of Europe. In 1815 they were Britain, France, Russia, and Austria. Later Italy and Germany, having become unified, were added, and these six were the Great Powers of the Congress of Berlin and afterwards. Towards the end of the century, as European problems became world problems, the United States and Japan entered the circle. The Great War destroyed the power of Austria and Russia and impaired that of Germany, and at the peace conference of 1919 the Great Powers were Britain, United States, France, and Italy. Japan joined in the world conferences of Washington (1921-22) and London (1930) and these five, with Germany, may be considered as the world's Great Powers.

GREAT REBELLION. Name given to the civil war in England which ended in the execution of Charles I in 1649, or, according to another point of view, in the restoration of Charles II in 1660. See Civil War.

GREAT SALT LAKE. Extensive water expanse in Utah, U.S.A. It is about 75 m. long by from 20 m. to 50 m. broad, and has a mean depth of 20 ft. Its waters contain about 13 p.c. of mineral salts, principally chloride of sodium, and the production of salt by evaporation is a considerable industry. See Salt Lake City.

GREAT SCHISM. Period from 1378 to 1417 during which two rival popes claimed each to be the sole head of the Church. In 1378 Urban VI was elected pope, the papal court having just returned to Rome after its exile at Avignon. Against him the French party elected an anti-pope, Clement VII. In general the former was recognized by all Christendom save France, Scotland, and parts of Germany and Italy under French influence. Each party elected successors on the deaths of



Great Harry. English double-decked warship of 1514

From a picture by Holbein

the two popes. Various attempts to heal the breach failed, until in 1415 the Council of Constance ended the schism by the deposition of the anti-pope John XXIII. The rightful

pope, Gregory VII, Urban's successor, resigned, and in 1417 a new pope, Martin V, was elected and recognized by both parties.

GREAT SEAL. Emblem of sovereignty, customarily used in some monarchical countries when the will of the sovereign is expressed.

In the United Kingdom a new seal is made at the beginning of each reign, the old one being destroyed. Edward the Confessor had one, and its custody was entrusted to the chancellor. Later there was a separate official called the lord keeper, who was responsible for the seal. Since 1760 it has been in the keeping of the lord chancellor. There was a separate seal for Scotland until the union of 1707. In 1930, owing to the alteration made in the king's title consequent on the formation of the Irish Free State, a new seal was made. See Chancellor; Seals.



Great Seal of King George VI: the new design of 1930

GREAT SLAVE. Lake of Canada, in the N.W. Territories. Its area is 10,719 sq. m., and it is about 300 m. long. The Slave and other rivers flow into it, and the Mackenzie carries its water to the Arctic.

GREAVES (old Fr. grève, shin-bone). Armour for the lower part of the legs. Bronze or pewter greaves were worn by the ancient Greeks and Romans. See Armour.

GREBE (Podiceps). Genus of diving birds, five species of which occur in Great Britain. They are remarkable for their curiously lobed feet, rudimentary tail, and the backward position of the legs, which causes them to assume on land an upright position like a penguin. They frequent ponds and lakes in summer, and some go to the sea in winter. The little grebe is known as the dabchick.

GRECO, EL. Name by which the painter Domenico Theotocopuli (q.v.) is known.

GREECE. Maritime republic of S.E. Europe. It is bounded N. by Albania, Yugoslavia and Bulgaria; S. and W. by the Ionian Sea; E. by the Aegean and Turkey. The area is estimated at 50,000 sq. m. and the pop. at 6,500,000. The capital is Athens (q.v.). There is a Senate of 120, and a Chamber (Boule) elected for three years by universal manhood suffrage. Military service is compulsory between 21 and 57. Education is free and compulsory. The chief harbours are the Piræus, Syros (Hermoupolis), Patras, Salonica, Volos, Corfu, Kalamaï, Lavrion, Kavala, and Canea (Crete).

Mountains divide the country into small districts. Most of the rivers dry up in summer.



Greece. Morean shepherd in winter coat of straw

There are many lakes of moderate depth; but only a few forests and little wooded country. The climate generally is subject to extremes of heat and cold.



Greece. Mahomedan peasant in fustanella

Whether the present inhabitants are descended from the ancient Greeks is disputed. Many of the peasants wear the short white kilt (fustanella), though coats and trousers and hard felt hats are becoming more general wear.

The chief crop is currants, which are exported all over the world. Olives are grown extensively, as are figs and oranges, tobacco is an increasing crop, and wine is made in large quantities, mainly for home consumption. There are textile factories, and smelting and ship-building are carried on. The exports also include

hides, lead and iron ores, emery, marble, sponges, and carpets.

Of the cultivated lands half are given up to growing food for the population, wheat, barley, rice, and maize. There are about 1,500 m. of railways, good steamer services, and about eight hundred trading vessels. The Corinth canal, for ships up to 1,500 tons, was completed in 1893.

Among the more highly educated religion is neglected or is a form, but among the peasantry attachment to the Greek Church is as strong as ever. Its bishops receive the same salary as members of Parliament; archbishops slightly more. The Moslem religious leaders are also paid by the state.



Peasant woman of Morea (Peloponnese)

HISTORY. In prehistoric times, before the Hellenes appeared, an earlier race, having Crete as its centre, attained a high degree of civilization known as Minoan. In the 13th century the Minoans established the Mycenaean civilization within the Morea or Peloponnese. The most inclusive name of the Hellenes at this era was Achaeans or Danaans, with Aeolians and Ionians as subdivisions. About the 12th or 11th century, a new and ruder Hellenic wave, the Dorian, rolled down from the N.W., and in the eastern Morea and on the Isthmus of Corinth effected a conquest, destroying the Minoan ascendancy and carrying their arms eastwards, across



Greece. Map of the country showing the areas in Europe and the islands in the Aegean Sea

Crete and the southern islands, to the south-western coast of Asia Minor.

By the 6th century B.C. Hellas was composed of a great number of small city states, most of them independent. Meanwhile the Persian Empire had been created. Darius crossed into Europe, 513 B.C., and demanded from all the Hellenic states recognition of Persia's sovereignty. Had Athens and Sparta elected to submit, or been wiped out, the future of the world might have been entirely changed; but the victories of Marathon (490), Salamis and Himera (480) and Plataea and Mycalé (479) shattered oriental ambitions and made Athens the Athens of Pericles, Aeschylus, Sophocles, Euripides, and Pheidias.

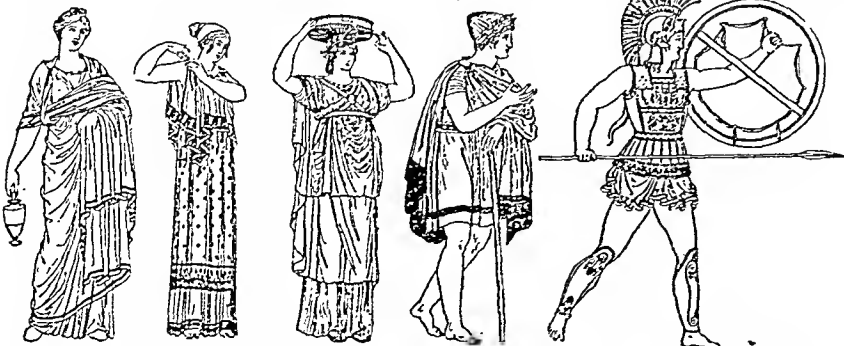
Nearly fifty years after the Persian débâcle almost all Hellas was involved in the great

conflict between Athens and Sparta which is called the Peloponnesian War. Then arose Philip of Macedon, under whom Hellas might have been unified as a military empire. But in 336 Philip was assassinated and his crown passed to his son, Alexander the Great, who, failing to fuse East and West, failed no less to fuse Hellas; and Greece was eventually swallowed up in the Roman Empire. When the Roman empire was divided, Greece fell to the eastern or Byzantine portion. Then a few years after the fall of Constantinople the Turks conquered practically the whole of the land.

Greece regained its independence in 1830, and after a succession of monarchical rulers was declared a republic March 25, 1924. See Constantine; Corfu; Salonica; Venizelos.

GREEK ART. The very early civilization and art in the Aegean which the discoveries at Mycenae and Cnossus have revealed came to an end about 1000 B.C., and left but doubtful traces in the Greek art that followed. This early period produced masterpieces of decoration and some remarkable naturalistic works such as the gold cups unearthed at Vaphio; but the sobriety and symmetry of the Greek art are lacking. The latter in its earliest form is represented by pottery. First the designs were geometrical, then rudely drawn figures made their appearance, and were followed by a wealth of plant and animal forms. Corinth and Chalcis were the main centres of production. Soon there were subjects from myth and saga. Ionia, Rhodes, and Melos developed their own styles.

The early 6th century brought the beginnings of Greek sculpture. Rude images, such as the Apollo statue at Amyclae, rapidly gave



Greek costume, as recorded in mural painting and sculpture. Left to right: peplos or outer garment; girl fastening chiton with brooch; basket carrier at a festival, showing girdle and sandals; youth in chlamys or short mantle, with a pilos on his head; warrior in field dress

place to intimate studies of the human form. A mythical sculptor, Daedalus, is said to have founded a school. Better authenticated early

its clergy to be celibate; all except bishops and monks may marry. It allows communion in both kinds. It does not accept the Apostles,

Capitals	Minus- cules	Greek Names	English	Modern Greek	Capitals	Minus- cules	Greek Names	English	Modern Greek
A	α	Alpha	a	a	Ν	ν	Nu	n	n
B	β	Beta	b	v	Ξ	ξ	Xi	x	x
Γ	γ	Gamma	g	gh, y	Ο	ο	Omicron	o	o
Δ	δ	Delta	d	th (in that)	ΙΙ	π	Phi	p	p
E	ε	Epsilon	c	e	Ρ	ρ	Rho	r	r
Z	ζ	Zeta	z	z	Σ	σ	Sigma	s	s
H	η	Eta	ee	ee	Τ	τ	Tau	t	t
Θ	θ	Theta	th	th (in thin)	Υ	υ	Upsilon	u	i
I	ι	Iota	i	i	Φ	φ	Phi	ph	ph
K	κ	Kappa	k	k	Χ	χ	Chi	ch	ch
Λ	λ	Lambda	l	l	Ψ	ψ	Psi	ps	ps
Μ	μ	Mu	m	m	Ω	ω	Omega	o	o

Greek alphabet as finally adopted in 403 B.C. Three older letters, F, the digamma, having the sound of v or w; Q, the hard k; and S, representing s, were dropped as being of no further use, although they were retained as numerals

practitioners were Achermus of Chios, Dipocnus and Scyllis of Crete, and Rhoecus and Theodorus, the inventors of bronze casting. To the 5th century belong the sculptures of the Parthenon and the paintings of Polygnotus. Vase painting was developed at Athens by Euphronius, Duris, and Hieron. With the 4th came Praxiteles, Scopas, and Lysippus of Sicyon in sculpture, Apelles, Protogenes, Zeuxis, and Parrhasius in painting. The best known sculptures of the Hellenistic Age (following the death of Alexander) were the Colossus of Rhodes by Charos, the Victory of Samothrace, Apollo Belvedere, and Laocoon. This also was the age of the Tanagra statuettes in terra cotta.

ARCHITECTURE. Not till the 5th century did Greek architecture assume the combined stability and grace which are its characteristic. Its chief expression was the hexastyle temple, an oblong structure enclosed by rows of columns, of a single storey with a low-pitched roof ending in a pediment. The exterior was decked out in bright primary colours, sometimes gilded; the sculpture was painted and fine marble often covered with coloured stucco. Greek architecture was dominated at successive periods by three orders, Doric, Ionic, and Corinthian. The Doric was the simplest form of column and capital, and is illustrated by the finely preserved temple of Theseus at Athens, and by structures excavated in the archipelago, Crete, Asia Minor, and Southern Italy. Ionic is known by its volute capitals, and Corinthian by its foliated capitals, the latter being a late Hellenistic development. Theatres were built on a magnificent scale, that at Dionysus being 443 feet in diameter. See Aeropolis; Aegina; Athens; Corinth, etc.

GREEK CHURCH. Name given to the Eastern or Oriental church, the full title of which is The Holy Orthodox Catholic Oriental Church. The name Greek is given to it because it was Greek in origin.

In primitive times the eastern and western divisions of Christendom formed a single church. When Constantine transferred the capital of the Empire from Rome to Constantinople it was inevitable that the Roman Empire would split into two divisions and that the political rivalry between them would be reflected in the church. The actual division, however, did not take place until the 9th century, when it came about as the result of a controversy on the Filioque clause in the Nicene creed.

The chief points of difference between the Roman and the Greek Church may be summarized. The Greek Church maintains the equality of the various patriarchs and has therefore no single head. It does not compel

Of these 120,000,000 are in Europe and 20,000,000 in Asia. In Europe they are found chiefly in Russia and the Balkan countries, including Greece. Until the revolution of 1917 Russia was the great stronghold of the Greek Church, but under the Bolshevik regime its position has been assailed and its numbers reduced.

GREEK FIRE. Inflammable composition used by the Byzantine Greeks for defensive warfare. According to many accounts it was inextinguishable and was able to burn under water. Aeneas Tacticus gives its composition as a mixture of sulphur, pitch, charcoal, incense and tow, while Vegetius adds naphtha.

GREELEY, HORACE (1811-72). American journalist. Born on a New Hampshire farm, Feb. 3, 1811, he founded The New Yorker in 1834, and in 1841 The Tribune, an unflinching advocate of abolition. Greeley helped forward the nomination of Lincoln for the presidency. He died Nov. 29, 1872.

GREELEY, ADOLPHUS WASHINGTON (h. 1844). An American explorer. Born at Newburyport, Mass., March 27, 1844, he served in the Civil War (1861-65). Appointed, in 1881, to command a polar expedition, with a party of 25 men he reached the then farthest North (83° 24'). His Three Years of Arctic Service, 1883, gives an account of his expedition.

GREELEY, JOHN RICHARD (1837-83). British his-

torian. Born in Oxford, Dec. 12, 1837, he was educated at Magdalen College School and Jesus College. He became a clergyman and held an incumbency at Steney, but ill-health compelled him to abandon parish work, and for a little time he was librarian at Lambeth. From about 1868 to his death he devoted himself to historical study. He died at Mentone, March 7, 1883. Green's great work is his Short History of the English People, perhaps the most popular book of its kind. His wife, Alice Sophia Amelia (1848-1929), was also a historical writer.

GREEN, THOMAS HILL (1836-82). British philosopher. Born at Birkin, Yorkshire, April 7, 1836, he was educated at Rugby and Balliol College, Oxford. His father was a clergyman, and he claimed descent from Oliver Cromwell. In 1860 he was elected to a fellowship at Balliol, and in Oxford he remained all his life. He was on the tutorial staff at Balliol, and from 1878 was professor of moral philosophy in the university. The most penetrating influence in the Oxford of his day, he died March 26, 1882.

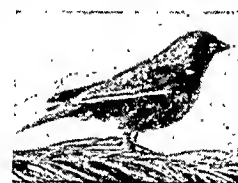
GREENAWAY, KATE (1846-1901). British artist. Born in London, March 17, 1846, her father was a wood engraver. She studied art and began by designing Christmas cards, but the work with which her name is chiefly identified consists of drawings, chiefly in colour, but often in black and white, illustrating stories and poems for children. The girls and boys are garbed in the costume of the early 19th century, and the resulting pictures are quaint and attractive. She wrote Marigold Marsh, 1885, and died at Hampstead, Nov. 6, 1901.



Kate Greenaway.
British artist

GREENE, HARRY PLUNKET (b. 1865). British singer. Born in Dublin, June 24, 1865, a grandson of Lord Plunket, he was educated at Clifton College. In 1888 he appeared in London as a baritone in The Messiah, and afterwards took leading parts in oratorio and opera, while his interpretation of the great classical songs revealed high artistic power.

GREENFINCH, OR **GREEN LINNET** (Ligurinus chloris). Common British song-bird. Usually found in fields and hedgerows, it is greenish yellow on the back, with yellow underparts, and is one of the handsomest of the smaller birds. It feeds upon grain and seeds.



Greenfinch, a British hedgerow song-bird

GREEN-FLY, OR **APHIS**. Large group of insects of the bug family (Hemiptera).

Soft-bodied, usually wingless, with prominent eyes and a powerful sucking beak which is kept thrust into the tissues of the plant infested by them, they spend their whole time in sucking the juices. "Honeydew," a saccharine substance, is secreted by two small tubes on the upper part of the extremity of the abdomen, and is voided also as an excrement. This falls as a kind of varnish on the leaves and stem of the plant, choking its breathing pores. The remedy for the ravages of green-fly is to spray the plants with a powerful insecticide or to fumigate with strong tobacco or pyrethrum. See Insect.

GREENFORD. Village of Middlesex. It is 8 m. W.N.W. of London by the G.W.R. In the adjacent hamlet of Greenford Green is the factory, on the Grand Union Canal, in which Perkin perfected his production of aniline dyes from coal tar. Pop. 1,461.

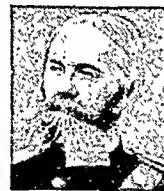
GREENGAGE. Fruit tree of the natural order Rosaceae and genus Prunus. The greengage, a variety of plum, was introduced into Great Britain from France by a member of the Gage family in the 18th century. See Plum.

GREENHEART (Nectandra rodiaei). Timber-tree of the natural order Lauraceae. A native of British Guiana, its timber is of great strength and durability.

GREEN HOWARDS. Official name since 1920 of the Yorkshire Regiment, the 19th of the line. It was given to the regiment



Horace Greeley,
American journalist



Adolphus W. Greeley,
American explorer



John Richard Green,
British historian
After J. Sandys

because after it was raised it had Sir Charles Howard for its colonel and the men wore grass-green facings. See Yorkshire Regiment.

GREENLAND. Large island, mainly within the Arctic Circle, the only colonial possession of Denmark. Its area is about 826,000 sq. m. Lying N.E. of British N. America, its most northerly point is about 1,600 m. from its S. extremity in Cape Farewell. Its extreme breadth is 700 m. The coast is characterised by rugged cliffs rising sheer from the ocean, with indentations, piercing inland in some cases for nearly 100 m. The inhabitants are Eskimos. The trade consists of whale and seal oil, furs, cryolite, and eiderdown. There are extensive fishing grounds round the coasts, with cod and haddock as the principal catch. See Arctic Exploration; Denmark.

GREENOCK. Burgh and seaport of Renfrewshire, Scotland. It is 22 m. from Glasgow, and is served by the L.M.S. Rly. In addition to shipbuilding and the shipping the town is a centre for sugar refining, while engines, boilers, and other requirements of ships are made, as are textiles, paper, aluminium, etc. Distilling and oil refining are carried on. Greenock became a burgh in 1635, and sends one member to Parliament. Pop. 81,120.



Greenock. Municipal Buildings, opened in 1887.
T. & R. Annon & Sons

In 1928 the old west kirk was reopened. It had been removed to Seafield Esplanade, at the cost of Harland & Wolff, to make room for an extension of their shipyard. The bodies from the churchyard, including that of Burns's Highland Mary, were removed to the cemetery.

GREENORE. Seaport of co. Louth, Irish Free State. It stands on the N. side of Carlingford Lough. The L.M.S. Rly. has made it the terminus of a service from Holyhead. There are golf links. Pop. 337.

GREEN PARK. Open space in London. It covers 54 acres between Piccadilly and St. James's Park and Constitution Hill. It was a favourite resort of Charles II. See Chiswick.

Green Room. Room in a theatre set apart for the social use of actors and actresses. See Acting; Theatre.

GREENSAND. Two series of beds (upper and lower) of sands and sandstones which form the lower part of the Cretaceous system. Greensand makes good building stone.

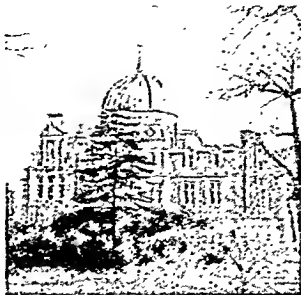
GREENSHANK (*Totanus canescens*). Wading bird of the snipe family, so called from its olive legs. It visits Great Britain in autumn and winter, and feeds on small crustaceans and molluscs.

GREENWICH. Metropolitan borough of London. It lies along the right bank of the Thames, 6 m. from the city, and has stations on the Southern Rly. It is connected with the other side of the river by the Blackwall Tunnel, and a smaller tunnel for foot passengers. The parish church of S. Alphege has interesting memorials. The Ship is a notable inn. Greenwich sends one member to Parliament. The industries include the making of cables, chemicals, and linoleum. There are also engineering works, power stations, and a fuel research station. Pop. 100,500.

The chief building is the hospital, fronting the river. Built as a palace, this is now used

for the Royal Naval College and other purposes. The finest apartment is the painted hall, with pictures and Nelson relics. The chapel is worthy of mention. The Queen's House, built by James I for Anne of Denmark, is now a naval museum.

In Greenwich Park, once the park of the palace, is the Observatory. The buildings consist of an old and a new block. The standard time is recorded here. A statue to General Wolfe was unveiled here in June, 1930.



Greenwich Royal Observatory. The new building, opened in 1897

GREENWOOD, HAMAR GREENWOOD, 1ST BARON (b. 1870). British politician. Born in Canada, Feb. 7, 1870, he was for a time in the civil service of Ontario. Having settled in England and become a barrister, he was elected for York in 1906, and with brief intervals he remained a Liberal M.P. until 1929. He served in the Great War, and in 1915 was made a baronet. Having held minor offices in the Coalition Ministry, he was chief secretary for Ireland 1920-22, a time of special difficulty and danger. He abandoned politics for business, and in 1929 was raised to the peerage.

GREENWOOD, ARTHUR. British politician. Educated at Manchester University, he lectured on economics at Huddersfield and the university of Leeds, and gradually became known as an authority on the subject. In 1917-19 he was secretary of the Ministry of Reconstruction, and in 1922, having served on various committees, he was made secretary of the research and information bureau of the Labour Party. Greenwood entered Parliament in 1922 as M.P. for the Nelson and Colne division. In 1924 he was parliamentary secretary to the ministry of health, and in 1929 he became head of that department.



Arthur Greenwood, British politician
James Maycock

GREENWOOD, FREDERICK (1830-1909). British journalist.



Frederick Greenwood, British journalist
Russell

REGARINES. Parasitic single-celled animals, protozoa, found in the alimentary canals of invertebrates, chiefly the arthropods. There are a large number of species, among the more important being those found in the earthworm, lobster, cockroach, and cuttlefish.

GREGORIAN CALENDAR. Calendar introduced by direction of Pope Gregory XIII in 1582. It was a reform of the Julian calendar, but was not adopted in Great Britain until 1752. See Calendar.

GREGORIAN CHANT. Term applied to the plainsong system used in the rendering of the music of the services of the Church as supervised and settled by pope Gregory I.

GREGORY. Name of 16 popes. The outstanding ones were Gregory I and Gregory VII, who are noticed separately.

Gregory II, who was pope 715-31, was succeeded by Gregory III, pope 731-41. Gregory IV reigned 827-44, and Gregory V, notable as the first German pope, 996-99. Gregory VI was pope in 1045-46.

Gregory VIII, pope for a few months in 1187, had previously, as papal legate, absolved Henry II for the murder of Becket. Gregory IX became pope in 1227, and his reign was mainly passed in a struggle with the Empire represented by Frederick II. Gregory X, pope 1271-76, was memorable for his efforts to strengthen the position of Christianity in Palestine, where it was struggling hard for existence. Gregory XI was the pope who ended the period of papal rule at Avignon. He was pope 1370-78. Gregory XII was one of the anti-popes deposed by the council of Constance.

Gregory XIII succeeded Pius V as pope in 1572. He is notable as the pope who reformed the calendar, substituting the Julian one by the one now in use over most of Europe. Gregory XIV was pope 1590-91, and Gregory XV 1621-23, but there was not another Gregory for over 200 years. In 1831 Cardinal Cappellari was elected pope and took the name of Gregory XVI. His reign, which ended June 9, 1846, was marked by a revolution in his domains which was only put down by the aid of Austrian soldiers.



Gregory XIII, Pope, 1572-85



Gregory XVI, Pope, 1831-46

GREGORY I, CALLED THE GREAT (c. 540-604). Pope 590-604. Born at Rome, he was the son of Gordianus, a Roman patrician. About 574 he threw up a promising worldly career to become a monk. In 578 Pelagius II ordained him one of the seven deacons of Rome, after which he went on a mission to Constantinople. On his return to Rome after six years' absence, he devoted himself to teaching and literary work; this period is also marked by the incident, related by Bede, of his meeting the English youths. In 590 Gregory became pope, and in 596 he sent Augustine to Britain. He gave his name to the Gregorian Chant (q.v.).

The weight and influence lent to the papacy by Gregory's pontificate gained Gregory his title of Great. He was canonised immediately after his death, March 10, 604. His festival is kept March 10.



Gregory VII, Pope, 1073-85
After Raphael

GREGORY VII. Pope 1073 to 1085, known also as Hildebrand. Born in Tuscany, he was educated in Rome and made cardinal deacon by Leo IX. As administrator of the papal estates he showed great ability and energy and soon became the most influential person at the papal court. So great indeed was his power that four successive popes, Victor II, Stephen IX, Nicholas II and Alexander II, owed their elections to his dominating personality, which overcame

bitter and often militant opposition. During these reigns, as papal chancellor, nominally a subordinate, he directed the papal policy.

On the death of Alexander II, Hildebrand was chosen by popular acclamation, subsequently was canonically elected, and ascended the papal throne as Gregory VII. His first care was thus to secure peace with the secular authority in order to further the aims which he put forward at a synod held in Rome, March, 1074. A decree of the synod excommunicated any lay person, emperor or king, who should confer an investiture in connexion with any ecclesiastical office, and the long struggle between pope and emperor began. The emperor Henry IV was summoned to appear before a council at Rome to answer for his conduct. Henry's answer was to summon a meeting of his supporters at a council held at Worms, January, 1076, when the pope was declared deposed. Gregory responded by excommunicating the emperor at a synod in Lent (1076), deposing him and absolving his subjects from their allegiance. Henry, compelled to submit, hurried to Italy and made his famous surrender at Canossa.

Yet the triumph of Hildebrand was more apparent than real; at the price of an outward show of mortification Henry was able to obtain all he desired. Having set up an anti-pope in the person of the excommunicated archbishop of Ravenna, who took the name of Clement III, he marched on Rome, where, on March 21, 1084, he caused himself to be crowned by the pseudo-pope. Meanwhile, Gregory, obliged to leave Rome, took refuge first at Monte Cassino, and then at Salerno, where he died May 25, 1085.

GREGORY, AUGUSTA, LADY. Irish writer. The youngest daughter of Dudley Perse of Roxborough, co. Galway, she married Sir William Gregory, M.P. (d. 1892). Lady Gregory was an enthusiastic promoter of the Irish literary revival.



Lady Gregory,
Irish author
Berensford

Cuchulain of Muirtemne, 1902, and Gods and Fighting Men, 1904, are capable renderings of Irish sagas into the idiom of the Irish peasantry. Her own plays, produced by the Irish Literary Theatre, which she helped to found, include Spreading the News, The White Cockade, The Rising of the Moon, The Workhouse Ward, and The Full Moon.

GRENADA. Island of the W. Indies, in the Caribbean Sea, belonging to Great Britain. It is the southernmost of the Windward group, which forms a united colony 86 m. due N. of the W. end of the island of Trinidad. Its area is 133 sq. m. St. George's, the capital and the seat of the governor of the Windward Islands, is an important coaling station.

Discovered by Columbus on Aug. 15, 1498, Grenada was settled by the French. It became British in 1783. Pop. 71,621.

GRENADE. Small missile containing an explosive charge, frequently termed bomb. A kind of grenade was used during the 15th century. It was filled with gunpowder and made of earthenware or of brass, the fuses being primitive and uncertain. In the 17th century the fuse problem was fairly well solved. This development reached its zenith towards the end of the 18th century, after which grenades fell into disuse until the Russo-Japanese War, when there was a revival. The Great War brought the weapon into prominence again, many varieties being introduced. See Ammunition; Bomb.

GRENADE. Literally, a soldier who throws a grenade. They appeared first in the 17th century, the early custom being for each regiment to have its company of grenadiers.

After a time the grenade fell into disuse, and soon after 1850 grenadier companies ceased to exist in the British regiments. The grenadier's special head-dress was a pointed cap of embroidered cloth, having peaks and flaps; or a loose fur cap similar in shape. By an army order of March, 1916, men in the British army trained or employed in the use of hand grenades were designated bombers.

GRENADE GUARDS. The Regiment of the British army. Raised in 1660 by Colonel Russell, it became the bodyguard of Charles II. The premier regiment of the Foot Guards, the Grenadier Guards fought under William of Orange and were engaged in the four great victories of Marlborough. They fought at Fontenoy, and with Sir John Moore in the retreat from Corunna. After Waterloo the Prince Regent bestowed upon them the title of the first or Grenadier Regiment of Foot Guards. Later distinguished services include the campaigns of the Crimea, Egypt, and S. Africa.

In the Great War the Grenadier Guards had four battalions in the field in France, which, in Sept., 1915, were brought together, their history thenceforth being that of the Guards Division. Seven V.C.'s were won. The Grenadiers have the privilege of guarding the royal palaces and the Bank of England and marching through the City of London with colours flying, drums beating, and bayonets fixed.



Grenadier Guards.
Guardsman in Review
order

Grenada. Area 14 sq. m. Pop. 7,104.

GRENELL. Town of New South Wales, Australia. It is the terminus of a branch line from Koorowatha, on the main line from Sydney to Melbourne. It stands 180 m. W. of Sydney. Pop. 3,000.

GRENELL, FRANCIS WALLACE GRENELL, 1st Baron (1841-1925). British soldier. Born April 29 1841, he entered the 60th Rifles in 1859. His connexion with Egypt began in 1882; in 1884 he was with the force that went up the Nile, and in 1885 he was made sirdar of the Egyptian army. In 1886 he commanded the frontier field force at Ginnis, and in 1888-89 the expedition that fought at Suakin and Toski. In 1897-98 he commanded the British troops in Egypt, and from 1899-1903 was governor and commander-in-chief at Malta. He commanded the 4th Army Corps 1903-04, and was commander-in-chief in Ireland 1904-08. Made a baron 1902, and in 1908 a field-marshal, he died Jan. 27, 1925.

GRENELL, JULIAN HENRY FRANCIS (1888-1915). British soldier and poet. The eldest



1st Baron Grenell,
British soldier
Russell



Grenadier Guards
cap badge

son of Lord Desborough, he was born March 30, 1888. In 1909 he entered the Royal Dragoons, with which he went to the front early in the Great War. He had won the D.S.O., when on May 13, 1915, he was seriously wounded, and on the 26th he died in hospital at Boulogne. Grenell is chiefly known by the verses, Into Battle, which appeared in The Times.

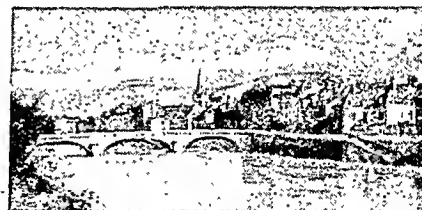
His brother, Gerald William (1890-1915), was killed in action at Hooze, July 30, 1915.

GRENELL, SIR WILFRED THOMASON (h. 1865). British medical missionary. Born Feb. 28, 1865, he became house surgeon at the London Hospital, under Sir Frederick Treves. Being interested in the North Sea fishermen, he fitted out the first hospital ship, and established land missions and homes for their use. In 1892 he went to Labrador, built four hospitals, and started various institutions for the fishermen. His many books on his missionary work among the fishermen include the autobiographical A Labrador Doctor, 1919. He was knighted in 1927.



Sir Wilfred Grenfell
British medical
missionary
Elliott & Fry

GRENOBLE. City of France, the old capital of Dauphiné. On the Isère, 75 m. S.E. of Lyons, it is beautifully situated at the foot of Mont Rachais. The chief buildings are the cathedral of Notre Dame, partly of the 11th century; the church of S. André, with a monu-



Grenoble, France. Pont d'Hôpital over the Isère.
Behind the city lie the snow-covered French Alps

ment to Bayard, and the old church of S. Laurent. It is noted for its manufacture of gloves. Pop. 85,621.

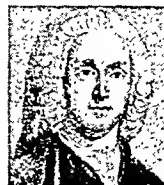
GRENVILLE, WILLIAM WYNDHAM GRENVILLE, BARON (1759-1834). British statesman. Born Oct. 23, 1759, he entered Parliament as M.P. for Buckingham in 1782, and became paymaster-general under Pitt in 1783. In 1786 he was made vice-president of the committee on trade; in 1789 he became home secretary, and in 1791 foreign secretary. He had been a peer since 1790. Grenville remained in office with Pitt until the two resigned in 1801.



Lord Grenville,
British statesman
After J. Jackson, R.A.

In 1806, on Pitt's death, he and Fox formed a coalition ministry, but this only lasted until March, 1807, as Grenville, who was premier, refused to pledge himself against relief to Roman Catholics. He took part in public life, acting mainly with the Whigs, until his death, Jan. 12, 1834, when the peerage became extinct.

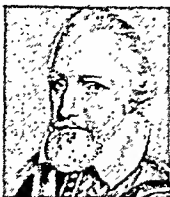
His father, George Grenville (1712-70), was M.P. for the borough of Buckingham from 1740 until his death. He was made a lord of the admiralty in 1744 and a privy councillor in 1754, and first lord of the



George Grenville,
British statesman

admiralty in 1762. He was prime minister from 1763-65, his administration being chiefly notable for the prosecution of John Wilkes and the passing of the American Stamp Act. He died Nov. 13, 1770.

GRENVILLE OR GREYNVILLE, SIR RICHARD (c. 1541-91). English sailor. In 1591 he was appointed vice-admiral of a squadron sent to the Azores to intercept the Spanish treasure fleet. For some reason the *Revenge*, Grenville's flagship, was cut off from the rest of the fleet. Grenville thereupon tried to pass through the Spanish line, but was becalmed under the lee of the enormous galleons, whose men boarded her, and after a fierce fight of 15 hours captured and overwhelmed the few survivors. Mortally wounded, Grenville was taken aboard the Spanish admiral's flagship, where he died a few hours later. The story is vividly told in Tennyson's poem, *The Revenge*.



Sir Richard Grenville,
English sailor

GRESHAM, SIR THOMAS (c. 1519-79). English merchant. Born in London, he was the second son of Sir Richard Gresham



Sir Thomas Gresham,
English merchant
After Holbein

(d. 1549), lord mayor of London in 1537. Knighted by Queen Elizabeth, he acquired lands in Norfolk and Suffolk, and had mansions at Mayfield, in Sussex, and Osterley, in Middlesex. Having lost his only son in 1564, he carried out, in 1566-68, a project of his father's by founding the Royal Exchange. He died Nov. 21, 1579.

Gresham left some money to the Mercers' Company in trust for the foundation of the Gresham Lectures, also his house in Bishopsgate Street, and here in 1597 the Gresham Lectures were organized and begun. Gresham College was built for the lectures in 1843. There are seven lectures, and each delivers twelve lectures a year.

Gresham's Law, so called by H. D. Macleod in 1858 in the belief that Sir Thomas Gresham was responsible for its formulation, is an economic law that may be roughly stated as "bad money drives out good."

GRETA. River of Cumberland. It is a tributary of the Derwent, which it joins near Keswick. Its length is 4 m. Overlooking it is Greta Hall, where Southey and also Coleridge lived. There are two rivers of this name in Yorkshire, one being a tributary of the Tees.

GREYHOUND GREEN. Village and parish of Dumfriesshire, Scotland. It is 9 m. N.W. of Carlisle on the L.M.S. Rly., near the river Sark, which divides England from Scotland. Owing to its situation it was convenient for runaway marriages. The marriages were usually celebrated by the blacksmith or innkeeper in his smithy or inn.



Greyhound Green. The smithy where clandestine marriages were celebrated

residence in Scotland for at least 21 days necessary for one of the parties. Pop. 2,969.

On the English side of the Sark, with a station on the L.M.S. Rly., is the village of Gretna, which was used as a munitions centre during the Great War.

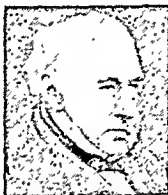
Gretna Tavern is a model public house near Carlisle. It was the first started by the Central Control Board in July, 1916. See Carlisle; Control, Board of.

GREUZE, JEAN BAPTISTE (1725-1805). French painter. Born at Tournus, near Mâcon, Aug. 21, 1725, his first exhibited picture, *A Father Expounding the Bible to his Family*, gave promise of a highly successful career, and in 1755 his *Blind Man Duped* secured his election to the Academy. He is known chiefly for his portraits and single heads, more especially of women and girls. He died March 21, 1805. See illus. p. 131.



J. B. Greuze,
French painter

GREVILLE, CHARLES CAVENDISH FULKE (1794-1865). British diarist. Born April 2, 1794, he was a member of the family of the earl of Warwick. From 1821 until 1859 he was clerk of the privy council. He kept a valuable diary throughout his official career. The first part was published in 1875; the whole, known as *The Greville Memoirs*, appeared in seven volumes between that date and 1887. A later edition was published in 1927. He died Jan. 18, 1865.



Charles Greville,
British diarist

Greville's brother Harry (1801-72) also kept a diary, which appeared in 1882-84.

GRÉVY, FRANÇOIS PAUL JULES (1807-91). President of the French Republic, 1879-87. Born at Montous-Vaudrey, Jura, Aug. 15, 1807, he was a strong republican while a law student in Paris. After the revolution of 1848 he was elected deputy in the constituent assembly. Under the third republic, he was president of the national assembly, 1871-73, and of the chamber of deputies, 1876-79. Grévy succeeded MacMahon as president of the republic, Jan. 30, 1879, and was re-elected for a further seven years, Dec., 1885. He resigned in 1887 on account of his son-in-law's (Daniel Wilson) trafficking in honours and offices. He died Sept. 9, 1891.

GREY, EARL. British title borne by the family of Grey since 1806. In 1746 Henry Grey was made a baronet. His eldest son succeeded to the baronetcy, but a younger son, Charles (1729-1807), was more distinguished. He fought with distinction in the War of American Independence. In 1801 he was created Baron Grey, and in 1806 an earl. From him the later earls are descended, as is also Viscount Grey of Falloodon. The earl's seat is Howick House, Lesbury, and his eldest son is known as Viscount Howick.

Charles (1764-1845), the 2nd earl, entered Parliament in 1786 as M.P. for Northumberland, and in the coalition ministry of 1806-7 he was first lord of the admiralty and then foreign secretary. He succeeded Fox as the leader of the Whigs, and his ministry was responsible for the great Reform Act of 1832.

His son Henry (1802-94), the 3rd Earl, entered Parliament in 1826, and in 1830



2nd Earl Grey,
British statesman
After Lawrence

became under-secretary for the colonies. From 1835-39 he was secretary for war, and from 1846-52 colonial secretary.

GREY, ALBERT GEORGE GREY, 4TH EARL (1851-1917). British administrator. Born Nov. 28, 1851, the son of General Charles Grey, private secretary to Queen Victoria and nephew of the 3rd earl, he was M.P. for S. Northumberland 1880-85, and Northumberland (Tyneside) 1885-86. He became administrator of Rhodesia in 1896, and was a director of the South African Company, 1898-1904. From 1904 to 1911 he was governor-general of Canada. He died Aug. 29, 1917.

GREY OF FALLODON, EDWARD GREY, 1ST VISCOUNT (b. 1862). British statesman. Born April 25, 1862, he came of the family of which Earl Grey was the head. In 1882 he succeeded his grandfather, Sir George Grey, the Liberal politician, in the family baronetcy and estates. In 1885 he was returned to Parliament as Liberal M.P. for Berwick-on-Tweed and in 1892 was made under-secretary for foreign affairs. In 1905 Campbell-Bannerman chose him as foreign minister, in which office he remained for eleven years.

In 1914 it fell to Grey to conduct the last negotiations with Germany, and those with France, and to explain the British position to the House of Commons and the country. He remained in office during the earlier part of the war, and also after the Coalition government was formed; but in Dec., 1916, he resigned with Asquith. Already a K.G., an earldom was conferred on him July 6, 1916, which at his request was altered to a viscountcy. In 1922 he married, as his second wife, Lady Glencorner, who died in 1928. In early life he was a fine tennis player, and throughout fly-fishing, on which he wrote a book, and the observation of birds, were his hobbies. His memoirs, entitled *Twenty-Five Years* (1892-1916), appeared in 1925, *Falloodon Papers* in 1926, and *The Charm of Birds* in 1927.

GREY, LADY JANE (1537-54). Nine days queen of England. Daughter of Henry Grey, duke of Suffolk, great-granddaughter of Henry VII, and cousin of Edward VI, she was remarkable for her beauty and accomplishments. In pursuance of a project to alter the royal succession from the Tudor to the Dudley family, she was married May 21, 1553, to Guildford Dudley, son of the duke of Northumberland, and her accession was announced July 10. On July 19 her short reign ended, and she was beheaded on Tower Hill, Feb. 14, 1554.



Lady Jane Grey,
Queen of England
From a contemp. portrait

GREY, ZANE (b. 1875). American story writer. He was born at Zanesville, Ohio, Jan. 31, 1875, and in 1904 turned to story writing, winning wide popularity by his romances of adventurous life in the American wild. His later books included *The Man of the Forest*, 1920; *The Thundering Herd*, 1925; and *Fighting Caravans*, 1929.

GREYHOUND. Breed of dog of Eastern origin, famed for its great speed. One of the oldest breeds of domesticated hunting dogs, it

is represented on ancient Egyptian monuments. It is distinguished by its slender form, long legs, and long rat-like tail. Its muzzle is long, and well adapted to seize an animal going at great speed. The English greyhound is smooth-coated, probably the result of breeding, for most other hounds of this type have rough coats.

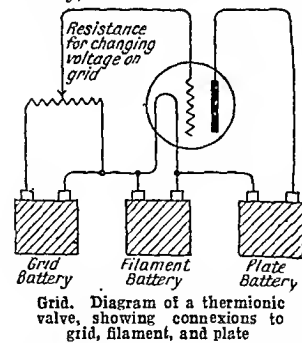
GREYHOUND RACING. The sport of chasing a mechanical hare by greyhounds in an enclosed track, originated in Chicago in 1917. In a short time greyhound racing became enormously popular. Charles A. Munn acquired the exclusive rights to the electric hare and built the first track at Manchester in 1925. In June, 1927, the first London track was opened at the White City, followed by those at Harringay, West Ham, and Wembley. The sport is controlled by the National Greyhound Racing Club, which in 1928 had licensed 51 tracks, including those in Manchester, Edinburgh, Birmingham, and other large centres. There is also a National Greyhound Racing Society.

The mechanical hare is carried on a rail round the track, controlled electrically and is set in motion just before a lever raises the front of the trap containing the dogs. The latter never catch the hare, whose speed is regulated mechanically. See Coursing.

GREYMOUTH. Chief town of Westland, South Island, New Zealand. At the mouth of the Grey river, it has a good harbour, carries on gold-mining, brick-making and saw-milling, and is in the chief coal-mining area in the country. Pop., with suburbs, 8,373.

GREYWETHER. Name given to blocks of sandstone found thickly strewn over the surface of the country in Dorset, Wiltshire, Surrey, N. France, etc.

GRID. Name given to a grating in which the bars are parallel. Specific uses are for the perforated lead plate of a secondary battery, and for the third electrode of a triode thermionic valve. In the latter the grid is usually a spiral of wire, or a cylinder of wire mesh, enclosing the filament. The voltage applied to the grid to affect its potential as regards the filament is called the grid bias. A resistance connected in the circuit between grid and filament is known as the grid leak. Its function is to permit charges to leak away and so prevent any accumulation of charge.



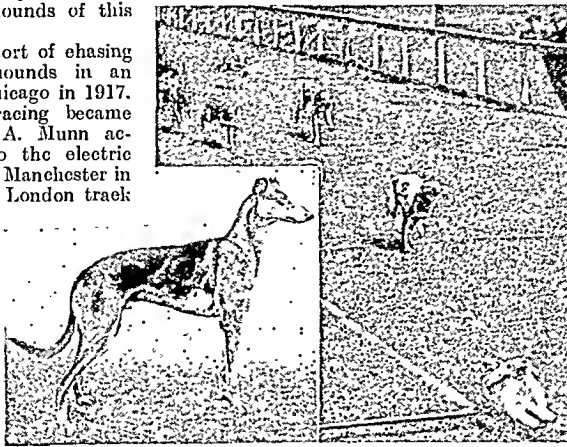
Grid. Diagram of a thermionic valve, showing connections to grid, filament, and plate.

GRIEG, EDVARD HAGERUP (1843-1907). Norwegian composer. Born at Bergen, of Scottish origin, Jan. 15, 1843, he studied music at Leipzig and Copenhagen. Returning to Norway, he founded a musical union at Christiania in 1867, and was its conductor until 1880. He died Sept. 4, 1907. Grieg's work includes the familiar music to Peer Gynt, a piano concerto, orchestral and chamber music, and many songs.



Edvard Grieg, Norwegian composer

GRIFFIN or **GRYPHON** (Gr. gryps, Lat. gryphus). Mythical monster, part lion, part eagle, supposed to typify strength and vigilance. It figures in Persian sculpture as a guardian of treasure, on Greek coins, and in



Greyhound. Left, typical winner of the Waterloo Cup. Right, greyhounds in fall cry after a mechanically controlled dummy hare

classical architecture. It is represented in heraldry with the body, tail, and hind legs of a lion, and head, neck, breast, fore legs, and wings of an eagle, and with forward ears.

The armorial crest of the city of London is a griffin's sinister wing argent, charged with a cross gules. The Temple Bar Memorial, at the junction of Fleet Street and the Strand, is surmounted by a griffin, designed by C. B. Birch.

GRIFFITH, ARTHUR (1872-1922). Irish politician. Born in Dublin, March 31, 1872, he became one of the leaders of the Sinn Féin movement from its very start, and his journalistic efforts had much to do with its steady, but secret, growth. He was in prison when, in 1919, he was elected vice-president of the Irish republic. Griffith was the leader of those who negotiated the Irish treaty of 1922. Meanwhile he had been chosen president of the republic, and he acted as its head until his sudden death, Aug. 12, 1922.

GRIFFITH, SIR SAMUEL WALKER (1845-1920). Australian lawyer and politician. Born at Merthyr Tydvil, June 21, 1845, he went to Australia and became a barrister in Sydney. Later he settled in Queensland and became associated with political life there. He filled a succession of offices in the ministry, and from 1883-88 and again in 1890-93 was premier of the state. From 1893-1903 he was chief justice of Queensland. Griffith had a large share in the foundation of the Commonwealth, and in 1903 became its chief justice. He resigned in 1919 and died Aug. 9, 1920.

GRIFFON. European breed of dog. A rough-coated animal, it is somewhat taller than the setter and of a grizzled liver colour. The dogs are used in hunting game birds. The Brussels griffon is a Belgian dog.



Griffon. Copthorne Wiseacre, a champion Brussels griffon

GRILLE. French word meaning literally a grating of metal or wood, used to screen a window or other aperture. The close iron grating in prison cells, through which prisoners converse with visitors, is called a grille. It was also the name given to the barrier behind which lady visitors heard debates in the House of Commons. This was removed in 1918. Notable tombs are often protected by grilles.

GRILLPARZER, FRANZ (1791-1872). Austrian dramatist. He was born in Vienna, Jan. 14, 1791, and at the age of 25 he made his first great dramatic hit with *Die Ahnfrau* (The Ancestress). It was followed by a succession of pieces that made the author's name the most notable in Austrian literature. These included *Sappho*, 1819; a trilogy on *Das Goldene Vlies* (The Golden Fleece), 1821; *König Ottokar*, 1825; *Ein treuer Diener seines Herrn* (A Faithful Servant), 1828; and *Der Traum ein Leben* (The Dream, a Life), 1835. He also published poems. His chief prose story is *Der arme Spielmann* (The Poor Fiddler). He died Jan. 21, 1872.

GRIMALDI, JOSEPH (1779-1837). English clown. Born in London, Dec. 18, 1779, and belonging to a family of clowns and dancers, he danced at Drury Lane and Sadler's Wells when an infant, and made his greatest success in the pantomime of Mother Goose at Covent Garden in 1806. He died in London, May, 31 1837.



Jakob Grimm, German philologist

he became librarian to Jerome Bonaparte at Cassel in 1808. His first book, on the Meistersingers, 1811, was followed in 1812 by the first collection of *Kinder- und Hausmärchen*, made by him and his brother, Wilhelm (1786-1859) and continued in 1814 and 1822. These tales, translated into many languages, in English as Grimm's Fairy Tales, have immortalised the brothers Grimm. In 1829 Jakob went to Göttingen as librarian and lecturer, accompanied by his brother, but political changes led to their dismissal. In 1840 both were invited to professorships in Berlin. Among Jakob's most important works are *Deutsche Grammatik*, 1819; *Deutsche Mythologie*, 1835; and *Geschichte der deutschen Sprache*, 1848, which revolutionised the study of Teutonic philology. Jakob Grimm died Sept. 20, 1863.

Grimm's Law is the name given in philology to the regular sound-shifting or consonantal inter-change between (1) Sanskrit, Greek, and Latin; (2) Low German; (3) High German. It takes its name from Jakob Grimm, who first



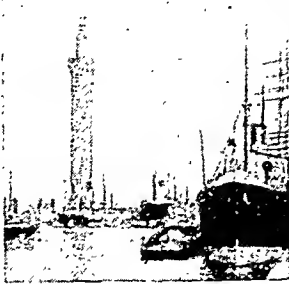
Grille once in front of Ladies' Gallery, House of Commons



Wilhelm Grimm, German philologist

definitely formulated it, although the principle had already been enunciated by a Danish scholar named Rask.

GRIMSBY OR GREAT GRIMSBY. County and mun. bor. of Lincolnshire. Near the mouth of the Humber, 15 m. from Hull and 155 from London, it is served by the L.N.E. Railway. The buildings include the 13th century parish church of St. James, the town hall, exchange, and custom house, a 16th century grammar school, a free library, technical school, and benevolent institution for seamen. The principal industry is fishing, herring being the chief catch. Coal and machinery are among the chief exports; the imports include timber and dairy produce. During the Great War the trawlers and fishermen were employed in mine sweeping and the like. It is called Great Grimsby to distinguish it from Little Grimsby, a village 4 m. from Louth. Market days, Mon. and Fri. Pop. 92,740.

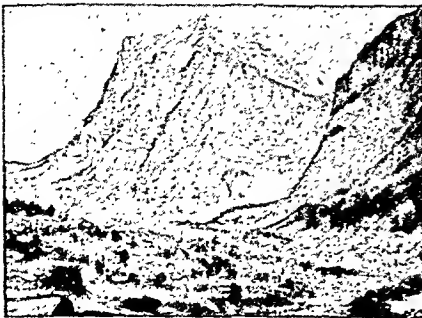


Grimsby. The Royal Dock and Hydraulic Tower 300 ft. in height

GRIMSPOND. Prehistoric stronghold on Dartmoor, Devonshire. Having an area of four acres, it contains the remains of 24 Bronze-age hut-circles, and is enclosed by two irregularly oval walls of coursed granite, with three entrances. They served to defend the village flocks and herds against attack by animal and human foes.

GRINDAL, EDMUND (c. 1520-83). English prelate. He was born at St. Bees and educated at Cambridge. Ordained in 1544, he became known as a religious reformer. In 1559 he was consecrated bishop of London, in succession to Bonner. Grindal showed little desire to punish Nonconformists, and is usually regarded as a weak ruler of his diocese, which he left in 1570 to become archbishop of York, where again he was less zealous than the extremists liked. In 1575 he was chosen archbishop of Canterbury, but was suspended for refusing to obey Elizabeth when she ordered him to suppress the prophesyings or meetings of Puritan clergy. Grindal died July 6, 1583.

GRINDELWALD. Valley and tourist resort of Switzerland, in the Bernese Oberland. It is 13 m. long by 4 m. broad, and its station is 11 m. S.E. of Interlaken. The Black Lüt-schne river flows through the valley, which is enclosed by the peaks of the Wetterhorn, Schreckhorn, Mettenberg, Eiger, and Faulhorn.



Grindelwald. The Bernese valley, looking east towards the Wetterhorn

Two glaciers descend almost to the river. A wooden church was replaced by a stone one about 1180, which was superseded by the

present church, erected in 1793. The valley lies at an altitude of 3,410 ft. Pop. 2,942.

GRINDING. Term applied to the sharpening of tools, cutlery, etc., or the smoothing of any hard substance by rubbing away its surface; and also to crushing and pulverizing by machinery. The grinding and sharpening of tools, cutlery, etc., is carried out on rapidly revolving power-driven stones. Most of the grinding is wet grinding, i.e. a plentiful supply of water is used with the emery or other stone. Dry grinding is used for pointing needles and prongs of forks, etc. Grinding is an essential operation in the extraction of many metals from their ores, and in the preparation of Portland cement, corn, etc. See Milling.

GRINNELL LAND. Eastern portion of Ellesmere Island, British N. America. It is separated from Greenland by the Kennedy and Robeson channels. Largely an ice-covered, mountainous, and desolate tract, it rises in Mt. Arthur to nearly 5,000 ft. Discovered by Hayes in the second Grinnell Expedition, in 1854, it was explored by Greely in 1882.

GRINSTEAD, EAST. Urban dist. and market town of Sussex, 30 m. from London on the Southern Ry. The High Street contains some old timber-built houses, and here is Sackville College, an almshouse dating from 1608. Market day, Thurs. Pop. 7,319.

Some 18 m. S.W. is the village of West Grinstead, on the Southern Ry. Its parish church retains part of the Norman structure. The ruins of Knepp Castle are near.

GRIQUALAND. District of the Cape Province, S. Africa. Named from the Griquas, a race descended from Dutch settlers and native women, East Griqualand lies S.E. of Basutoland and S.W. of Natal, and was annexed to Cape Colony in 1875. The chief town is Kokstad. Its area is 6,602 sq. m. Pop. 264,827, including 7,065 whites.

Griqualand West is a district of the Cape Province, north of the Orange river. It was annexed by Great Britain in 1871, and incorporated in the Cape in 1880. The discovery of diamonds at Kimberley in 1867 attracted immigrants. De Beers, Belmont, Barkly West, and Griquatown are other important mining centres. The district has an area of 15,197 sq. m. Pop. 85,000.

GRISON OR HURON (Galiotis). Carnivorous mammal of the weasel family found in S. America and Mexico. It is about as large as a marten, and is grey on the back and dark brown on the under-parts, with yellow tips to the tail and ears. It lives in hollow trees and clefts in the rock, and preys upon small birds and mammals.

GRISONS (Ger. Graubünden). Canton of Switzerland. It is bounded N. and E. by Austria and S. by Italy, and has an area of 2,746 sq. m. Composed of the basins of the Upper Rhine and the Inn, with that of two tributaries of the Ticino and one of the Adda, it is almost wholly mountainous. There are many mineral springs, forests, and mt. pasturages. The capital is Chur or Coire, while other important towns are Davos and Arosa. The canton includes the Engadine. Pop. 122,750.

GROAT (Low German, grote, great). English silver coin, now demonetised. It was first issued in England in 1351, coming to have the value of fourpence, but was discontinued in 1662. It was revived as a silver fourpenny piece by William IV in 1836, but the issue was dropped in 1856, and it was demonetised in 1887.

GROCER. Modern form of grosser, one who dealt wholesale (en gros). In modern usage the word is applied to a retailer of tea, sugar, coffee, spices, etc. In medieval times he was known as a spicer.

The Grocers' Company is the second of the 12 great livery companies of the city of London. Its founders, known as Pepperers and Spicers, met as a fraternity of S. Anthony as early as 1345, when they were granted letters patent of incorporation by Edward III. Its first hall was built in Old Jewry c. 1427. The existing building in the Poultry, E.C., was erected in 1798-1802. The company built a new wing to the London Hospital in 1876, founded Oundle School, Northants, and middle-class schools at Hackney Downs in 1876. It has contributed largely to the City and Guilds of London Technical Institute, and established scholarships, which are allocated for research in sanitary science.



Grocers' Company arms

GRODNO. Town of Poland. It stands on the Nieman and the Leningrad-Warsaw rly., 160 m. N.E. of Warsaw. It is a busy industrial centre, with manufactures and a trade in corn and timber. In 1921 its possession was in dispute between Poland and Lithuania, but in the settlement of the frontiers in March, 1923, Grodno became Polish territory. Pop. 61,600.

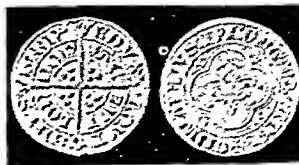
GROG. Name applied by sailors in the royal navy to their ration of unadulterated rum. The word is said to be derived from old Grog, a nickname of Admiral Vernon, so called from his coarse, or program cloak.

Grogging is the name given to an evasion of excise dues by the extraction of spirit absorbed into the wood of casks. By the Finance Act of 1898 grogging and the possession of a cask so treated, or of any spirit obtained by the process, are offences punishable by a fine of £50.

GROIN. In architecture, the angle formed by the intersection of arches or vaults. Groined vaulting is so called to distinguish it from barrel or other forms of arch construction in which no such intersection takes place. See Gothic Architecture.

GROLIER, JEAN, VICOMTE D'AGUISE (1479-1565). French book collector. Born at Lyons, he was ambassador in Milan and Rome and later treasurer under Francis I. He began collecting books, which he had splendidly bound and generally lettered in Latin with the legend "Jean Grolier and his friends." Ten years after his death his famous library of about 3,000 volumes was sold; a number of the books from it are in the Bibliothèque Nationale, Paris, and the British Museum. The Grolier Club, New York, founded in 1834 to encourage the application of art to book production, was named after him.

GRONINGEN. Town of the Netherlands. At the confluence of the Hunse and the Drentsebe Aa, 32 m. by rly. E. of Leeuwarden, it is intersected by numerous canals, has wide streets and 17th century gabled houses, and is surrounded by boulevards on the site of the ramparts. Among its buildings are the Gothic church of S. Martin, mainly of the 13th and 16th centuries; the university, founded in 1614; a museum; the Stadhuis, which was restored in 1787; the 16th century law courts; and the 13th century Gothic 'Aa-Kerk, restored 1500, with a baroque tower added in 1712. Groningen is an important trade centre



Groat. Two sides of the coin minted by Edward III, 14 in. diameter

and manufacturing town, with large printing and lithographic establishments. There are several educational establishments in addition to the university, and there is a large market. Pop. 101,310.



Groom. Typical English livery

GROOM (old Fr. *gromet*, boy). Term applied to a manservant in charge of horses. From its earlier and more general use for any male attendant, the word survives as the title of certain officials in the lord chamberlain's department of the British royal household whose duties are to attend the sovereign.

GROOMBRIDGE.

Village of Sussex, $3\frac{1}{2}$ m. S.W. of Tunbridge Wells, $34\frac{1}{2}$ m. from London on the Southern Rly., which has a junction here. It is in the parishes of Speldhurst (Kent) and Withyham (Sussex). Groombridge Place has a moat. Pop. 790

GROOTE SCHUUR. Official residence of the premier of the Union of S. Africa. It is near Rondebosch station, about $3\frac{1}{2}$ m. from Cape Town, Observatory Road connecting the two. The house was formerly the residence of Cecil Rhodes, who built it. Near it is the Rhodes Memorial, which includes the statue of Physical Energy, by G. F. Watts.



Groote Schuur, near Cape Town, the official residence of the premier of South Africa

See Rhodes, Cecil.

GROS, ANTOINE JEAN, BARON (1771-1835). French painter. Born in Paris, March 16, 1771, he won the approval of Napoleon by his picture of The Battle of Arcola, and made him the central figure of many of his canvases, now in the Louvre and at Versailles, among them Napoleon Visiting the Plague-stricken at Jaffa, 1804, The Battle of Aboukir, 1806, Napoleon at Eylau, 1808, and The Battle of the Pyramids, 1810. After the Restoration

Gros lost his hold on the public, and took this so much to heart that he drowned himself in the Seine, his body being found at Meudon, June 26, 1835.

GROSBEEK. Bird of the finch family, nearly related to the hawfinch. It is common in the pine forests of N. Europe, and is a rare winter migrant to Great Britain. The male is rosy crimson, the female grey. The bird has a large



Grosbeak. Bird of the finch family

and massive beak, whence its name.

GROSSMITH, GEORGE (1847-1912). British actor and entertainer. Born Dec. 9, 1847, he became an entertainer in 1870. In 1877 he began his career as actor and singer in Gilbert and Sullivan opera by appearing in The Sorcerer at the Opera Comique, afterwards taking a leading part in these operas at The Savoy, London. In 1889 he resumed his career as entertainer. He died March 1, 1912.

His son, George Grossmith, junr. (b. 1874), made his first appearance on the stage in Haste to the Wedding, at The Criterion, July 27, 1892. From 1901-16 he appeared in musical comedy at The Gaiety, winning success as singer and dancer. He was part lessee and manager of His Majesty's, The Winter Garden and Shaftesbury theatres, and sole lessee of the Strand Theatre.

Weedon Grossmith (1853-1919), a brother of George Grossmith, senr., made his first appearance in London at The Gaiety in 1887. In 1891 he produced and acted in A Pantomime Rehearsal, which ran for two years. His other plays included The Night of the Party, 1901. He created many famous parts, notably the Duke of Killcrankie. He was also an artist of repute. With his brother George he wrote for Punch The Diary of a Nobody, 1892. In 1913 he published his reminiscences, From Studio to Stage. He died June 14, 1919.



Weedon Grossmith, British actor Russell

GROSVENOR. Name of a family that holds three British peerages. The earliest Grosvenors were found in Cheshire in the 12th century. One was made a baronet in 1622, and was the ancestor of Sir Richard Grosvenor, made Earl Grosvenor in 1784. The earl's descendants became marquesses and then dukes of Westminster (q.v.). The second peerage is the barony of Ebury, conferred in 1857 on Lord Robert Grosvenor, a son of the 1st marquess of Westminster. The third, the harony of Stalbridge, was bestowed in 1886 on Lord Richard Grosvenor, a son of the 2nd marquess. He was chief Liberal whip, 1880-85.

Grosvenor House, the former London house of the duke of Westminster, was built for the duke of Gloucester, brother of George III, in 1842. It had a fine exterior colonnade, and in its western wing was a superb collection of pictures. The house was demolished in 1928, and on part of the site a block of service flats and shops has been built.

The family name is seen in Grosvenor Square, Grosvenor Street, Grosvenor Place, and Grosvenor Road, all in W. or S.W. London.

GROTESQUE. Ancient form of decorative painting or sculpture, in which nature was distorted, parodied, or exaggerated. Thus, in one variety, human and animal forms were combined in fantastic fashion and interwoven with flowers and foliage. The Romans often introduced it into the decorations of their buildings. The word is French, from Ital.



Geo. Grossmith, senr. British actor

grottesca, curious painted work found in grottoes.

GROTIUS, HUGO (1583-1645). Dutch jurist, known in Holland as Huig van Groot. Born at Delft, April 10, 1583, he studied at Leiden and in France, and became a practising lawyer, but found time to write Latin verses and dramas. In 1603 he was appointed historiographer of the United Provinces; other public positions were also given to him; but his share in the politics of the time led to his fall. Having joined Barneveldt and his party, Grotius was sentenced to imprisonment for life in 1619. He escaped in 1620, and lived for some time in

poverty in France. After a time his fortunes mended, and having entered the Swedish service in 1634 he was made ambassador to France. He died Aug. 28, 1645.

In exile Grotius wrote his monumental work, *De jure belli et pacis*, published in 1625, in Paris, which is the foundation of modern international law.

The Grotius Society was founded in 1915, its object being to discuss the problems of international law arising out of the Great War. The membership of the society is confined to British subjects, although foreign lawyers are admitted as honorary and corresponding members.

GROTTO (Fr. *grotte*; Lat. *crypta*). Cave or recess in the earth, particularly one made or enlarged artificially for use as a shrine or retreat. One of many notable grottoes is the Dog's grotto, Grotta del Cane, by the lake of



Emmanuel, Marquis de Grouchy, French soldier

Agnano, near Naples. Over the floor of this carbonic acid gas rises to a height of some 18 ins.; stupefying dogs taken into the grotto.

GROUCHY, EMMANUEL, MARQUIS DE (1766-1847). French soldier. Born in Paris Sept. 5, 1766, he fought in Italy in 1798, and becoming one of Napoleon's most trusted leaders, took part in the battles of Hohenlinden, Friedland, and Wagram. He served in the Russian campaign of 1812, and did good service in the retreat after Leipzig in 1813. After Waterloo, at which he and his division failed to appear, he was proscribed and took refuge in the U.S.A., but was permitted to return in 1819, and in 1830 received again his old style of marshal. He died May 29, 1847.

GROUND IVY

(*Nepeta hederacea*). Perennial prostrate herb of the order Labiatae, a native of Europe and N. and W. Asia. The trailing stems are 2 ft. or more in length, with opposite, kidney-shaped leaves, round-toothed at the edges. The tubular, blue-purple flowers are produced in whorls of from three to six at the base of the leaf-stalks. The ground ivy is no relation to the ivy (*Hedera helix*). The plant is bitter and aromatic, and was formerly employed in the manufacture of beer and other beverages, but the introduction of hops superseded it.



Ground Nut, showing lengthened flower stalks and burying fruits

GROUND NUT

(*Arachis hypogaea*). Annual herb of the order Leguminosae, a native of S. America and the W. Indies. The leaves are broken up into four oval leaflets, and the pea-like flowers are yellow. After pollination the flower-stalk lengthens and curves to the ground, in which it buries the incipient fruit, which then develops into the



Hugo Grotius, Dutch jurist After M. J. Mirevelt



Ground Ivy. Foliage and bluish flowers

yellowish wrinkled pods which contain two seeds. These are of great value, not only as a food, but as a source of a liquid oil. Other names are earth nut, monkey nut, and pea nut.

GROUND RENT. Name given to the rent paid for the ground on which a house or other building stands, as distinct from that paid for the building. Builders and others often take land on lease, paying usually a fixed annual sum for a fixed term of years. Income tax is paid upon ground rents, and although the ground landlord pays no part of the rates, yet this consideration affects the contract.

GROUNDSEL (*Senecio vulgaris*). Annual herb of the order Compositae. A native of Europe and N. Africa, it has succulent stems

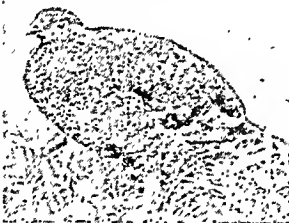


Groundsel. Stem with flowers and leaves

1 ft. or 2 ft. in height, with slender leaves cut into irregular lobes and coarsely toothed. The drooping flower-heads are yellow, succeeded by a small globe of fluffy, silky hairs which carry the fruits everywhere.

Group Captain. Title of the rank in the Royal Air Force equivalent to that of a full colonel in the army and captain in the navy.

GROUSE. Name applied to all the members of the family of game birds known as Tetraonidae, which includes more than 30 species; but popularly used in a more restricted sense. Four species of grouse occur in the N. of Great Britain: the ptarmigan; the blackcock; the capercaillie, which became extinct in Great Britain in the 18th century but was re-introduced in 1837; and the red grouse, or moorcock, by far the most plentiful, and the bird commonly implied when speaking of grouse. The red grouse (*Lagopus scoticus*), which measures about 15 ins. in length and weighs from 20 oz. to 30 oz., is found only in the British Isles. The plumage is usually a reddish chestnut, rarely black, and may be spotted with white on the breast. The shooting season extends from Aug. 12 till Dec. 10. See Close Time.



Grouse. The red grouse, one of the few species exclusively British. W. S. Berridge, F.Z.S.

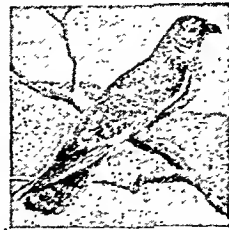
GROYNE. Projection built out to sea to obstruct the continuous drift of shingle or sand. The drift sometimes results in certain localities being denuded of their share of detritus and rendered more liable to erosion. To check this action groynes are projected from the shore, generally down to about low-water mark, against which detritus such as shingle or sand heaps itself on one side. Groynes are usually constructed of heavy timber planks bolted to, and supported by, piles and struts. See Breakwater.

GRUB STREET. Old name of a London thoroughfare in Cripplegate (q.v.), E.C., running N.E. from Fore Street to Chiswell Street, and known since 1830 as Milton Street. It was satirised by Pope and Swift as the home of the poorest and most helpless of literary drudges—whence the application of its name to writers and literary efforts of a mean character. To-day it has business establishments.

GRUYÈRE, LA. District of Switzerland, in the canton of Fribourg. It lies in the Saane

valley and is celebrated for its cheese. The chief town is Bulle, with a 13th century castle, but the historic capital is Gruyères, on a hill at an alt. of 2,713 ft., with a fine old castle.

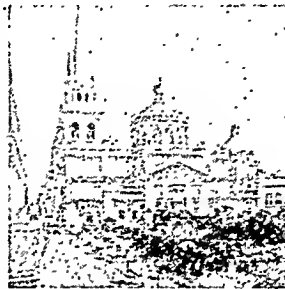
GUACHARO or **OIL BIRD** (*Steatornis caripensis*). Bird, related to the nightjars, native of the N. part of S. America. It feeds



Guacharo. Specimen of the Trinidad species

on hard nuts and fruits, and is entirely nocturnal, sleeping during the day in dark caverns. The young are extensively used as a food by the S. American Indians, and also as a source of oil. The guacharo is brownish grey in colour, about the size of a crow, and is found in Trinidad and Ecuador.

GUADALAJARA. City of Mexico. Lying 5,095 ft. above sea level, it is 280 m. W.N.W. of the city of Mexico, and is served by a branch of the Mexican Central rly. The cathedral,



Guadalajara, Mexico. The cathedral, built in the early 17th century

completed in 1618, is one of the most magnificent ecclesiastical structures in the country and contains a celebrated painting by Murillo. Other buildings are the university, bishop's palace, government building, public library, and academy of fine arts. It trades in agricultural produce. Pop. 145,000.

The town in Spain of the same name stands on the left bank of the Henares, 33 m. E.N.E. of Madrid. It has two 15th century palaces and the old Mendoza palace. Pop. 13,536.

GUADALQUIVIR (Arab Wad-al-kebir, great river). River of S. Spain, the ancient Bætis. It rises by various headstreams in the mts. in the E. of the prov. of Jaen, and flows N.E. then W. and S.W., emptying into the Atlantic about 20 m. N. of Cadiz. Its length is 360 m. Among its tributaries are the Genil, Guadiana Menor, Guadajoz, and Guadalimar.

GADELOUPE. Two islands of the Lesser Antilles, W. Indies, forming a French colony. In the W. Atlantic, S. of Antigua and N. of Dominica, the two islands are separated by a narrow strait called Rivière Sallée. The large western island, Guadeloupe proper, is called Basse-terre, the eastern being known as Grande-terre. The seat of the government is at Basse-terre (q.v.). Total area, 688 sq. m. Pop. 243,243.

GUANACO or **HUANACO** (*Aucubia huanaco*). Species of llama. Ranging from Peru to Patagonia, it is rather larger than the vicuña, a good specimen being rather more than 4 ft. high at the shoulder. Guanacos live in large herds in the mountains and are difficult to approach, though in captivity they are easily domesticated. The term llama is usually applied to a domesticated breed of this species. See Llama.

GUANCHES. Aboriginal people of the Canary Islands. Descended from a prehistoric Libyan immigration into Teneriffe, they were subsequently affected by other arrivals. Mastered by Spain in the 15th century, they form the latent substratum of the present population. See Canary Islands.

GUANO. Name originally given to the accumulated excreta of birds found principally upon the shores and islands of the South American coast and little-frequented islands in the Pacific Ocean. The original deposits have been much depleted by commercial demand, and artificial substitutes are largely employed. The principal ingredients of guano are phosphorus and ammonia.

GUARANA (*Paullinia sorbilis*). Climbing shrub of the order Sapindaceae. It is a native of Brazil, and has small whitish flowers in sprays. The pear-shaped fruit is three-celled, each cell containing a single seed. The seeds are pulverised and made into a dough. This, when rolled into sticks, is grated into sugar and water to make a beverage.

GUARANTEE (old Fr. garantie, warranty). Term of English law. It means a promise to be answerable for the debt, default, or misarrangement of another. The obligation guaranteed may be a mere debt, or it may be the performance of a contract, e.g. when someone guarantees that another shall do certain work in a certain way, or in a certain time. A guarantee must, under the Statute of Frauds, be evidenced by writs signed by the guarantor. A guarantee is a contract requiring the utmost good faith.

A guarantee association is a society for guaranteeing persons against loss. In the United Kingdom the most usual kind are those that, in return for annual payments, undertake to make good any defalcations on the part of persons occupying positions of trust, e.g. a cashier. See Insurance; Lloyd's.

GUARDIAN (old Fr. gardier, to guard). Word meaning literally one who guards or protects another.

In English law a guardian is a person appointed by the father or by the court to look after the person of an infant. If the ward is refractory the guardian can make him a ward of court by making application to the Chancery Division.

In England, guardians of the poor were the men and women elected by the ratepayers to look after the poor, educate the children, manage the workhouses, etc. In each union of parishes they formed a board of guardians. By an Act that came into force in April, 1930, the boards of guardians were abolished, their duties being handed over to the county and county borough councils. See Poor Law.

GUARDS. In the military sense, soldiers of superior type, prestige, and privilege. They were originally the bodyguard of emperors and kings, and in Britain and other countries the nucleus of the standing army.

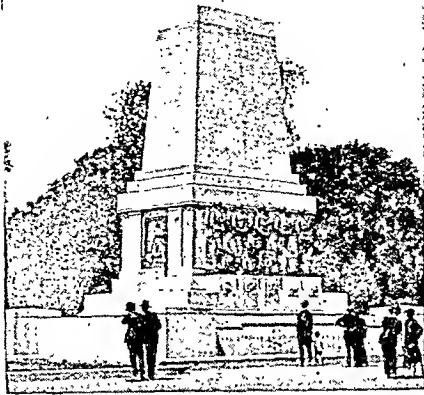
In England the existing Guards date from the time of Charles II, and were then divided into horse and foot. The horse guards consist now of the Life Guards and the Royal Horse Guards, collectively known as the household cavalry. The foot guards are the Grenadier, Coldstream, and Scots Guards, to which the



Guanaco, the wild llama found in various parts of South America. Gambier Bolton, F.Z.S.

frish Guards were added in 1902 and the Welsh Guards in 1915. During the Great War a new unit, the Machine Gun Guards, was established. Together they form the brigade of Guards. The depot for the Foot Guards is at Caterham, where recruits are trained. The national memorial to the Guards' services in the Great War was unveiled Oct. 16.

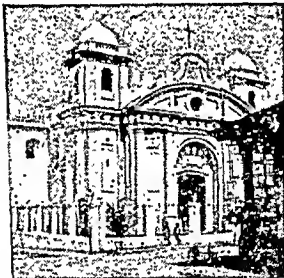
1926, on the Horse Guards Parade, London. In 1928 a monument to the Guards was unveiled at Ginchy (q.v.). See Coldstream Guards, etc.



Guards. Memorial to the Guards' services in the Great War, on the Horse Guards Parade, London

GUATEMALA. Republic of Central America, a member of the League of Nations. It lies S. and E. of Mexico, and is bounded S.W. by the Pacific, E. by British Honduras and the Gulf of Honduras, and S. by Salvador and Honduras. The capital is Guatemala City—the fourth of the name, three having been destroyed by earthquake and volcanic eruption, the third by earthquake in 1918. In 1920 the building of the fourth capital was started 12 m. S. of the destroyed one, and in 1928 was completed. Its pop. is 115,928.

Other important towns include Quezaltenango, Coban and Totonicapán. The area of the republic is 42,456 sq. m. Pop. 1,600,535.



Guatemala City, fourth of the name. The Church of El Carmen

population inhabiting the more fertile Pacific area. The climate is hot near the coast, temperate in the higher regions. Earthquakes are frequent. Coffee is the staple product. There are some 600 m. of rly., and three wireless stations. The unit of currency is the gold quetzal, equal to a dollar. A central bank was established in 1926.

GUAVA (*Psidium guava*). Small tree of the order Myrtaceae, a native of the W. Indies. The branches are four-sided, the leaves opposite, oval, and downy beneath, and the flowers white.

The fruit is apple or pear-shaped, with thin, yellow rind filled with pulpy flesh, of acid-sweet flavour, in which are numerous hard, kidney-shaped seeds. The fruit is made into guava jelly and guava chutney.



Guava. Flower and fruit of the West Indian tree

GUAYAQUIL. Seaport and city of Ecuador. It stands on the estuary of the Guayas, at the head of the Gulf of Guayaquil. It is the port for Quito, from which it is distant about 150 m. S.S.W., and with which it is in

telegraphic communication. The city is the seat of a university. There is a good harbour, protected by a breakwater. The Guayaquil-Quito rly. terminus is on the opposite side of the estuary, but there is another line to the coast. The port, which has a wireless station, is visited by European steamers via the Panama Canal. Manufactures include, soap, candles, liquors, mineral waters, and food products, and there is a trade in tobacco, rubber, etc. Pop. 100,000.

GUDGEON (*Gobio*). Genus of small fresh-water fishes, of which one species is common in most British rivers. It is related to the carp, and has two small barbels on the snout. It is usually found on the gravelly bed of the stream, is easily caught, and is fairly good eating.

GUELDER ROSE (*Viburnum opulus*). Small tree of the order Caprifoliaceae. A native of Europe, N. and W. Asia, and N. America, the smooth leaves are cut into three toothed lobes. The flowers form a cluster, of which the central mass are small and perfect, of a creamy tint, while those of the outer ring are three times the size, quite white, and without pistil or stamens. The garden guelder rose, or snowball tree, is a variety in which all the flowers are sterile like this outer row. In the wild plant the fertile flowers are succeeded by large juicy berries of a translucent red.

GUELPH OR **GUELF**. Italian form of the German word *Welf*, and as such that of one of the parties in the noted medieval struggle between Guelphs and Ghibellines. Meaning wolf, it began as the Christian name of a race of nobles who were powerful in Bavaria in the 11th and 12th centuries, and the word became the battle cry of their followers.

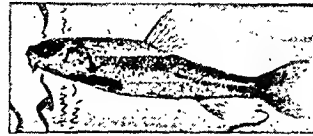
The two political factions, Guelph and Ghibelline, denoted primarily the division into imperialist and anti-imperialist parties, that is, supporters respectively of the emperor as head of the Holy Roman Empire in Italy, and of his opponents, at the head of whom was the pope. The feud, which was especially strong in Florence, was carried into almost every relation of life, and each party had its distinct habits and customs in dress, manners, and the like. See Ghibellines; Hohenstaufen. Guelph was also used as the name of the family to which the electors of Hanover and, therefore, the sovereigns of Great Britain from 1714 to 1837 belonged, these being descended from the early Welfs.

The Royal Guelphic Order was a Hanoverian order of knighthood, instituted by George IV when Prince Regent.

GUELPH. City of Ontario, Canada. On the Speed river, about 50 m. W. by S. of Toronto, it is served by the C.P.R. and the C.N.R. Power for the city's manufactures is derived from the falls of the Speed; it is a market for the agricultural produce of the district. Here is the Ontario Agricultural College, with experimental farm. Pop. 18,128.

GUERNSEY. One of the Channel Islands. Second in size to Jersey, it is about 9 m. long and 5 m. broad, and has an area of 24½ sq. m. The capital is St. Peter Port, from which regular communication is maintained with Southampton, Weymouth, and other English ports, and with various ports in France. The Guernsey breed of cattle is famous. Granite is quarried. The chief industry is market gardening, large quantities of potatoes, grapes,

The city is the seat of a university. There is a good harbour, protected by a breakwater. The Guayaquil-



Gudgeon, a small fresh-water fish

flowers, tomatoes, etc., being grown, mainly for the English market. Pop. (with Herm and Jethou), 38,315. See Channel Islands.

GUERNSEY LILY (*Nerine sarniensis*). Bulbous herb of the natural order Amaryllidaceae. A native of S. Africa, it has strap-shaped leaves, which appear later than the flowers. These, which are lily-like, form a large cluster at the top of a stout stem.

GUESCLIN, BERTRAND DU (1320-80). French soldier. Born in Brittany, he fought in the civil war then raging there and became a renowned opponent of England. When peace was made in 1360 he marched into Spain at the head of an army of mercenaries, and there was taken prisoner by the English at Navarre. On the renewal of the war between England and France he was one of the French leaders. He died July 13, 1380.



Guernsey Lily. Flower-head and strap-like leaves

GUEST, SIR JOSIAH JOHN (1785-1852). British ironmaster. Born Feb. 2, 1785, he entered the ironworks at Dowdals, of which he became manager in 1815. He had already introduced considerable improvements in making iron, and under him the works became the largest of their kind. He became their sole proprietor in 1849. Guest was M.P. for Honiton, 1826-31, and for Merthyr Tydvil from 1832-52. He was made a baronet in 1838, and died Nov. 26, 1852. His eldest son became Lord Wimborne (q.v.).

His wife, Lady Charlotte Guest (1812-95), was a noted Welsh scholar. In 1838-49 she issued a three-volume version of the medieval Welsh tales, commonly known as *The Mabinogion* (q.v.), which marked an epoch in the study of Celtic literature.

GUIANA, BRITISH. Colony of S. America. Bounded N. by the Atlantic, S. by Brazil, W. by Venezuela, and E. by Dutch Guiana, it includes the settlements of Essequibo, Berbice, and Demerara, and has an area of 89,480 sq. m. Georgetown is the capital. Pop. 308,473. The coastal strip is the only part under cultivation, and virtually the only part inhabited. The chief rivers are the Essequibo, Berbice (400 m.), and Demerara (250 m.). In the Kaieteur Falls the colony has a valuable asset for generating power. The climate is hot and the rainfall heavy. The staple product is sugar. There are about 100 m. of rly. In 1928 a new constitution came into force. The court of policy and the combined court were abolished and a single legislative body was set up.

GUIANA, DUTCH, OR SURINAM. Colony of S. America, belonging to the Netherlands. The area is 49,845 sq. m. It lies between British Guiana on the W. and French Guiana on the E., and is bounded N. by the Atlantic and S. by Brazil. In the S. are impenetrable forests and savannahs. About one-tenth only of the territory is settled, and most of the plantations lie along the shores of the Surinam river. The capital is Paramaribo. Pop. 145,763.

GUIANA, FRENCH. Colony of S. America, belonging to France. It lies between Dutch Guiana on the W. and Brazil on the E. and S., while the Atlantic washes its shores on the N. The colony includes the so-called island of

Cayenne, on which stands the capital of the same name. It is only separated from the mainland by the forking of a river. Its area is about 34,000 sq. m. Pop 47,341.

GUICCIOLI, TERESA, COUNTESS (1801-73). Mistress of Lord Byron. A daughter of Count Gamba, a nobleman of Ravenna, she married in 1817 an elderly man, Count Guiccioli. Shortly afterwards she was introduced to Byron, and she was more or less closely associated with the poet from then until his death in 1824. Later she married a French marquis, and she died in Florence, having published in 1868 a book on Byron, of which there is an English translation.

GUIDES, CORPS OF. Unit of the Indian army. It owes its existence to Sir Henry Lawrence, who, in 1846, decided to raise for service on the frontiers a body of troops more mobile than the regulars. Among the incidents in the history of the Guides are the march to Delhi during the Mutiny, the massacre at Kabul in 1879, their share in the Afghan War, 1878-80, and at the relief of Chitral. The headquarters are at Mardan.

GUILBERT, YVETTE (b. 1869). French singer and actress. Born in Paris, she first made her name in café-concert engagements, and in 1890 appeared at the Eldorado and Ambassadeurs, Paris. She was enthusiastically received in London, Rome, Vienna, Berlin, and elsewhere. She toured the U.S.A., 1906-7, 1909-10, and 1915-17, becoming teacher of dramatic diction at New York. She wrote two novels, *La Vedette* and *Les Demi-Vieilles*, 1902, and published *How to Sing a Song*, 1919; *Memoires*, 1927; and *The Song of My Life*, 1929.



Yvette Guilbert, French singer



Corps of Guides. Private of infantry company

is a Jacobean building founded in 1619 as an almshouse by Archbishop Abbot, and famous for its oak; the 16th century grammar school has a library and chained books. The town has the keep of its Norman castle, a museum, county hall, county hospital, and institute. The guildhall is a 17th century brick and timber building. In 1927 a new diocese of Guildford was formed. In 1928 it was proposed to erect a cathedral, and a site was selected on a hill above the town. In 1930 the assizes were transferred from Guildford to Kingston. Market day, Tues. Pop. 26,000.

Guildford is a town in Western Australia 9 m. N.E. of Perth. Pop. 2,530.

GUILDHALL. In medieval architecture, a hall for the meeting of the guild merchants.

Its origin was a roofed booth for collecting market tolls. A room for business purposes was generally built over the toll booth, and the practice of placing the council chamber of the guildhall on an upper floor, with access to the market place, was retained long after the original rough toll booth had become a structure of stone or brick.

THE LONDON GUILDHALL. This building, which is situated at the end of King Street, Cheapside, was built, 1411-35, on the site of an earlier structure. Most of the medieval timber work was destroyed by the Great Fire of 1666, but parts of porch and hall remain, while the crypt escaped almost unscathed. Wren replaced the open roof with a flat ceiling. The S. front was restored in 1789, and a complete



Guildhall, London. The fifteenth century porch, restored in 1789



Guillemot. Specimen of *Uria troile*

restoration was undertaken in 1864, when Sir Horace Jones modelled the open oak roof on that destroyed in 1666, and added a metal spire. Great Hall is used for the election of the lord mayor and sheriffs and for banquets. The library and reading-room, free to the public, date from 1871-72. There is a museum, devoted to London antiquities, and an art gallery.

GUILLEMOT (Uria).

Genus of sea birds belonging to the auk family. The guillemot is common around the British coasts, but spends nearly all its time at sea. The plumage is white on the under parts, with dark head, back, and wings. No nest is made, the single large egg being laid on a bare cliff-ledge.



Guildford, Surrey. The High Street of this beautiful and historic town

GUILDFORD. City, borough, and market town of Surrey, for some purposes the county town. On the river Wey, it is 29 m. from London on the Southern Railway. Abbot's Hospital

its use to the Constituent Assembly in 1789. It is still the means of capital punishment in France. The name is applied to a machine which is used for cutting paper.

Guillotine is also used to indicate the procedure by which the discussion of a measure in Parliament is cut short by fixing a time at which the discussion must end.

GUINEA. Obsolete gold coin of the English currency. It was first struck in 1663, when it was coined of gold imported from Guinea. Its nominal value was 20 shillings, but owing to depreciation of the silver coinage it rose to be worth 30 shillings by 1694. In 1717 its value was fixed at 21 shillings. The last issue was that of 1813, and in 1817 its place as the standard gold coin was taken by the sovereign. As a monetary unit the guinea has survived.

GUINEA, FRENCH. French colony on the coast of W. Africa. It lies between Portuguese Guinea and Sierra Leone, by which it is bounded on the N.W. and S.E. respectively. On the N. Senegal and Upper Senegal-Niger, on the S. Liberia, and on the E. the Ivory Coast form the boundaries. The capital is Konakri. Area, 92,640 sq. m. Pop. 2,185,697.

Portuguese Guinea, in W. Africa, is completely surrounded by French territory, except where it faces the Atlantic. It includes the adjacent archipelago of Bissagos, the capital being Bolama, on the island of Bolama. Cattle are numerous. Area, 14,000 sq. m. Pop. about 800,000.

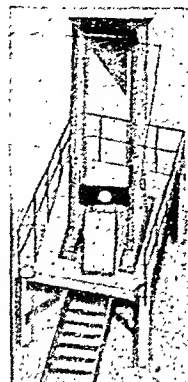
Spanish Guinea, or Rio Muni, is a colony belonging to Spain to the S. of Cameroons, and entirely surrounded by that territory except where it borders on the sea. The colony is administered from Santa Isabel in the island of Fernando Po (q.v.). Besides the territory on the mainland (known as Rio Muni), the colony consists of the islands of Annobon, Little and Great Elobey, Corisco, and Fernando Po. The area of Rio Muni is about 10,000 sq. m. Pop. about 140,000.

The Gulf of Guinea, on the W. coast of Africa, stretches from Liberia to Cape Lopez in French Equatorial Africa. Its bays include



Guinea Fowl, a member of the pheasant tribe

GUINEA FOWL (Numida meleagris). Member of the pheasant tribe, in general appearance more suggestive of a small turkey than a pheasant. In its wild state the guinea fowl is well distributed over S. and Central



Guillotine used by the French revolutionaries. From a contemporary print



Guinea of George III, known as the spade guinea, from the shield. Actual diameter 1 inch

of Benin, Bight of Biafra, Corisco Bay, and Nazereth Bay, and it receives the waters of the Volta, Niger, and Ogowe.

Africa, but is absent from the northern countries. The birds live in large flocks and run with great swiftness, seldom flying. The guinea fowl was appreciated by the Greeks and Romans.

GUINEA PIG. Small domesticated rodent belonging to the cavy tribe, and nearly related to the pacas and agutis. It is believed to have descended from the black Cutler's cavy of Peru, long ago domesticated by the Incas. These cavies were usually self-coloured, the tortoiseshell coat of the modern guinea pig and the long hair of certain varieties being the result of careful selective breeding. See Cavy.



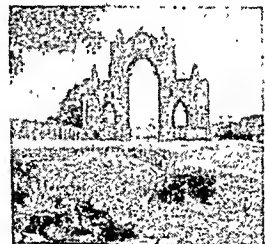
Guinea Pig. Specimens of the rodents often kept as pets

GUINEVERE. Character in the *Morte D'Arthur*. The daughter of Leodegrance, king of Camelot, she married King Arthur. She fell in love with Sir Lancelot, and their relations served to bring about the last great battle and the death of Arthur. She retired to a nunnery at Amesbury and there died. See Arthur.

GUINNESS. Irish family of brewers. Arthur Guinness, in the 18th century, had a brewery at Leixlip, which he transferred to Dublin. Under his grandson, Benjamin Lee Guinness (1798-1868), the business was much enlarged, and in 1886 it was made a limited company. Benjamin Lee Guinness, made a baronet in 1867, was an M.P. and a great benefactor to Dublin. His eldest son became Baron Ardilaun, 1880, and died without sons in 1915. The other, Edward Cecil, was made a baronet in 1885, Baron Iveagh in 1891, viscount in 1905, and earl in 1919. He died Oct. 7, 1927. See Iveagh, Earl of.

The Guinness Trust is a fund established by 1st Earl of Iveagh in 1889 for the provision of houses for the poorer classes in London and Dublin. The sum set aside was £250,000.

GUIBOROUGH. Market town and urban district of Yorkshire (N.R.). It is 9 m. S.E. of Middlesbrough, on the L.N.E. Rly.



Guisborough. Ruins of the 12th cent. Augustinian priory

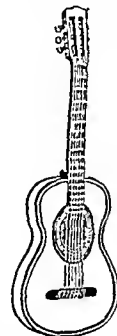
The chief buildings are the Perpendicular church of S. Nicholas, the town hall, and the grammar school. The industries are mainly connected with the iron found in the Cleveland district. Market day, Tues. Pop. 7,105.

GUISE. Town of France, on the Oise, 30 m. N. of Laon. The castle dates in part from the 16th century. Here are works for making stoves and similar goods, conducted on the cooperative principle; in connexion with them is a large building where the workmen live on the communistic plan. The town was taken by the Germans in 1914, in their first onrush towards Paris, but was recovered during the final advance of the Allies in Oct., 1918. Pop. 6,185.

THE GUISE FAMILY. The earldom of Guise was brought to Rudolph of Lorraine by his wife Marie of Blois, in 1333, and passed to René II of Lorraine, from whom it came to his second son Claude (born Oct. 20, 1496), in whose hands it was converted into a duchy. Claude was made governor of Champagne, and became a peer of France. He died April 12, 1550. François, 2nd duke, was born Feb. 17, 1519. His defence of Metz against

Charles V, 1552, made him famous as a general, and under Francis II he was virtually supreme ruler of France. He took the field in the religious wars of 1562, and was shot by a fanatic, dying Feb. 24, 1563. Henri, 3rd duke (1550-88), son of François, was prominent in the massacre of S. Bartholomew, 1572. He was assassinated by order of Henry III, Dec. 25, 1588. Henry, 5th duke (1614-64), became archbishop of Reims while still a young man, but renounced orders on his father's death. Mary of Guise (1515-60), who married James V of Scotland, was mother of Mary Queen of Scots. François Joseph (1670-75) was the 7th and last duke. See Mary Queen of Scots.

GUISELEY. Urban district of Yorkshire (W.R.). It is on the L.M.S. Rly., 2 m. from Otley, and has factories for making woollens. Every year, on the eve of S. Oswald's day (Aug. 4), there is a service in the church, followed by a pageant dealing with the story of Oswald. Pop. 5,353.



Guitar, Andalusian model

GUITAR (Gr. kithara, Lat. cithara). Stringed instrument, with a neck and fretted finger-board. The true Spanish guitar has six strings, played by plucking with the fingers. Many other forms and sizes may be seen in museums.

GUITRY, LUCIEN (1860-1925). French actor. He first appeared at the Gymnase in *La Dame aux Camélias*, 1878. He became best known by his successful management of the *Théâtre de la Renaissance*, 1902-9. The death of Constant Coquelin in 1909 left Guitry the foremost French actor. He appeared in London in 1902, 1909, 1920, and died June 1, 1925.

His son Sacha (b. 1885) is both actor and dramatist. Among his numerous plays, witty, cynical, and sparkling, are *Nono*, 1905; *La Clet*, 1907; *La Prise de Berg-op-Zoom*, 1912; *Pasteur*, 1919; *Mozart*, 1929. With his wife, Yvonne Printemps, he took part in his own plays in London.



Lucien Guitry
French actor
Gerschel

GUIZOT, FRANÇOIS PIERRE GUILLAUME (1787-1874). French statesman, historian, and academician. He was born on Oct. 4, 1787, of Huguenot parentage. In 1812 he was appointed professor of modern history in the university of France. Under Louis XVIII he held several administrative offices. On the accession of Louis Philippe he became minister of the interior and afterwards of public instruction. As prime minister his refusal to yield to popular demands was largely instrumental in bringing about the revolution of 1848. He died Oct. 12, 1874. Guizot's most important historical works are *Histoire de la Révolution d'Angleterre* and *Histoire de la Civilisation en Europe*. Pron. Ghee-zo.

GUJARAT. Town of the Punjab, India, famous for the battle fought between the British and the Sikhs, Feb. 21, 1849. Lord Gough, the British commander, attacked the 60,000 Sikhs first with his artillery. Later an advance was made, and the Sikh ranks broke into flight. The result was the annihilation of the Sikh army and the cap-

ture of its guns and baggage. The British army of 24,000 lost about 800. Gujarat was taken and the Punjab surrendered.

GULDEN. Silver coin current at various times in Germany and the Netherlands. In Austria and the S. German states it was in use until 1876, and is current as the guilder or gulden in Holland. See Florin.

GULES. One of the seven heraldic tinctures, red. It is represented in drawings by a series of thin vertical lines close together. See Heraldry.



Gulf Stream. Chart of the North Atlantic Ocean, showing origin and directions of the current

GULF STREAM. Warm ocean current flowing from the Gulf of Mexico along the S.E. coast of the U.S.A. The N.E. trades cause a great drift of waters from E. to W. across the Atlantic Ocean N. of the equator. Part of this current skirts the W. Indies, but the greater portion enters the Caribbean Sea and passes to the Gulf of Mexico. Here the piling up of waters causes a stream current to issue from the Gulf of Mexico between Florida and Cuba. This current unites with the branch which keeps outside the W. Indies to form the Gulf Stream.

On reaching the latitudes of the prevailing westerlies the Gulf Stream loses its stream character and becomes a great drift, called the Gulf Stream drift or N Atlantic drift. It influences the climate of W. Europe by raising the winter temperature.



Gulfweed. Leaves and fruit of the Sargasso Sea seaweed

GULFWEED (*Sargassum bacciferum*). Seaweed of the class Phaeophyceae. It has narrow, stalked leaves, with stalked air-bladders at their base. It floats on the sea, forming vast



Gull. The common gull, *Larus canus*, which visits England in winter

fields that impeded shipping. Its colorated headquarters is in the Atlantic, where it covers a vast area known as the Sargasso Sea.

GULL. Order (Laridae) of sea birds, comprising

about 50 species. It includes the various genera commonly known as gulls, terns, kittiwakes, and skuas. Most are grey and white in colour, have long and powerful

wings, and are web-footed. All are fine swimmers and fliers, and many of them divers. The majority haunt the coasts, usually in flocks, but are frequently found far inland during severe weather. When at sea they feed on fishes and small crustaceans. Gulls are all migratory, either wholly or partially. Most species nest on the cliffs; some, as the black-headed gulls, in the marshes.

GULLANE. Watering place of Haddingtonshire. It is on Gullane Bay, an opening of the Firth of Forth, 4 m. from N. Berwick and 19½ from Edinburgh on the L.N.E. Rly. There are golf links. Pop. 1,441.

GUM (Eucalyptus). Large genus of tall evergreen trees of the order Myrtaceae. With few exceptions they are natives of Australia, where they are the dominant trees of the forests. They have undivided, leathery leaves. The upper part of the calyx and the corolla are shed when the flower opens, so that the great number of stamens form the most conspicuous feature of the expanded blossom. Eucalyptus oil is obtained from the leaves of *E. globulus*. Among other products is a kind of kino, which exudes from the tree as a resinous juice and has astringent qualities.

GUM (Lat. gummi). Adhesive and thickening agent. True gum is the exudation and sometimes the juice of trees and plants. It is soluble in water. The best is gum arabic, obtained from the stem and branches of various species of *Acacia*, the finest kind being obtained from *Acacia Senegal*. Gum resins are also the products of plants, and consist of a mixture of gum—soluble in water—and resin, only soluble in alcohol—such as ammoniacum, myrrh, etc. Many are used in medicine. Gum substitute, or British gum, is made by converting starch into dextrin either by heating or treating with acids, and is largely used as an adhesive.



Gum arabic, flowers of *Acacia Senegal*

GUM or **GINGIVA**. Fleshy tissue which surrounds the margin of the upper and lower jaws. The gums are covered by mucous membrane which is continuous with that of the mouth. Inflammation of the gums generally arises from a neglect of the teeth. Chronic inflammation may eventually lead to loosening and falling out of the teeth. An abscess at the root of a tooth may break through on the surface of the gum, the condition then being known as a gumboil. Pyorrhoea alveolaris is an inflammatory state of the gums associated with the formation of pus between teeth and gum. See Pyorrhoea; Teeth.

GUMBINNEN. Town of E. Prussia, Germany. It is about 66 m. from Königsberg, and stands at the junction of the rivers Rominte and Pissa. The industries include the making of machinery, weaving, and tanning. Gumbinnen was made a town by Frederick William I of Prussia, who settled some religious refugees here in the 18th century. During the early part of the Great War the district was invaded by the Russians, who on Aug. 20, 1914, defeated the Germans here. Pop. 18,948.

GUN (Anglo-Saxon *gonne*, machine for throwing missiles). Term loosely employed to describe several widely different varieties of firearms. Amongst the smaller varieties the term gun is chiefly confined to long-barrelled, smooth-bore sporting weapons, and the automatically operated rifles termed machine guns. Among the larger firearms gun is the designation of the long-barrelled rifled weapons with a long range, greater muzzle velocity, and comparatively flat trajectory—in contradistinction to the more lightly con-

structed howitzers, which work at a lower pressure, have a shorter range, and attain this by a very steep or high trajectory.

SPORTING GUNS. Modern sporting guns are essentially designed to throw a charge of small shot to an effective range of 50 to 90 yards, the barrels being smooth-bored. Most guns are double-barrelled. The size of the bore is designated by a number, the most usual size being 12 bore. But 8 and 4-bore guns are employed for duck shooting, and 16, 20, and 28-bore guns are used when an exceptionally light weapon is desired. All modern weapons are breech-loading. (See Breech-loader; Rifle.)

ARTILLERY. The ordnance used in land warfare includes field guns, medium and heavy artillery. The field gun weighs about 30 cwt., has a calibre of about 3 ins., and fires a projectile of 15 lb. to 18 lb. Its range is 10,000 to 15,000 yards. Field guns were formerly drawn by teams of horses, the gunners being accommodated on the limbers, but mechanical traction is now the rule. In horse artillery the gunners were mounted. Other types are the 4.7 in. gun, firing a 50-lb. shell to a distance of 15,000 yards, and the 6 in. weapon with a 100-lb. projectile and a range of 15 miles. Still larger guns, on railway mountings, include the 9.2 in., with a 380-lb. shell, and others of 12 in. and 14 in. calibre. The latter can project a shell weighing over half a ton to a distance of 20 miles or more. Howitzers range in calibre from 4.5 in. to 20 in. Anti-aircraft guns are constructed to fire at a high elevation with a flat trajectory.

NAVAL ORDNANCE. The standard type of big gun for the British navy was for many years the 12 in. The gun weighed over 57 tons, and fired a projectile of 850 lb. with a cordite charge of 309 lb. The complete gear for working two guns of this character would represent a weight of about 600 tons, enclosed in a barbette mounting or gun-house. With the installation of the 13.5 in., 15 in., and 16 in. heavy guns, the weights have been increased enormously.

A few 18 in. guns were mounted in monitors during the Great War, but the largest gun now in the British service is the 16 in. This fires a projectile weighing 2,461 lb., and is credited with a range of 35,000 yards. The armament of a typical modern battleship includes nine 16 in. guns, mounted in triple turrets; twelve 6 in. guns, and six 4.7 in. anti-aircraft guns. The lesser guns of the British navy are analogous in make to the larger ones. The 9.2 in. fires a projectile of 380 lb. The 6 in. discharges ten aimed rounds of 100 lb. per minute. There are also the 5.5 in., the 4.7 in., and the 4 in. semi-automatic gun for flotilla leaders; also the 4.7 in. and 4 in. high-angle fire guns for anti-aircraft practice.

GUN LICENCE. This is a permit necessary for the possession of firearms. In Great Britain the licence permits the owner to carry firearms. It costs 10s. a year, and expires on July 31. Holders of game licences are exempt. See Artillery; Howitzer, etc.

GUNBOAT. Term properly applied to small craft capable of operating in shallow waters and limited areas, and in which the gun assumes an unusual importance. River gunboats of the British navy, originally designed for service on the great rivers of China, were revived in the Great War for the Mesopotamian campaign. The smaller monitors built for service in the Great War were officially classed as gunboats. See Condor.

GUNCOTTON. Nitrocellulose of the highest possible degree of nitration, containing about 13 p.c. of nitrogen in commercial practice. Cotton waste is the raw

material generally employed. The nitrating acid contains about 75 p.c. sulphuric acid, 17 p.c. nitric acid, and 8 p.c. water. When nitration is complete the guncotton is thoroughly washed to remove the bulk of the acids, and is then boiled in about 10 series of waters to remove unstable products. In the dry state guncotton is very sensitive to friction and percussion, and must be handled with great care. It is used as an ingredient of cordite (q.v.). See Explosive

GUNMETAL. Alloy of copper and tin, usually in proportion of 90 parts of the former and 10 of the latter. It thus belongs to that class of alloys known as bronzes. Gunmetal was for a long period the chief metal used in the manufacture of cannon, its place now in that connexion being taken by steel. Its uses to-day lie chiefly in the construction of parts of machinery where steel or iron cannot be employed, as in certain classes of pumps. See Alloy; Bronze.

GUNNER. Private soldier in the artillery who serves a gun, as distinguished from a driver, who is in charge of horses. The rank of master gunner is peculiar to the garrison artillery. The 3rd class master gunner holds the highest rank of non-commissioned officer, and master gunners of the 1st or 2nd class are warrant officers. There are also gunners in the navy and marines.

GUNNERSBURY. District of Middlesex. It is between Ealing and Acton on the N and Brentford, Kew, and Chiswick on the S., and is served by the District and L.M.S. Rlys. The estate was purchased in 1761 for Princess Amelia, daughter of George II. Gunnersbury House was pulled down in 1801, rebuilt on a smaller scale, and superseded in turn by a mansion belonging to the Rothschild family, into whose hands the estate came about the middle of the 19th cent.

GUNNERY. Science and art of shooting with heavy guns. It is based on a knowledge of internal ballistics—the behaviour of gun and projectile under pressure of the gases of explosion—and external ballistics, which are concerned with the flight of the projectile at various ranges and in various conditions. The chief school of naval gunnery, known as H.M.S. Excellent, is situated on Whale Island in Portsmouth Harbour. Artillerymen are trained at Woolwich and in the military gunnery schools at Shoeburyness and Salisbury Plain. See Artillery; Ballistics; Gun

GUNNING. Name of two noted beauties, Elizabeth and Maria. The daughters of an Irish squire, they went to London in 1751



Elizabeth Gunning, Duchess of Hamilton and of Argyll
From a print in the British Museum

intending to go on the stage. The beauty of the pair made an extraordinary impression in society and among the populace. In 1752 Elizabeth married the 6th duke of Hamilton (d. 1758), and in 1759 she married the marquess of Lorne, who, in 1770, became 5th duke of Argyll. She died May 20, 1790. Maria, the elder of the two, married the 6th earl of Coventry in 1752. She died of consumption, Oct. 1, 1760.

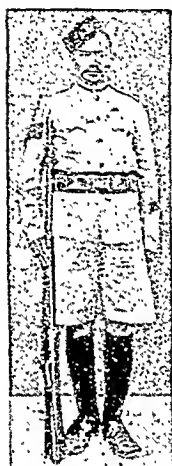
GUNPOWDER. Oldest known explosive, a mechanical mixture of saltpetre, charcoal, and sulphur. Military powder generally contains saltpetre, 75 p.c.; charcoal, 15 p.c.; and sulphur, 10 p.c.; but for blasting the variations of composition are considerable. Gunpowder has been largely displaced as a propellant by smokeless powder but finds considerable use for blasting in certain types of shell and cheap sporting cartridges.

and as an igniter for smokeless powder in cannon. See Explosivo.

GUNPOWDER PLOT. Plot to blow up the Houses of Parliament on Nov. 5, 1605, on which day Parliament was to be opened by King James I. A search under the buildings was made, and Guy Fawkes, one of the conspirators, was found there. The ceremony of searching the vaults of Parliament at its annual opening is a legacy of the Gunpowder Plot. See Fawkes, Guy.

GUN ROOM. Room in warships so called because it was formerly situated at the end of the gun deck. The modern gun room is a mess shared by sub-lieutenants, engineer sub-lieutenants, officers of the accountant branch, junior to assistant paymasters of four years' seniority, and midshipmen.

GUPTA. Empire that flourished in India from between 300 and 500 A.D. It was founded by a certain Chandragupta and enlarged by his successor Samudragupta. The real Gupta empero was in northern India, where was its capital Pataliputra, but Samudragupta conquered almost the whole of the peninsula.



*Sergeant of Gurkha regiment

After 450 it was attacked by the Huns, and when Skandagupta died, about 450, it came to an end, although princes of the family ruled for some 350 years longer over a smaller area, known as Magadha. The Gupta era, long used in Indian chronology, dated from Feb. 23, 320.

GURKHA. Name usually applied by Europeans to those tribes in Nepal whence the British Gurkha regiments are recruited. The Gurkhas, who form part of the Indian army, aided by their loose observance of caste rules, fraternise freely, especially with Highland regiments. Their characteristic weapon, the kukri, is a curved knife. Faithful, fearless,

self-reliant, they rendered valuable service during the Great War, both in France and on other fronts. Pron. Goorka.

GURNARD (Trigla). Fish of a genus which includes about 40 species. Gurnards are distinguished by their large, ugly heads, which are covered with angular plates. The three front rays of each pectoral fin are modified into feelers, which are used in finding prey and in creeping on the sea bottom. Most gurnards make good table fish. Seven species are found around the British coasts, the red gurnard (*T. cuculus*) being most frequently seen in the markets. It is bright red in colour, tinged in parts with silvery white.



Gurnard. Red gurnard, *Trigla cuculus*, a good table fish

GURNEY. English family, known for its association with banking and Quakerism. John Gurney (1688-1741), prominent as a merchant in Norwich and as a Friend, was the father of John and Henry Gurney, who, in 1770, set up a bank in Norwich. This became a little later the firm of Gurney & Co., of which another John Gurney, father of Elizabeth Fry, became the head. One of his sons was Joseph John Gurney (1788-1847), a philanthropist. An associated banking firm was Overend, Gurney & Co., which in 1866 failed with huge liabilities. The Norwich bank continued to flourish, and was absorbed by Barclays in 1896.

GUSTAVUS. Name of five kings of Sweden. The first was Gustavus Vasa (1496-1560), the founder of the Vasa dynasty. He led the Swedes in their revolt against the Danish rule and, having driven out the Danes, was chosen king in 1523. In 1544 the crown was made hereditary in his family. He died Sept. 29, 1560. Gustavus II is better known as Gustavus Adolphus.

Gustavus III (1746-92) was king from 1771 to 1792, when he was killed. His son, Gustavus IV (1778-1837), was king from 1792 to 1829, when he was dethroned. He died Feb. 7, 1837.

GUSTAVUS ADOLPHUS (1594-1632). King of Sweden. Born Dec. 9, 1594, he was the son of Charles IX, and succeeded his father in 1611. Between



Gustavus Adolphus, King of Sweden. After Van Dyck

1611 and 1630 he reorganized the government, and waged successful wars with Denmark, Russia, and Poland for the recovery of Swedish territory. Meanwhile the Thirty Years' War had broken out in Germany and the Catholic and Imperial party had established an ascendancy. Intervening as champion of the Protestant cause, Gustavus landed in Pomerania in 1630, and opened those brilliant campaigns which swept back the Catholic tide and established his own position among the greatest captains of history. He was killed at the battle of Lützen, Nov. 16, 1632.

GUSTAVUS V (b. 1858). King of Sweden. Born June 16, 1858, a son of Oscar II, he entered the Swedish army in 1875. In 1881 he married Victoria, daughter of the grand duke of Baden. He succeeded to the throne in 1907. Gustavus V has two sons. The elder, Gustavus Adolphus (b. 1882) married first Princess Margaret of Connaught, who died in 1920, and second Lady Louise Mountbatten. He has four sons and a daughter. See Sweden.



Gustavus V, King of Sweden

GUT. Intestines of animals, which when prepared are used for various commercial purposes. The entrails from freshly-killed sheep or other animals are washed, trimmed, and scraped free of the softer surface layers. The gut is then sold for sausage coverings. The process of gut-spinning is employed where the gut is to be made into fiddle strings or cords for rackets, etc. The various lengths of scraped gut are sewn together, and the gut twisted on a spinning wheel. Silk-worm gut, as used by anglers for fishing tackle, is made from the silk glands of the caterpillar. See Catgut.

GUTENBERG or GENSFLEISCH, JOHANN (c. 1400-c. 1468). German inventor of printing from movable types. Born at Mainz, he lived between 1420 and 1426 at Strasbourg, where he is believed to have perfected his invention. He returned, about 1444, to Mainz, where he was assisted financially by a partnership with Johann Fust, a goldsmith, and technically by Fust's son-in-law, Peter Schoeffer, an engraver, who is credited with the invention of punches and matrices. He died at Mainz. A Gutenberg museum was founded in 1901 at Mainz, where a statue was erected in 1837, and where festivals were held in honour of Gutenberg in 1837, 1840, and 1900. See Fust, J.; Printing.

GUTHRIE, SIR JAMES (b. 1859). Scottish painter. Born at Greenock, June 10, 1859, he became prominently identified with the Glas-



Sir James Guthrie, Scottish painter Russell

gow school, though his work is more cosmopolitan than Scottish. Elected A.R.S.A. in 1888, and R.S.A. four years afterwards, he was chosen president of the Scottish Academy in 1902. His finest pictures include Funeral Service in the Highlands, 1882; To Pastures New, 1883; and Schoolmates, 1886, in the Ghent Municipal Gallery.

He was also a noted portrait painter.

GUTHRIE, THOMAS (1803-73). Scottish divine. Born at Brechin, Forfarshire, July 12, 1803, he became minister of Arbirlot, near Arbroath, 1830; of Old Greyfriars, 1837; of S. John's, Edinburgh, 1840-43; and, after the disruption, of Free S. John's, 1843-64. He took a leading part in the promotion of a national system of education, of ragged schools, temperance, and social work among the poor. He died Feb. 24, 1873.

GUTHRUM (d. 890). Danish king of E. Anglia. He gained a victory over Ethelred and his brother Alfred at Reading in 871, and after Ethelred's death marched to Cambridge in 875, occupied Wareham in 876, and in 877 was bought off by a treaty. In 878 he was defeated by Alfred at Ethandune (Edington), Wilts, and by the peace of Wedmore he agreed to become a Christian, to give hostages, and to leave Wessex to Alfred.

GUTTA PERCHA. Substance resembling rubber, prepared from the juice of various trees of the genus *Palaquium*, natives of the Malay Archipelago.

Incisions are made in the bark of the tree, which causes the juice to exude. It quickly coagulates and is scraped off with a knife. Although resembling rubber closely, gutta percha is less elastic, becomes plastic at the temperature of boiling water, and cannot be vulcanised. Owing to its special electrical properties, gutta percha is employed as an insulator for cables. See Rubber.



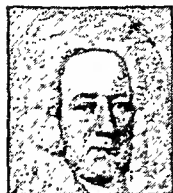
Gutta Percha. Leaves and flowers of *Palaquium gutta*

GUYNEMER, GEORGES (1894-1917). French aviator. He entered the air service in 1915, and soon became one of the most successful fighters of the day. Early in 1917 he was promoted captain, having brought down 30 machines, and other victories made him the champion ace of the French service. When he was killed, Sept. 11, 1917, he had 53 victories to his credit. His many honours included the burial of his body in the Panthéon.

GUYON, MADAME (1648-1717). French mystical writer whose maiden name was Jeanne Marie Bonvier de la Motte. Born at Montargis, April 13, 1648, she early came under the influence of Father Lacombe, a prominent Quietist teacher, and began in 1676 to advocate Quietism in Savoy and later at Paris. In 1688 and 1695 she suffered terms of imprisonment for teaching the heresies of Molinos. She taught that the essence of religion consisted in the passive contemplation of God, and that good deeds were of less moment. Madame Guyon died at Blois, June 9, 1717. See Mysticism.

GUY'S CLIFFE. Estate on the Avon, 1½ m. from Warwick, the seat of Lord Algermon Percy. In the grounds are the cave said to have been hewn for himself by Guy of Warwick and the chapel of S. Mary Magdalen, founded to his memory by Richard Beauchamp, earl of Warwick (d. 1439). There were hermit residents at Guy's Cliffe under Edward III and Henry IV, and another occupant of the hermitage was John Rous the antiquary (d. 1491).

GUY'S HOSPITAL. London hospital. It was founded in 1721 by Thomas Guy (c. 1645-1724), a printer and bookseller, chiefly of bibles, who amassed a large fortune, which he devoted to philanthropic ends. The hospital, which is in Southwark, has 646 beds, and departments for providing treatment in all branches of medicine and surgery. The Wills library was built in 1902 and the Gordon Museum in 1905. In 1910 new laboratories were built for the study



Thomas Guy, founder of Guy's Hospital

of chemistry and physics, and departments of pathology and pharmacology have been established. There is an excellent medical school and a residential college and a club for the students.

GWALIOR. Stato of Central India. It covers 26,382 sq. m. and is ruled by a maharajah, who is entitled to a salute of 21 guns. Lashkar is the capital. Pop. 3,186,000.

Near Lashkar is Gwalior, the former capital. It contains Jain and Hindu antiquities and a magnificent palace dating from the 16th century. Its famous fort stands on a hill above the town, and on it are buildings of historic interest. Pop. 14,700.



Gwalior City. The palace, begun in the early 16th century, a magnificent example of Hindu architecture

GWYNN, GWYN OR GWIN, NELL OR ELEANOR (1650-87). English actress, mistress of Charles II. Born Feb. 2, 1650, she early attracted notice as an orange-seller at the Theatre Royal, Drury Lane, where in 1665 she made her first stage appearance as Cydaria in Dryden's Indian Emperor. Until 1682, when she left the stage, she played a variety of parts, and was specially successful in broad comedy and in daring prologues and epilogues. She became the king's mistress about 1669, and retained his affection until his death. The elder of her two sons by him was created duke of St. Albans in 1684.



Nell Gwynn, actress and favourite of Charles II
After Sir Peter Lely

GYMKHANA (Pers. gandkhana, ball house). Name for a mixed sports and athletic meeting. It originated about 1860 in India, when horse and pony races were introduced as a means of recreation and amusement for British soldiers and officials. Further interest was given by including athletic events and military sports.

GYMNASTICS (Greek, gymnastikē, training). The art of developing the body by means of suitable exercises. The Greeks fully understood the value of all-round physical culture, and in the gymnasia the youth of Athens strove to approach the ideal of finely proportioned beauty as revealed in marble by their famous sculptors.

In modern times two opposing theories of gymnastics have developed. The first, based upon German practice, regards free movements merely as preliminary to the more strenuous exercises performed with the help of apparatus, such as the horizontal bar, parallel bar, ladder and rings, weights, etc., involving feats of strength as well as of agility. The Swedish system claims that apparatus of any kind may be dispensed with by those who desire full and all-round bodily development with the sense of physical well-being which this involves. In recent years Swedish methods, with adaptations, have become increasingly popular in Great Britain. See Dumb Bell; Eurhythmics; Physical Training; Swedish Drill.

GYMPIE. Town of Queensland, Australia. It is 90 m. N. of Brisbane and 40 m. S. of Maryborough, its port. It is the centre of a rich gold mining area which also produces silver, nickel, bismuth, antimony, and coal. Pop. 9,570.

GYPSIES. The people known in England as Gypsies, and in other countries by a variety of names (Gitanos, Zigeuner, Tehinghianés, Zingari), call themselves Romá men. Large bands of these nomads appeared in Western Europe about 1417. They came from the Balkan peninsula, but their ultimate origin is India. Interest in gypsies was fostered by the writings of George Borrow.

Persecuted in former days, gypsies are today comparatively free from control. They are a handsome race, noted for their olive complexions, lustrous eyes, fine teeth, lithe figures, and dignified carriage. The chief occupation of the males is horse-dealing; of the women fortune-telling and basket-making. They have an oriental love of display and are very superstitious. One of their customs is to burn the van and all the belongings of a dead gypsy.

GYPSUM. Mineral, a hydrous calcium sulphate, containing 32.5 p.c. of lime, 46.6 p.c. sulphur trioxide, and 20.9 p.c. of water. It occurs in nature as a soft, white rock, usually associated with rock salt, and consisting of a confused mass of small crystals, mixed usually with silica and clay. Selenite is a variety of gypsum which occurs in distinct crystals. Satin spar is the name given to a fine fibrous variety of gypsum having usually a pearly, opalescent appearance. Alabaster is a fine-grained, compact variety, resembling marble in appearance. Gypsum is found in England; in France, near Paris; in numerous places in the U.S.A., and in smaller deposits in Europe and Africa. The variety found near Paris is extensively used in the preparation of plaster of Paris. See Alabaster.

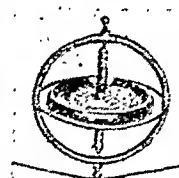
GYPSY WORT (*Lycopus europaeus*). Perennial herb of the order Labiales, a native of Europe, N. Africa, Asia, Australia, and N. America. It has a creeping root-stock, tough, four-angled stem, and opposite elliptical

leaves with deeply toothed margins. The small bluish-white flowers, dotted with purple, are crowded in whorls round the stem. It grows on banks of streams and ditches.



Gypsy Wort. Stem with flower whorls situated above each pair of leaves

right angles to the plane of the wheel. Its motions and applications depend on the fact that if any body, symmetrical about an axis of greatest or least moment of inertia, is set rotating about that axis, then the direction of the latter remains unchanged in space unless external forces are applied. As examples of gyroscopic motion may be cited the wheels of a bicycle when in motion, and the spinning of a rifle bullet or shell, enabling it to keep its general direction unaltered. The applications of the principle are numerous and important. The gyro-compass depends upon the stability of the motion, and the directing of torpedoes is due to the gyroscope. The gyro turn indicator used in aeroplanes gives warning of the machine turning. See Monorail.



Gyroscope, elementary. The spinning top keeps steady on the cord

H. Eighth letter of the English and Latin alphabets. By some it is regarded as a consonant, by others as a mere aspiration. In English, initial h is silent in some words, as honest, honour, hour; in others, as herb, humble, custom varies. In certain words, generally of foreign origin, after e and g, it is used to indicate the hard sound of those letters, as chemistry, ghetto. In what, when, which, the digraph wh is in certain parts of Great Britain pronounced hw. See Alphabet.

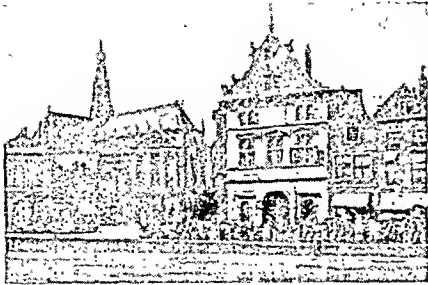
HAAKON. Name of seven kings of Norway, sometimes spelled Haco. The first six were kings before the union with Sweden. When, in 1905, Norway again became independent, its crown was offered to Prince Charles of Denmark, and he accepted it and took the title of Haakon VII. Born Aug. 3, 1872, he was the second son of Frederick VIII. In 1896 he married Maud, youngest daughter of Edward VII. Their only child, Olaf, the heir to the throne, was married in 1929 to Martha, princess of Sweden.



Haakon VII, King of Norway

HAARLEM. Town of Holland, capital of the prov. of N. Holland. It lies about 14 m. W. of Amsterdam, on the river Spaarne, and is chiefly famous for its trade in bulbs. Among notable buildings are the Groote Kerk, late 15th century, with a tower over 250 ft. high; the town hall, containing a superb collection of paintings by Frans Hals and other notable Dutch pictures; the Teyler Museum; and the old Meat Market, built 1602-3. Pop. 113,304. See illus. p. 692.

HABAKKUK. One of the minor prophets. His work was contemporaneous with that of Jeremiah. He lived at the time when Judah was invaded by the Chaldeans, and taught that they were the instruments of God to punish the Jews for their lawlessness.



Haarlem. The Weigh-house and quays on the spaarne, looking towards the Groote Kerk (on left). See p. 691

HABEAS CORPUS (Lat. have the body). Term of English law. It forms the opening words of various writs, and is addressed to one who detains or imprisons another, and commands him to "have the body" of the person in the Court of King's Bench on a certain day, together with the cause of his detention. It is also used where, for instance, a child is detained from its father or mother.

HABERDASHER. Word used for a retail trader who sells accessories of dress, or what are known as small wares.



Haberdashers' Company arms

The Haberdashers' Company is the eighth of the twelve chief London city livery companies. Incorporated 1447, it was originally a branch of the Mercers. Haberdashers' Hall, in Gresham Street, E.C., is built on a site bequeathed in 1478 by William Baker. The first hall was burnt with the archives in 1666; the second, by Wren, was, with the exception of part of the court room, burnt down in 1864. The company manages several almshouses and schools. The latter are at Acton, Hampstead (Westbere Road), and Hatchingham.

HABITANT (Lat. habitare, to inhabit). Name given to original settlers at Quebec and still applied to farmers. They have a marked individuality of their own, which includes a patois of their original French.

HACKENSCHMIDT, GEORGES (b. 1878). Russian wrestler. After a successful career on the Continent he came to England about 1901, and appeared at the Tivoli and other music-halls, where his immense strength and magnificent physique made him extremely popular. In 1906 he won the championship from Madrali, the Turk, at Olympia, but lost it to Frank Gotch at Chicago in 1908.

HACKER, ARTHUR (1858-1919). British artist. Born in London, Sept. 25, 1858, he exhibited his first picture at the R.A. in 1880. In 1886 he joined the New English Art Club, but continued to exhibit at the Academy. He became A.R.A. 1894, R.A. 1910, and died in London, Nov. 12, 1919. His early reputation was made by cottage interiors with figures; for a time French influence was marked.

HACKLE, RED. Plume worn in the feather bonnets of the Black Watch (q.v.) since 1793. During the campaign of that year in Flanders the 11th Light Dragoons were driven back by the French. The Black Watch retrieved the position. For this exploit the Red Hackle worn by the 11th Dragoons was given by General Dundas to the 42nd.

HACKNEY. Breed of horse originating from a cross between the race-horse and the cart-horse. From the practice of hiring them

out the word acquired its application to vehicles plying for hire, as, for example: hackney coach or hackney cab. See Cab.

HACKNEY. Metropolitan borough of London. Covering an area of 5½ sq. mi., it is served by the L.N.E. and L.M.S. Rlys., and is bounded S. by Shoreditch, Bethnal Green, and Poplar. It has developed rapidly since the middle of the 19th century around Mare Street, Church Street, Grove Street, and Well Street. There are a town hall, 1897, technical institute, and free libraries, and also large confectionery works and an electric power station. Hackney includes part of Victoria Park (q.v.), London Fields, Hackney Marshes, and Hackney Downs. Of the ancient church of S. Augustine, supplanted by the parish church of S. John, only the tower and chapel of Sir Henry Rowe remain. Pop. 222,142.

HADDINGTON. Burgh and the co. town of Haddingtonshire. It stands on the Tyne, 17 m. E. of Edinburgh on the L.N.E.R. The 13th century church of S. Mary has a square tower, 90 ft. high, and the choir contains the tomb of Jane Welsh, the wife of Thomas Carlyle. It has one of the principal grain markets in Scotland. Pop. 4,053.

The Scottish title of earl of Haddington has been borne since 1627 by the family of Hamilton. Sir Thomas Hamilton, who held a number of high positions in Scotland under James VI, was made a baron in 1616 and earl of Melrose in 1619. In 1627 he exchanged his title of Melrose for that of Haddington. The 9th earl was made a peer of the United Kingdom in 1827. He left no sons, so his Scottish titles passed to a cousin, George Baillie, who took the additional name of Hamilton. In 1917 George, the 11th earl, died and was succeeded by his grandson George as 12th earl. The family seat is Tynninghame, Haddingtonshire.



Haddingtonshire. Map of the maritime county in the south-east of Scotland, also called East Lothian

HADDINGTONSHIRE OR EAST LOTHIAN. County of Scotland. With about 40 m. of coast on the Firth of Forth and North Sea, its area is 267 sq. m. Along the S. border are the Lammermuir Hills (Lammer Law, 1,733 ft.). Isolated eminences include Garleton Hill (590 ft.), Traprain Law (700 ft.), and North Berwick Law (612 ft.). The Tyne is the chief stream. Agriculture, the pasturage of sheep, and fishing are industries. The Dunbar red lands are exceptionally fertile. Coal and limestone are obtained. The L.N.E. Rly. serves the county. Haddington (co. town), Dunbar, and North Berwick are the largest towns. Pop. 48,400.

HADDOCK (*Gadus aeglefinus*). Common British fish of the same genus as the cod, which it resembles. It may be distinguished by the black line running along each side

and the black patch on either side of the body. The haddock is usually less than 2 ft. in length, though 3 ft. is occasionally reached.



Haddock, a common British fish

Haddocks are found in shoals, and are taken in the trawl net and also on lines baited with mussels. Economically the haddock is a most important food fish. The haddock is largely eaten fresh, but is also split and smoked. See Findon; Fisheries.

HADDON HALL. Residence in Derbyshire. Picturesquely situated above the left bank of the Wye, 2 m. S.E. of Bakewell, it passed, in the 12th century, to the Vernons. Towards the close of the 16th century, by the marriage of Dorothy Vernon to Sir John Manners, it passed to the Rutlands.



Haddon Hall. Terrace steps associated with Dorothy Vernon's elopement with Sir John Manners

Haddon consists of two quadrangles on different levels. Features are the 12th-15th century chapel, 14th-17th century banqueting hall, tapestried drawing room, Elizabethan Long Gallery or ballroom, and Eagle or Peveril's Tower and terrace. With the terrace steps is associated the legend of Dorothy Vernon's elopement with Sir John Manners. In 1927, after certain internal improvements, the hall again became a residence of the duke of Rutland.

HADEN, SIR FRANCIS SEYMOUR (1818-1910). British etcher and surgeon. Born in London, Sept. 16, 1818, he studied surgery in Paris and at Grenoble, and settled in private practice in London in 1847. He did not take up etching seriously till 1853, when he made the acquaintance of Whistler, whose half-sister he had married in 1847. In 1880 he founded the Society of Painter Etchers. He was knighted in 1894, and died June 1, 1910.

HADES (Gr. the invisible). In Greek mythology, properly the name of the god who ruled the underworld, also called Pluto. He was the son of Cronos and Rhea, and brother of Zeus and Poseidon. His wife was Proserpine or Persephone (q.v.), daughter of Demeter.

In later mythology, the name Hades came to be used for the realms of the god. The river Styx was the boundary, and over it the dead were ferried by Charon. On the opposite shore was the three-headed dog Cerberus, the vicious guardian of Pluto's realm. Three judges judged the dead, namely Minos, Rhadamanthus, and Aeacus.

HADFIELD, SIR ROBERT ABBOTT (b. 1859). British metallurgist. He initiated and carried out a series of investigations on the micro-structure of steel and its alloys, chromium steel, silicon steel, high-speed tool steel, etc. His discovery of manganese steel in 1882 increased the prosperity of his Sheffield steel works and brought him recognition from every steel-producing country. He was made a knight in 1908 and a baronet in 1917.

HADLEIGH. Urban district and market town of Suffolk. It is on the Brett, 9 m.

W. of Ipswich, with a station on the L.N.E.R. Market day, Mon. Pop 3,000.

Hadleigh, a village of Essex, 5 m W.N.W. of Southend-on-Sea, has fragmentary remains of Hadleigh Castle. The church of S. James is Norman, with a wooden tower. The Salvation Army farm colony here was founded in 1891. Pop. 2,246.

HADLEY WOOD. District of Barnet, Middlesex, on the Hertfordshire border. It has a station on the L.N.E.R. The cruciform Perpendicular church of S. Mary, with turreted tower containing an old iron beacon, dates from the 15th cent. See Barnet.

HADRIAN. Roman emperor, A.D. 117-138, whose full name was Publius Aelius Hadrianus. Born (76) at Rome or at Italica in Spain, he was

brought up, adopted, and designated successor by the emperor Trajan. He made peace with the Parthians, Trajan's campaign against whom had ended so disastrously, and is said to have contemplated retirement from Dacia. The greater part of Hadrian's reign was spent in travel. He inaugurated reforms, both civic and legal.

Hadrian was a man of wide culture, and a leader in the movement which sought its literary models in the past. During the last years of his reign occurred the last revolt of the Jews, which ended with their virtual extermination in Judaea. He died July 10, 138.

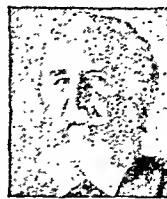
HADRIAN'S VILLA. This is 2 m. S.W. of Tivoli, the ancient Tibur, and 15½ m. by tramway E.N.E. of Rome. The grounds, covering several square miles, and the ruins some 170 acres, are a marvel of landscape gardening, and contain the remains of Hadrian's palace, of temples, baths, theatre, a stadium, colonnaded gardens, and imitations of various other famous buildings.

HADRIAN'S WALL. Roman rampart. It is 73½ m. long, between Bowness on Solway Firth and Wallsend-on-Tyne, England.

Erected by the Roman emperor Hadrian about 122, and repaired by Severus about 208, it was mainly of freestone blocks with a rubble core, and was flanked by a ditch. A military road ran more or less parallel on the S. side, with an outer ditch and earthen mound—the vallum. At intervals of a Roman mile were about 80 smaller castella. Between these were some 300 recessed watch towers. In 1928 Hadrian's Wall was scheduled as an ancient monument. In 1929 a stretch of it, part of the Chesters estate, was sold.

HAECKEL, ERNST HEINRICH (1834-1919) German scientist. Born at Potsdam, Feb. 16, 1834, he became professor of comparative anatomy and director of the zoological institute at Jena in 1862. Three years later he was appointed professor of zoology at Jena. Haeckel became an enthusiastic convert to the Darwinian theory of evolution, and in his

Natural History of Creation, 1868, he traced the descent of man from protoplasm to the chimpanzee in 26 stages. With Darwin, he



Ernst Haeckel, German scientist

HAEMATITE (Greek haimatētēs, blood-like). Ore of iron, so named from its red, metallic lustre. It usually occurs in kidney-shaped, granular, or amorphous masses. Most red rocks contain haematite, and red ochre is an earthy, impure form. The mineral is found in most parts of the world. See Iron.

HAEMOGLOBIN (Gr. haima, blood; Lat. globus, ball). The colouring matter of the blood. In bright red arterial blood it is loosely combined with oxygen. During the circulation of the blood the body tissues abstract the oxygen, and leave the colouring matter as haemoglobin. See Blood.

HAEMOPHILIA (Gr. haima, blood; philia, friendship, tendency to). Congenital tendency to bleeding even from quite trivial wounds. The condition is strongly hereditary, and is transmitted only through the female line. The blood is peculiarly constituted, so that the ordinary clotting which arrests bleeding is delayed owing to the slowness with which fibrin ferment is produced. See Bleeding.

HAEMORRAGE (Gr. haimorrhagia, bloody flux). Internal or external discharge of blood from a blood vessel. Blood vomited from the lungs is bright and frothy: from the stomach it is dark in colour, often resembling coffee grounds. The patient should be laid flat, fresh air provided, ice given to suck, and cold dressings, preferably in the form of ice, applied to the seat of the haemorrhage if known. No stimulant should be given.

External haemorrhage may be arterial, venous, or capillary. Arterial haemorrhage is recognized by the bright red colour of the blood, which escapes in pulsating jets, corresponding in rhythm to the heart-beat. Venous blood is dark in colour, and escapes in a steady stream. Capillary haemorrhage is recognized by the steady oozing of bright red blood from all parts of the wound.

In some cases a tourniquet is essential, and this may be extemporised by lightly bandaging a hard pad on the pressure point and then twisting the handgaw with a stick so as to tighten the bandage. Bleeding from a vein or the capillaries can usually be stopped by a pressure upon the wound.



Hadrian's Wall. Map indicating the course of the Roman wall and the stations of the Roman army.

HAFIZ (d. c. 1388). Name used by the Persian poet Shams-ud-din Mohammed. He was born at Shiraz, where he appears to have

spent most of his life. His fame as a poet, philosopher, and student of the Koran was such that a college was specially established for him, where he taught for many years. His great work was the Diwan, a collection of short lyrical poems in the form known as the ghazal. He is regarded as the most finished of the Persian lyricists, and exercised a lasting influence on the forms of Persian verses.

HAFNIUM. Metallic element, symbol Hf; atomic weight 178.3, atomic number 72. It was discovered in the mineral zircon by Coster and Hevesy in 1923, and has affinities with zirconium.

HAGAR. Egyptian handmaid to Sarai. By her Abraham (q.v.) became the father of Ishmael (Gen. 16). Sarai's jealousy caused her to flee with her son to the wilderness, where, in a vision, she learnt the future of Ishmael. She returned to Abraham, but at a later date was finally sent away, and afterwards married her son to an Egyptian woman (Gen. 21, 9-21).

HAGEN, WALTER (b. 1893). American golfer. Born at Rochester, New York, he won the open championship of the U.S.A. in 1914 and again in 1919. On four occasions, 1922, 1924, 1928 and 1929, he won the British open championship, and his other successes include the Belgian open championship and the professional championship of his own country.

HAGENBECK, CARL (1844-1913). German dealer in wild animals. He was born at Hamburg. A skilled trainer of animals, he was the first to exhibit performing Polar bears. He started the Zoological Gardens at Stellingen, near Hamburg, in 1897, and introduced the system of displaying animals out of doors. See Zoological Gardens.

HAG-FISH OR HAG (Myxine glutinosa). Order of marine animals belonging to the lamprey group. In appearance they resemble small round eels, but have no side fins and no lips. They have teeth on the tongue and palate, and tentacles on the head, which seem to assist them in boring their way into the bodies of the fishes on which they feed. These animals are not true fish, and are classed by zoologists as cyclostomata, round-mouthed.

HAGGAI. One of the minor prophets. He returned from the Babylonian captivity with Zerubbabel, and began to prophesy in his old age. His short book in two chapters was designed to encourage the people in rebuilding the temple.

HAGGARD, SIR HENRY RIDER (1856-1925). British novelist and agricultural economist. Born at Bradenham, Norfolk, June 22, 1856, he held various official posts in S. Africa, 1875-79. He published his first work, Cetewayo and His White Neighbours, in 1882. South

Africa figures prominently in his novels. In addition to King Solomon's Mines, 1885, his most successful adventure story, and Jess, 1887, his novels include She, 1887, in which mystery is blended with adventure; Allan Quatermain, 1887; Maiwa's Revenge, 1888; Cleopatra, 1889; Allan's Wife, 1890; Nada the Lily, 1892; The Heart of the World, 1896; Lysbeth, 1901;



Sir H. Rider Haggard, British novelist



Hadrian's Wall. Part of the wall near Haydon Bridge, Northumberland

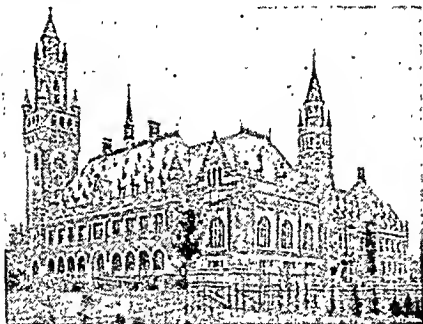
Ayesha, 1905; Fair Margaret, 1907; Red Eve, 1911; When the World Shook, 1919; and The Ancient Allan, 1920.

Haggard, who was knighted in 1912, also became prominent as a farmer. His journeyings through England in 1896-98 resulted in a book, Rural England, 1902. He died May 14, 1925.

HAGGERSTON. Suburb of N.E. London. Mentioned in Domesday as Hergotestane, and once a hamlet in the parish of S. Leonard's, Shoreditch, it stretches from the N. side of Hackney Road to Dalston, and from Kingsland Road on the W. to London Fields. Goldsmith Square, S. of the Regent's Canal, is a public recreation ground. There are several almshouses founded by city companies. Near the Hackney Road is the Great North-Eastern Hospital for Children, built 1868. The district is well served by the L.M.S. Rly. and by buses and trams.

HAGGIS. Ancient Scottish dish, supposed to have been adapted from the French. The chief ingredients are the heart, liver, and lungs (pluck) of a sheep, boiled in the stomach of the animal.

HAGIOLOGY (Gr. hagia, holy things; logos, account). Term applied to literature dealing with the saints of the Christian Church. It includes all the martyrologies and biographies of saints and martyrs. The earliest hagiology is that of Eusebius, The Assembly of the Ancient Martyrs. The researches of the Flemish Father Rosweyde (d. 1629) led to the compilation of the Acta Sanctorum and the establishment of the Bollandists (q.v.). See Saint.



The Hague. The Palace of Peace opened in 1913 as a seat for The Hague Tribunal and the peace conferences

HAGUE, THE (Dutch, 'S Graven Hage or Den Haag). Capital of the kingdom of the Netherlands and of the prov. of S. Holland. It lies about 14 m. N.W. of Rotterdam and 24 m. from the North Sea at Scheveningen. The chief industries are printing works, distilleries, and furniture and earthenware works.

In the Mauritshuis, erected 1633-44 and rebuilt 1704-18, is housed a famous collection of pictures. In the Binnenhof, a group of buildings round a square, are the Hall of the Knights, used by the chambers in joint session, and the halls in which the first and second chambers sit. The town hall, built about 1565 and restored in the 17th century, is a characteristic Dutch building of its period. The most notable churches are the 17th century Nieuwe Kerke, where lie the remains of the De Witts; the Groote Kerk, a 15th century Gothic building. The royal palace, an 18th century edifice enlarged during 1816-17, has extensive private gardens. In the Willem's Park is a large national monument, erected in 1869 to commemorate the achievement of independence in 1813. Other places of interest in the capital are the Steengracht Gallery, the municipal museum, the royal library, the Mesdag Museum, and the museum of industrial art.

To the N.E. of the town lie the zoological gardens and the beautiful Haagsche Bosch, a large wooded park which contains the royal villa known as the Huis ten Bosch, built about 1645, in which the first international peace conference met in 1899. The Palace of Peace, built largely at the expense of Andrew Carnegie to house the international peace conferences and the court of arbitration, was opened in Aug., 1913. Pop. 425,000.

HAGUE CONFERENCE. The first was held in 1899 at the suggestion of Tsar Nicholas II representatives from European countries and from the U.S.A. being present. Among the conventions signed was one for the establishment of an international court of arbitration, See Blockade; International Law: London, Declaration of.

HAGUE TRIBUNAL. This is an international court of justice established at the Hague in 1899, when sixteen powers signed the agreement by which each power nominated four members to serve for six years. Among the cases referred to the tribunal have been that of Great Britain, Germany, and Italy against Venezuela, and that of German reparations and the evacuation of the Rhineland. See Arbitration.

HAHNEMANN, SAMUEL CHRISTIAN FRIEDRICH (1755-1843). German physician. Born at Meissen, April 10, 1755, his reputation rests upon his system of homoeopathy. His theory was first put forward in 1796. He died July 2, 1843. See Homoeopathy.

HAIDER ALI OR **HYDER ALI** (c. 1722-82). Ruler of Mysore. In 1763 he conquered Kanara. In alliance with the nizam of Madras he fought the British at Chengam, 1767, and was signally defeated. In 1769 he effected a treaty with his victors, but being unable to induce them to help him against the Maharattas in 1772 he took advantage of the war with France to march on Madras, 1779. After some initial successes, however, he was routed by Sir Eyre Coote near Porto Novo.

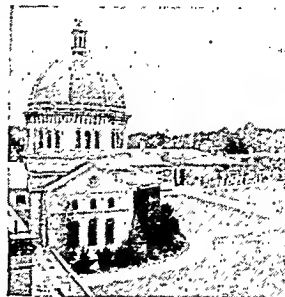
HAIG, DOUGLAS HAIG, 1ST EARL (1861-1928). British soldier. He was born June 19, 1861, educated at Clifton and Brasenose College, Oxford, and gazetted in 1885 to the 7th Hussars. After serving with distinction at Khar-toum (1898) and in South Africa (1900-2) he was inspector-general of cavalry, India (1903-6), director of military training (1906-7), director of staff duties (1907-9), chief of staff, Indian Army (1909-12) and in command at Aldershot (1912-14). He crossed over to France in Aug., 1914, in command of the 1st corps, and took part in all the earlier battles, passing in Jan., 1915, to the command of the 1st army. In Dec., 1915, he succeeded Sir John French as commander-in-chief of the British forces in France and held this position till the close of the war.

Haig had the gift of calm and resolution in the darkest hours. When he took the offensive on Aug. 8, 1918, he won such a series of victories against forces not inferior in strength and commanded by the most experienced soldiers as no general had gained in the war. His assault on the Hindenburg line (Sept. 27-Oct. 1) was the greatest feat in his career. On Jan. 1, 1917, he was promoted field-marshal; and in 1919 he was created earl and received a grant of £100,000 from the nation. He was



Earl Haig of Bemerseyde, British soldier
Russell

mado a Knight of the Thistle in 1917, and awarded the Order of Merit in 1919. He died suddenly in London, Jan. 29, 1928, and was buried in Dryburgh Abbey. He married in 1903 the Hon. Dorothy Vivian, daughter of the 3rd Lord Vivian, and a son and heir was born to him in March, 1918.



Haileybury College, famous public school founded in 1862

HAILEYBURY COLLEGE. English public school. It was founded in 1862, and took over the college at Haileybury, near Hertford, maintained by the East India Company from 1806 until its dissolution. During the Great War, 2,814 old Haileyburians served with H.M. forces, of whom 566 lost their lives, and four were awarded the V.C. The number of boys in the school is about 530.

HAILSHAM. Market town of Sussex. It is 7 m. N. of Eastbourne on the S.R. The curfew has been rung here for seven centuries. The town has a trade in agricultural produce, cattle and sheep markets. Market day, Wed. (alternate). Pop. 4,907.

HAILSHAM, DOUGLAS MCGAREL HOGG, 1ST VISCOUNT (b. 1872). British lawyer. Eldest son of Quintin Hogg (q.v.), he was educated at Eton, and called to the bar in 1902. K.C. in 1917, he entered Parliament as Conservative member for St. Marylebone in 1922, when he became attorney-general and was knighted. He was appointed lord chancellor and created a baron in 1928. He left office and was made a viscount in 1929.



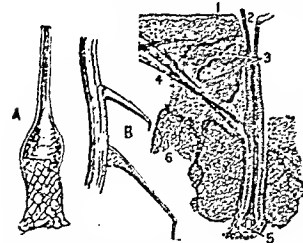
Viscount Hailsham, British lawyer
Russell

HAINAUT OR **HAINAUT.** Province of Belgium. It contains the rich coal and steel districts centring on Mons and Charleroi. In the N. it is mainly agricultural, cereals and beetroots being important crops. There are numerous rly. lines, and the Mons-Condé canal and the canalised Sambre, with its water connexion to Brussels from Charleroi, are the main outlets to France. The prov. is intimately connected with the coalfields and industries of N.E. France. The inhabitants are almost entirely French-speaking Walloons. As an independent county Hainaut was of some importance in earlier times. It had a long line of counts of Hainaut, the first being Reginar I (d. 916). Its area is 1,437 sq. m. Pop. 1,263,033. See Belgium; Netherlands.

HAINAUT FOREST. Open space in Essex. Lying to the S.E. of Epping Forest (q.v.), it formed part of the ancient Forest of Waltham, and its 805 acres (551 arable land and 245 acres forest) were acquired for the public in 1903 at a cost of £21,830, and opened July, 1906. It is the largest open space under the control of the L.C.C.

HAIR. Outgrowth or development of the skin. It includes not only fur and hair like that of the human body, but also the bristles of the pig, the vibrissae or whiskers of the cat.

and the spines of the hedgehog and porcupine. Its object is to keep the body warm, mammals like the whales, which have little hair, being provided with a thick layer of fat.



Hair. Left, of stinging nettle; A, large hair; B, smaller hairs with broken tips, growing from veins. Right, human hair; 1, epidermis; 2, mouth of hair follicle; 3, sebaceous follicle; 4, arrector pili muscle; 5, papilla of hair; 6, adipose tissue

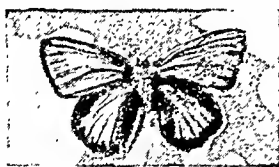
from the papilla. Permanent baldness is due to the atrophy or destruction of these papillae. The body of the hair is covered with minute scales, and forms a kind of tube containing pigment or colouring matter. The white or grey hair of old age is due to the failure of pigment. See Baldness.

HAIRDRESSING. Method of arranging and ornamenting the hair. The hair has been the object of special attention in all ages and among all nations, savage and civilized.

Ancient Britons and Saxons wore long hair, and Saxon ladies twisted their locks and curled them with an iron. The Normans introduced the short cut into England, and from that time fashion has swung from one extreme to another. False hair, dyes, and pomatums have been in use through the ages; Roman ladies scattered gold dust on their heads; Mary Queen of Scots ordered false additions to her hair while in prison.

A new fashion in hairdressing came in during the Great War. Women on active service began to cut the hair short either by bobbing or shingling, and this became fashionable all over the country, one result of the practice being a great increase of trade to hairdressers. See Barber.

HAIRSTREAK BUTTERFLY. Name given to small butterflies of the genus *Thecla* and family Lycaenidae. Species include the black, brown, green, and purple hairstreak. The wings are marked on the under side with fine lines on a darker background, hence the name hairstreak. See Butterfly.



Hairstreak Butterfly. The purple species, *Thecla quercus* J. J. Ward

HAITI, HAYTI, or SANTO DOMINGO. Island in the W. Indies, one of the Greater Antilles. The Mona Passage separates it from Porto Rico on the E. and the Windward Passage from Cuba on the W. The Atlantic washes its northern shores and the Caribbean Sea its southern. Haiti is 400 m. long and from 60 m. to 160 m. broad; its area is 29,536 sq. m. It is politically divided into two republics—Haiti on the W. and Santo Domingo (q.v.), or the Dominican Republic, on the E.

Haiti is extremely fertile, lofty, and heavily forested, mountain ranges alternating with rich valleys, watered by numerous rivers, and diversified by plains and extensive lakes. The climate is hot and humid. Valuable woods are obtained. Haiti was first touched by Europeans on Dec. 6, 1492, when Columbus landed on its shores. He named it Hispaniola.

HAITI. Republic embracing the W. portion of the island of Haiti. Its area is 10,204 sq. m. The capital is Port-au-Prince and the other ports are Port de la Paix, Gonaïves, Jacmel, St. Marc, Cap-Haïtien, Jérémie, Aux Cayes, and Miragoane.

Pending the creation of a senate and chamber, legislation is in the hands of a council of state of 21 members appointed by the president, who is elected for four years. Repeated revolutions have greatly interfered with the commerce of the republic over which, by a treaty of Nov., 1915, the U.S.A. established a protectorate. Education is free and compulsory. The religion is Roman Catholicism. The estimated pop. is 2,500,000, mostly negroes, but with a large number of mulattoes. French is the official language, but the lower classes speak a patois known as Creole French.

HAKE (*Merucius vulgaris*) Large fish of the cod family, fairly common around the British coasts, and especially off Cornwall, where it preys upon the pilchards. It is rarely over 3 ft. in length, and is dark grey on the back and lighter below. The head is somewhat flattened. The hake is an important food fish, as its flesh is white and of good flavour.



Hake, one of the cod family, caught off the British coasts

HAKLUYT, RICHARD (c. 1552-1616). English geographer. Of remote Dutch extraction, he was born in Herefordshire and educated at Christ Church, Oxford. In 1589 he published *The Principall Navigations, Voiages, and Discoveries of the English Nation*, enlarged ed. in 3 vols., 1598-1600. He used his influence to encourage the colonisation of Virginia. He left behind a large number of MSS. Many of these were printed by the Hakluyt Society, which was founded in 1846 to print "the most rare and valuable voyages, travels, and geographical records." -Pron. Hakloot.

HAKODATE or HAKODADI. Seaport of Japan, at the S. extremity of the island of Hokkaido. Matchboxes are manufactured, and the exports include beans, peas, pulse, sulphur, charcoal, furs, lumber, and the produce of the extensive fisheries. Pop. 163,972.

HALBERD or **HALBERT** (old Fr. *halebarde*). Late medieval weapon consisting of a combined pick and axe with a pike-head, attached to a shaft 5 ft. or 6 ft. long. Its bearers were known as halberdiers. The weapon, in a somewhat modified form, is carried by the Yeomen of the Guard.



Halberd. 1. Swiss, 14th cent. 2. German, 16th cent.

HALBERSTADT. Town of Germany, in Prussian Saxony. It stands on the Holzemme, 30 m. S.W. of Magdeburg, has considerable trade and manufactures, including woollen goods, leather, tobacco, soap, oil refineries, and breweries, and has preserved many of its old architectural features. The most important building is the 13th-15th century cathedral, dedicated to S. Stephen, and consecrated in 1491. Pop. 48,125.

HALDANE, RICHARD BURDON HALDANE, 1st Viscount (1856-1928). British politician and lawyer. Born July 30, 1856, the son of Robert Haldane of Cloan, he was educated at Edinburgh Academy and university, and afterwards in Germany. In 1879 he became a barrister, and in 1885 he entered the House of Commons as Liberal

M.P. for Haddingtonshire. An influential private member, with imperialistic ideas which made him suspected by many radicals, he remained until 1905, when he entered the Cabinet as secretary for war. He was responsible for the creation of the Territorial Army and the readiness of the Expeditionary Force in 1914. In 1912 he became lord chancellor and a peer, but resigned early in 1915. Gradually drifting away from his old associates, Haldane joined the Labour Party and in 1924 took office as lord chancellor, acting also as leader of the House of Lords. He died at his Scottish residence, Cloan, Perthshire, Aug. 19, 1928. Haldane was a philosopher of distinction, and his writings include *The Pathway to Reality*. His *Autobiography* appeared in 1929.



1st Visct. Haldane, British politician Russell

Two brothers survived him: Sir William Stowell Haldane (b. 1864), a Scottish lawyer, and John Scott Haldane (b. 1860), a scientist. The latter's son, J. B. S. Haldane, is also a scientist of distinction. Lord Haldane's sister Elizabeth Sanderson (b. 1862), was made a Companion of Honour in 1918. Pron. Halldane.

HALE, SIR MATTHEW (1609-76). English lawyer. Born Nov. 1, 1609, at Alderley, Gloucestershire, he became a barrister. He was soon engaged in some of the great cases of the time, appearing, for instance, on behalf of Laud. Never a partisan, he accepted the dominance of the parliamentarians, and his prosperity continued after the death of Charles I; in 1653 he was made a judge, the first appointed by Cromwell, and in 1655 was elected to Parliament. In 1671 Charles II made him chief justice of the common pleas. He died Dec. 25, 1676.



Sir Matthew Hale, English lawyer From a portrait in Lincoln's Inn

HALESOWEN. Urban district and market town of Worcestershire. The chief industries are the making of iron and steel goods. Market day, Sat. Pop. 28,212.

HALÉVY, JACQUES FROMENTAL ÉLIE (1799-1862). French composer. Born in Paris, May 27, 1799, of Jewish parentage, his real name was Levi. He wrote many operas, including *The Jewess*, and died March 17, 1862.

HALÉVY, LUDOVIC (1834-1908). A French dramatist. He wrote many operettas, vaudeville pieces, and comedies, in collaboration with Henri Meilhac (1831-97), including *Orphée aux Enfers*. He died May 8, 1908.

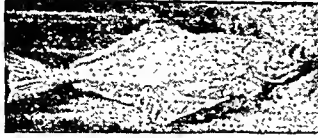
Halévy's son Élie, born at Etretat, Sept. 6, 1870, was educated in Paris, and in 1898 became professor at the school of political science there. In 1900 appeared his *Foundation of Philosophic Radicalism*, but he is best known by his *History of the English People* in the 19th Century.

HALF-TONE. Photo-mechanical process of making typographic printing blocks from full-tone originals such as photographs, wash-drawings, and the like, as distinguished from those in line. The process came into use about 1880. The original is photographed through a glass screen ruled with cross lines, the screen varying in fineness with the quality of the paper upon which the block is printed. For newspaper half-tones, one of 65 to 80 lines per inch is used, and for printing on fine art paper, 150 to 175 lines. A screen of 120 is

used for the illustrations in The Concise Universal Encyclopedia.

The action of the screen consists in the formation on the photographic negative of a dot from every aperture produced by the crossing of the lines of the screen, these dots ranging from mere points in the shadows, to larger units which unite to form a honeycomb pattern in the middle tones, and an almost solid black in the high lights. These tones are reversed when the negative is printed on metal. An examination of an illustration through a

lens will make this quite clear. From this screen-negative a resist-image is printed on sensitised copper or zinc. The light affected parts of the coating are rendered insoluble, the soluble areas being afterwards washed away. The plate is then heated, whereby the image is converted into a hard enamel-like substance which is an effective resist of the etching fluid. The latter is perchloride of iron for copper, nitric acid for zinc. The plate is next etched, certain parts being lightened by further (local) treatment in the etching bath, a process known as fine etching. The plate is then mounted type-high on hard wood ready for the printer.



Halibut, the largest flat fish

the coloured original, one for each of the primary colours, a suitable colour filter being placed in front of the camera lens. Three blocks are then prepared in accurate register, so that when a print is taken of each in turn on one sheet of paper, in yellow, red, and blue ink, the colours combine. Thus a reproduction of the coloured original is produced.

HALIBURTON, THOMAS CHANDLER (1796-1865). Canadian judge and author. Born at Windsor, Nova Scotia, he was called to the bar in 1820, and was judge of the supreme court, 1842-56, when he settled in England. He was M.P. for Launceston, 1859-65. The Haliburton Society was founded at Windsor, N.S., and its first publication was a memoir of Haliburton by F. B. Crofton, 1889.

HALIBUT (*Hippoglossus vulgaris*). Largest of the flat fishes. It occasionally attains a length of over 7 ft., but is usually between 4 ft. and 5 ft. The body is thick and narrow, and brown on the upper side. Generally found at some distance from the shores, to a depth of 100 fathoms, it is taken by trawling. The halibut is an important food fish.

HALICARNASSUS. Greek city in Asia Minor. In the 4th century B.C. it was the seat of a dynasty. On the death of Mausolus, one of the dynasty, his widow Artemisia (q.v.) raised a magnificent monument to his memory known as the Mausoleum (q.v.), which was considered one of the seven wonders of the ancient world. The historians Herodotus and Dionysius of Halicarnassus were natives. It is the modern Budrum.

HALIFAX, County borough of Yorkshire (W.R.). It is 7 m. S.W. of Bradford, and has stations on the L.M.S. and L.N.E. Ryhs. The buildings include the town hall, a 19th century edifice designed by Sir Charles Barry, and the royal infirmary. The Piece Hall, now a market, dates from the 13th century.

Of the churches S. John the Baptist is the chief; All Souls' is a fine modern church designed by Sir Gilbert Scott. There is a public library and museum; also the Aekroyd museum and art gallery. There are several parks, one having been given by Sir F. Crossley. To the same benefactor and his brother the town owes the Crossley almshouses and orphanages. There are technical schools, Heath grammarschool, and the Waterhouse school. A bridge connects the two parts on either side of the river valley. Halifax is a centre for the manufacture of woollen and worsted goods,

carpets, and blankets. One member is returned to Parliament. Pop. 99,129.

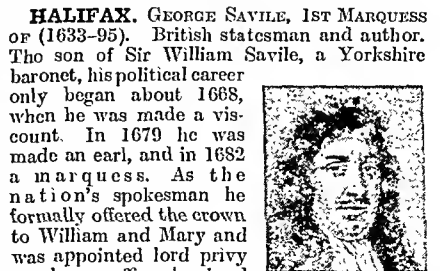


Halifax, Nova Scotia. The town and harbour seen from the Citadel

HALIFAX. City of Nova Scotia, Canada, a seaport and the capital of the prov. The harbour is one of the finest in the world and has ample docks, etc. Halifax is 837 m. from Montreal, is the terminus of two trans-continental lines of rly., C.P.R. and C.N.R., and is Canada's chief winter port. Its exports are fish, lumber, etc., and its industries include shipbuilding, founding, sugar and oil refining, and the making of furniture, soap, paint, tobacco, etc. There are also factories for making cotton and woollen goods, agricultural implements, etc. Pop. 58,372.

HALIFAX, EARL OF. English title borne by the families of Savile and Montague. The first holder was the statesman George Savile, but when his son William died in 1700, all the titles, save an old baronetcy, became extinct. Then the Whig statesman, Charles Montague, was made Baron Halifax, and in 1714 an earl. Previously he had been one of the Whig leaders under William III, holding office as chancellor of the exchequer and first lord of the treasury, 1695-99. On his death in 1715 the earldom became extinct, but the barony passed to his nephew George, who in the same year was made earl of Halifax. He was succeeded in 1739 by his son George, and on his death in 1771 the titles again became extinct.

HALIFAX, GEORGE SAVILE, 1ST MARQUESS OF (1633-95). British statesman and author. The son of Sir William Savile, a Yorkshire baronet, his political career only began about 1668, when he was made a viscount. In 1679 he was made an earl, and in 1682 a marquess. As the nation's spokesman he formally offered the crown to William and Mary and was appointed lord privy seal, an office he had previously held under Charles II. In 1689, however, he resigned, and he died April 20, 1695. His great work as an author is *The Character of a Trimmer*, written in 1684. *Maxims of State* is another, while he wrote *The Character of Charles II*, *Some Political, Moral, and Miscellaneous Thoughts and Reflections*, and *The Anatomy of an Equivalent*.



1st Marquess of Halifax, British statesman



Half-tone. The same subject as reproduced through six different screens. (1), 150 lines per inch; (2), 135; (3), 120, the screen used for The Concise Universal Encyclopedia blocks; (4), 100; (5), 80; (6), 64; 5 and 6 being commonly used for newspaper reproduction. See Text

Half-tone blocks for colour printing are prepared by a similar method. In the three-colour process three photographs are taken of

of the town, which lie on either side of the river valley. Halifax is a centre for the manufacture of woollen and worsted goods,

HALIFAX, Viscount. English title borne since 1866 by the family of Wood. Sir Charles Wood (1800-85), a Yorkshire baronet, became a Liberal M.P. in 1826. He was chancellor of the exchequer 1846-52, first lord of the admiralty 1855-58, and secretary for India 1859-66. In 1866 he was made a viscount, and he died Aug. 8, 1885.

The 2nd viscount, Charles Lindley Wood, was born June 7, 1839, and educated at Eton and Christ Church, Oxford. For 50 years he was the recognized leader of the High Church party, and from 1867-1919 was president of the English Church Union. His son Edward (b. 1881) became viceroy of India in 1920. Made a peer, he took the title Baron Irwin (q.v.).

HALL. Word used originally for a large room. It was specially applied to the room in which kings and others in authority received suppliants, hence the phrase, the hall of justice. The same room was also used in castles and other large residences as a dining-room, a use which persists in the halls of colleges and public schools. It was also given to the place where the burgesses of a town or the members of a guild met, hence comes the town hall and the guildhall. A further use was for a manor house. This was the hall in which justice was dispensed, and so in time the house itself became known as the hall. A hall of fame is a building erected for the purpose of commemorating great men. One such hall, which was finished in 1900, is part of the buildings of New York University. See Guildhall.

HALL, CHRISTOPHER NEWMAN (1816-1902). British preacher. Born at Maidstone, May 22, 1816, he was the son of a newspaper owner there. He entered his father's business, but soon decided to enter the Congregational ministry, and studied for it in London. Having been a minister in Hull, 1842-54, he was minister of the Surry Chapel, London, 1854-76. In 1876 his congregation built for him a new church, Christ Church, Westminster Bridge Road, where he remained until 1892. He died Feb. 17, 1902. One of the most popular preachers of his time, Newman Hall's devotional writings had an enormous sale.

HALL, EDWARD (c. 1500-1547). English chronicler. A Shropshire man, he is known as the author of a Chronicle published in 1548. This, called in full The Union of the noble and illustrious families of Lancaster and York, gives an account of the history of England from 1399 to 1547, when Henry VIII died. It was continued by other hands, and the part dealing with Hall's own lifetime has been edited by C. Whibley, 1904.

HALL, JOSEPH (1574-1656). English prelate and author. Born at Bristow Park, Ashby-de-la-Zouch, he was dean of Worcester, 1616, bishop of Exeter, 1627-41, and bishop of Norwich, 1641-47. Accused by Laud of puritanical leanings, his defence of episcopacy, 1640, caused an attack by five Puritans whose initials formed the joint pseudonym of Smectymnus, and involved him in controversy with Milton. Impeached and imprisoned 1642, his estate was sequestered and his house plundered. He described his trials in *Hard Measure*, 1647. He died Sept. 8, 1656.



Charles L. Wood, 2nd Viscount Halifax
Lafayette

HALL, OLIVER (b. 1869). British artist. A son of John Hall, a Londoner, he studied art at the Westminster School of Art and abroad. In 1893 and 1897 he won medals at Chicago and Munich for his lithographs and etchings; in 1920 he was elected A.R.A. and in 1927 R.A. Hall is chiefly a painter of landscapes, and one of them, *Shap Moors*, bought by the Chantry Trustees, is in the Tate Gallery, London.

HALL, ROBERT (1764-1831). English preacher. Born in Leicestershire, May 2, 1764, he became a Baptist minister at Bristol in 1785. Later he was at Cambridge and Leicester, and he died Feb. 21, 1831.

A Calvinist after the type of Andrew Fuller, though opposed to Fuller on the subject of communion, and an ardent supporter of missions, his sermons remain among the classics of the modern pulpit. Consult memoir, E. P. Hood, 1881.

HALLAM, HENRY (1777-1859). British historian. The son of John Hallam, dean of Bristol, he was educated at Eton and Christ Church, Oxford. A strong Whig, he is remembered chiefly by two monumental works: a *View of the State of Europe during the Middle Ages, 1818*, and his *Constitutional History of England for the period 1485-1760*. He also edited the *Remains in Prose and Verse of his son, Arthur Henry Hallam (1811-33)*, whose early death inspired *In Memoriam*. He died Jan. 21, 1859.

Hallamshire. Name given to a district around Sheffield.

HALLE. Town of Germany, in Prussian Saxony. It stands on the Saale, 23 m. by rly. W.N.W. of Leipzig.

An old town, Halle owes its importance to the salt industry, which still survives, though other manufactures, e.g. machinery, sugar, lubricants, etc., flourish. Its chief glory is the university, founded by Frederick I of Prussia in 1694. Pop. 193,722.

HALLÉ, SIR CHARLES (1819-95). British pianist and conductor. Born at Hagen, Westphalia, he came to England in 1848, and in Manchester, 1893, founded the Royal College of Music, of which he was the first principal. He was knighted in 1888. Hallé was highly gifted as both pianist and conductor. He died Oct. 25, 1895. His wife, Wilma Normann-Neruda, Lady Hallé (1839-1911), won a position among the greatest violinists of her time.

HALLELUJAH OR ALLELUIA (Heb. Praise the Lord or Praise to the Lord). Ascription of praise in the Psalms and Jewish hymns. In the N.T. it occurs only in Rev. 19.













The Hallelujah Chorus is a name specially applied to the concluding chorus of Part II of Handel's oratorio *The Messiah*. See Oratorio.

HALLEY, EDMUND (1656-1742). English astronomer. Born in London, Oct. 29, 1656, the son of a soap boiler, he was educated at S. Paul's School, where he distinguished himself in mathematics and classics. He helped Newton in the publication of the *Principia*, succeeded Flamsteed as astronomer royal, and

made important discoveries relative to the movements of Saturn and Jupiter and other heavenly bodies. He died at Greenwich, Jan. 14, 1742, and was buried at Lee.

HALLEY'S COMET. This is the most notable of all the comets whose periods are known. It takes 76 years (approximately) to travel round its orbit. At its return in 1682 Halley computed its orbit and found that it was identical with the comet that had appeared in 1607 and before that in 1531, and he predicted its return. Crommelin, of Greenwich Observatory, has carried back its history with definiteness to 240 B.C. See illus. p. 437.

HALL MARK. Set of marks stamped upon gold and silver articles at the Goldsmiths' Hall, London, or assay offices, to attest the genuineness of the metal and the date of its testing. The series consists usually of five marks: (1) the standard mark, indicating the standard of the metal, e.g. 18 for gold of 18 carats; (2) the hall mark, indicating the town where the assaying has been done, e.g. a leopard's head crowned for London, an anchor for Birmingham; (3) the duty mark (used 1784-1890), showing that the necessary duty had been paid; (4) the date mark, a letter of the alphabet for each year, varying in design in cycles; (5) the maker's mark, now his initial letters, though early pieces have sometimes emblems, as a rose or a star.

STANDARD		DUTY MARK
		
1300-1697	1704-1697	1784 1786 1786 1820
		
1697 TO 1720		1821 TO 1830
		
1721 TO 1812		1831 TO 1836
		
Since 1822		1837 TO 1890

Hall Mark. London marks from 1300 to present day

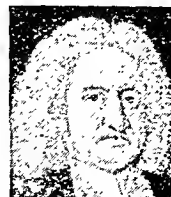
showing that the necessary duty had been paid; (4) the date mark, a letter of the alphabet for each year, varying in design in cycles; (5) the maker's mark, now his initial letters, though early pieces have sometimes emblems, as a rose or a star.

HALLOW-E'EN. Popular Scottish name for Oct. 31, the eve of All Saints' Day. Also called All Hallows Eve, Holy Eve, Cake Night (in Yorkshire), and, in the N. of England, Nutcrack Night, from early times it has been associated with many superstitions and customs, a number of which are referred to in Burns's poem of this name.

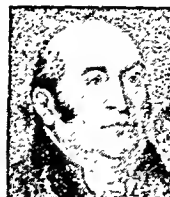
HALLSTATT. Village of Austria. It lies at the S. end of Hallstätter Sec, and is famous for its salt mine. In the vicinity a cemetery of 3,000 graves, discovered 1846, contained the human remains and grave-goods of prehistoric settlers. Pop. 1,355.

HALLUCINATION (Lat. hallucinari, to wander in mind). Condition of mind in which a person sees something that has no real existence within his range of vision. It should be carefully distinguished from illusion, in which a real object is seen, but is wrongly interpreted. See Dream.

HALMA (Gr. leap). Game played by two or four persons on a board divided into 256 squares, with men in the form of chess pawns. The men are placed in four spaces, termed yards, one at each corner of the board, and the object of the player is to get his own men into his adversary's yard, the player or side first accomplishing this winning the game.



Edmund Halley, English astronomer
From a portrait owned by the Royal Society



Robert Hall, Baptist preacher
After J. Flowers



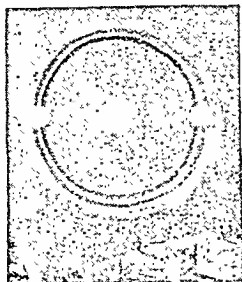
Halle. The market place with the 16th cent. Marienkirche and the Roter Turm



Hallé. Sir Charles Hallé, pianist and conductor, and Lady Hallé, violinist



HALO. Luminous ring round the sun or moon. Halos, when clearly defined, are seen to be coloured, red on the inside and blue on the outside. Usually about 44° in diameter, they are due to the sun or moon being seen through a thin sheet of cirrostratus clouds, which owing to their elevation are composed of tiny ice crystals. Halos have no definitely determined significance in connexion with the weather.



Halo with mock suns on each rim of the circle, a phenomenon seen in 1924

In art the halo or nimbus is a disk or circle of light surrounding the head in representations of divine personages and saints in sacred and legendary art. See Saint.

HALS, FRANS (c. 1580-1666). Dutch painter. He was born probably at Antwerp, the son of Pieter Hals Clarz. His extraordinary gift of seizing and expressing a fleeting human emotion is nowhere better shown than in *The Laughing Cavalier*, in the Wallace Collection. The National Gallery possesses five pictures by Hals, but the greatest works of his brush are in Dutch galleries, and it is often said that Hals cannot be appreciated without a visit to Haarlem, where there are ten paintings in the municipal museum, representing all periods of his activity. See illus. p. 502.



Frans Hals, Dutch painter. a self-portrait
Haarlem Museum

HALSBURY, HARDINGE STANLEY GIFFARD, 1st EARL OF (1823-1921). British lawyer. Born Sept. 3, 1823, of a Devonshire family, he became a barrister. He sat in the House of Commons as a Conservative from 1877 until 1885, when he was made a peer. He was solicitor-general under Disraeli and was lord chancellor throughout the Unionist ministries of 1885, 1886-92, and 1895-1905. In 1898 he was made an earl, and he died Dec. 11, 1921. When over 80 Halsbury edited *The Encyclopaedia of the Laws of England*. Consult Life, Mrs. A. Wilson-Fox, 1929. Pron. Halsbury.



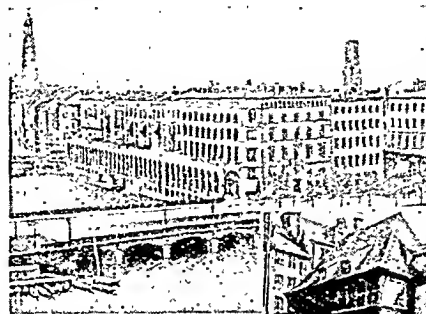
Earl of Halsbury, British lawyer
Fry & Son

HALSEY, SIR LIONEL (b. 1872). British sailor. Born Feb. 26, 1872, he was educated at Fareham and joined H.M.S. Britannia in 1885. He commanded H.M.S. New Zealand in the action in the Heligoland Bight, Aug., 1914, and in the action off the Dogger Bank, Jan. 24, 1915, and was on Jellicoe's staff in the Iron Duke in the battle of Jutland, May 31, 1916. He was knighted in 1918 and promoted vice-admiral in 1921. In 1920 he became controller of the household of the Prince of Wales.

HALSTEAD. Urban dist. and market town of Essex. It stands on the Colne, 15 m. N.W. of Colchester, on the L.N.E. Rly. Silk and crape are manufactured, and there are iron foundries, etc. Market day, Tues. Pop. 5,916.

HALTON. Village of Buckinghamshire. It is 4 m. S.E. of Aylesbury, and has a camp of the R.A.F. At one time the staff college was here, but this is now at Andover. Halton remains an administrative centre.

HALTWHISTLE. Market town of Northumberland. It is 16 m. W. of Hexham, on the L.N.E. Rly. The Roman wall runs near it, and many antiquities have been found in the neighbourhood. The chief industry is coal-mining. Market day, Thurs. Pop. 4,500.



HAM. In anatomy, the back part of the leg behind the knee joint, and, secondarily, the thigh and buttock of any animal. The word is applied particularly to the thigh of a pig, salted, smoked, and cooked. Wiltshire and Yorkshire hams are the best. Large numbers of hams are exported from Westphalia and Chicago.

HAM. Urban dist. of Surrey. A residential suburb of London, it stands between Twickenham, N., and Teddington, S., and is bounded on the E. by Richmond Park. Facing the Thames, in the parish of Petersham, is Ham House, seat of the earl of Dysart, built 1610. The meadows known as Ham Walks extend from Ham House to Twickenham Ferry. Ham Common covers 20 acres. Pop. 1,512.

Ham is not to be confused with East Ham or West Ham. See East Ham; West Ham.

HAM. One of the sons of Noah (Gen. 9 and 10). He is said to have been the ancestor of the Ethiopians, Egyptians, and the nations of N. Africa generally. The name means hot or black, and is also the ancient name for Egypt, to which it is applied in Psalms 105 and 106.

HAMADRYAD or KING COBRA. Large species of cobra, found in India, Malaya, and the Philippines. It is venomous and rather aggressive.

In colour yellow or yellowish brown, with black bands, it attains a length of about 14 ft. It feeds to a large extent on other snakes. See Snake.

In Greek mythology Hamadryads were nymphs that presided over trees. See Nymph.

HAMAN. Chief minister and favourite of Ahasuerus, king of Persia. Because Mordecai, a Jew, paid him no reverence, he resolved to destroy Mordecai and all Jews in the kingdom. The plot, however, was exposed by Esther, with the result that Haman himself was hanged. See Esther; Mordecai.

HAMBLE. Flying centre on Southampton Water. It is 5 m. from Southampton and has an aerodrome. Near the little river Hamble enters the sea, forming Hambledon Creek.

HAMBLEDEN, WILLIAM FREDERICK DANVERS SMITH, VISCOUNT (1868-1928). British business man. Eldest surviving son of W. H. Smith (q.v.), he was born Aug. 12, 1868, and educated at New College, Oxford, where he distinguished himself as an oarsman. After his father's death in 1891 his mother was created Viscountess Hambleden, and on her death in 1913 their son succeeded to the title. He succeeded his father as head of W. H. Smith & Son and as Unionist M.P. for the Strand division 1891-1910. An officer of the Devon Yeomanry, he served during the Great War. He died June 16, 1928. His elder son succeeded to the title and to the control of the business of W. H. Smith & Son.

HAMBLEDON. Village of Hampshire, famous for its cricket club. It is 6 m. N.E. of Fareham. Formed about 1750, this club was the first of its kind in England. The games are played on two downs, Windmill and Broad-halfenny.

HAMBURG, MARK (b. 1879). British pianist. Born at Boguchar, S. Russia, May 30, 1879, he studied in Vienna. He made his first public appearance in Moscow in 1888, and has toured the world. Hamburg became a naturalised British subject and married a daughter of Lord Muir-Mackenzie.

HAMBURG. City and seaport of Germany. It stands on the Elbe, 75 m. from Cuxhaven and 178 from Berlin. On the Elbe is an enormous extent of docks and harbours mainly constructed since 1888. Huge granaries and emigrant sheds are features.

Hamburg has an old town and a new, formerly divided by the river Alster, which has been transformed into two lakes, the Inner and the Outer Alster. These are divided by the Lombards Bridge and by remains of the old fortifications. The Inner Alster is used largely by pleasure steamers. Around the Inner Alster lies modern Hamburg, its fine broad streets lined with handsome hotels, banks, shops, etc. The chief church is S. Nicholas, with a lofty spire. Secular buildings include the Rathaus; the Johanneum, housing a library and a collection of antiquities; custom house, and law courts. Public monuments include the Hansa Fountain. A university was opened in 1918.

The little state of which Hamburg is the capital is a republic within the German Reich. It is governed by a house of burgesses consisting of 160 members, to which an executive of 18 members is responsible. The existing constitution dates from March, 1919. The area of the state is 160 sq. m., and the pop. is 1,130,000. Outside the city of Hamburg the territory consists of several small detached portions in Holstein and Hanover, and islands in the Elbe. The only towns are Bergedorf



Hamburg Fowl, noted for handsome plumage
Chas. Reid



Hamadryad. Head of the poisonous snake

Hamburg fowl is the name given to breeds of poultry mainly of English origin. Varieties include some with black plumage, and others with spangled and pencilled

markings on a white or bay ground. All are handsome birds and prolific layers of eggs.

HAMEL, GUSTAV (1889-1914). British aviator. Educated at Westminster, in 1913 he won The Daily Mail prize in the Greater London race, covering 94½ m. in 75 mins. 49 secs. In May, 1914, he was returning on a new monoplane from Paris to London when he was lost, no trace of himself or his machine ever being found.

HAMELN. Town of Germany. It stands on the Weser, 25 m. from Hanover by rail. The chief building is the minster, a 14th century church restored in the 19th century. There are some manufactures and a trade along the river. Hameln is the Hamelin of Browning's poem about the piper. This is based upon a legend associated with a rat-catcher of the town.

HAMERTON, PHILIP GILBERT (1834-94). British critic and etcher. His book on The Intellectual Life, 1873, was one of the classics of the Victorian era. Etching and Etchers, 1868, and The Graphic Arts, 1885, are two of his many works that stand out beyond the mass of art criticism of his time. Married to a Frenchwoman, Eugénie Gindriez, he lived many years in France, and wrote with authority on that country and its people.

HAMILCAR. Name of several famous Carthaginians. The most notable was Hamilcar Barca (c. 270-228 B.C.), soldier and statesman, the father of Hannibal. He commanded the Carthaginian forces in Sicily during the first Punic War. On his return to Carthage he had to deal with a revolt of mercenaries, which he crushed after three years' fighting. He then turned his attention to Spain, and in nine years established Carthaginian dominion over a great part of the country. He was killed in battle in 228 B.C.

HAMILTON. Burgh of Lanarkshire. It is the centre of a rich coal and ironstone district, mining being the chief industry. There are also cotton and other manufactures, while the place is a centre for the produce of numerous market gardens. Hamilton Palace, the third of this name, built in 1820-30, has been pulled down. Pop. 39,420.

HAMILTON, EMMA, LADY (c. 1761-1815). British adventuress. A daughter of Henry Lyon, she is believed to have been born in humble circumstances at Ness, Cheshire. In 1782 she became the mistress of the Hon. Charles Greville, and four years later of his uncle, Sir William Hamilton (1730-1803), British ambassador at Naples and a grandson of the third duke of Hamilton. In 1791 Sir William married her, and in Naples she became the confidante of the queen. In 1793 she and Nelson first met, but it was five years later that they became intimate. Their child, Horatia, was born in 1801. Hamilton died in 1803, Nelson in 1805, and Lady Hamilton on Jan. 15, 1815. She is remembered mainly for her liaison with Nelson and for her remarkable

Another Hamilton is a town of North Island, New Zealand. This is the centre of a grazing and dairying district. Pop. 17,360.

Hamilton is also the name of the capital of the Bermuda Islands. It is a winter resort for American visitors. Pop. 3,000.

HAMILTON, DUKE OF. Scottish title, the oldest of its kind in the peerage. Sir James Hamilton, of Cadzow, and his wife, Mary, daughter of James II of Scotland, had a son who, in 1503, was made earl of Arran. His son, another James, known as the Regent Arran, was made duke of Châtellerauld, in France, in 1549, and John, one of the regent's younger sons, was created marquess of Hamilton in 1599. The marquess, who died in 1604, was succeeded by his son James, who, in 1619, was made an English peer as earl of Cambridge. The latter's son James was the first duke, created in 1643.

The semi-royal position of the dukes of Hamilton passed with the death of the 12th duke in 1895. He was succeeded by a cousin, Alfred Douglas, but his daughter, the marchioness of Graham, inherited Brodick Castle and most of the isle of Arran. Hamilton Palace and the estates in Lanarkshire went to the new duke. The duke's eldest son is known as marquess of Douglas and Clydesdale.

HAMILTON, ALEXANDER (1757-1804). American statesman. He was born Jan. 11, 1757, on the island of Nevis, West Indies, of which his mother was a native; his father was a Scotsman. At the age of 20 he was a lieutenant-colonel and aide-de-camp to George Washington. In 1780 he married a daughter of General Schuyler, who survived him 50 years. He had much to do with the framing of the constitution of the U.S.A., and as secretary to the Treasury, 1789-95, he established the National Bank, and proved himself a great financier. In 1798 he was appointed second in command of the provisional army in anticipation of a French invasion, and on the death of Washington he was in chief command. In July 11, 1804, he was fatally wounded in a duel with Aaron Burr (q.v.).

HAMILTON, CECILY (b. 1872). British author, playwright, and actress. Born in London, her fame as a playwright rests chiefly on Diana of Dobson's, 1906. She also wrote several other plays. With Lilian Baylis she wrote a history of the Old Vic, 1926. Her other publications include three novels based on her plays, Diana of Dobson's: Just to Get Married; and A Matter of Money, 1916. In 1928 appeared Lest Ye Die.

HAMILTON, EMMA, LADY (c. 1761-1815). British adventuress. A daughter of Henry Lyon, she is believed to have been born in humble circumstances at Ness, Cheshire. In 1782 she became the mistress of the Hon. Charles Greville, and four years later of his uncle, Sir William Hamilton (1730-1803), British ambassador at Naples and a grandson of the third duke of Hamilton. In 1791 Sir William married her, and in Naples she became the confidante of the queen. In 1793 she and Nelson first met, but it was five years later that they became intimate. Their child, Horatia, was born in 1801. Hamilton died in 1803, Nelson in 1805, and Lady Hamilton on Jan. 15, 1815. She is remembered mainly for her liaison with Nelson and for her remarkable

beauty, to which over twenty portraits of her by George Romney bear witness.

HAMILTON, LORD GEORGE FRANCIS (1845-1927). British politician. Younger son of the 1st duke of Abercorn, he was born in Dec., 1845, and entered the House of Commons as a Conservative in 1868. He held minor offices in the ministry of 1874-80. In 1885-86 and again 1886-92 he was first lord of the admiralty, and from 1895-1903 secretary for India. A free trader, he left office in 1903 and Parliament in 1906. He wrote Parliamentary Reminiscences and Reflections.

HAMILTON, SIR IAN STANDISH MONTEITH HAMILTON (b. 1853). British soldier. The son of a soldier, he was born at Corfu, Jan. 16, 1853. Educated at Cheam School and Wellington College, he entered the Gordon Highlanders in 1873, and first saw active service in the Afghan War of 1878-79. He served in the Boer War of 1881; with the expedition up the Nile in 1884-85, in Burma, 1886-87, in the Chitral campaign, 1895, and the Tirah, 1897-98. During part of the South African war he was chief of the staff to Lord Kitchener.

In 1915, having just been made a full general, Hamilton was chosen to command the force that landed on the Gallipoli peninsula. He led it in its terrible fighting until he was superseded. A charming personality, Hamilton is a writer with distinct gifts of style, shown not least in his dispatches. His works include Icarus and Fighting of the Future, and A Gallipoli Diary, 1920. See Gallipoli.

HAMILTON, PATRICK (c. 1504-28). Scottish martyr. For commending Tyndale's translation of the N.T. in 1526 he was charged with heresy. He escaped to Marburg, where he came under the influence of Luther and other reformers and composed his Loci Communes, known as Patrick's Pleas, in which he set forth the doctrine of justification by faith. He returned to Scotland in 1527, was seized Feb. 28, 1528, tried for heresy in St. Andrews Cathedral, sentenced by Archbishop Beaton, and burnt at the stake, Feb. 29, 1528.

HAMILTON, SIR WILLIAM (1788-1856). Scottish philosopher. Born at Glasgow, March 8, 1788, he gave a new turn to Scottish philosophy. He especially insists upon the relativity of knowledge; the absolute is not only unknowable, but also inconceivable; it is an object of faith, not of science. His chief work is Lectures on Metaphysics and Logic, 1859-61. He died at Edinburgh, May 6, 1856.

HAMMER. Tool, consisting of a heavy head of metal usually fixed on a shaft of wood, and used for striking blows. Hammers vary in size from small hand hammers, weighing only a few ounces, to giant power hammers weighing many tons. In hand hammers the wood of the shaft is usually of ash or hickory. The striking part of the iron or steel head is called the face,



1st Duke of Hamilton,
Scottish politician
After Van Dyck



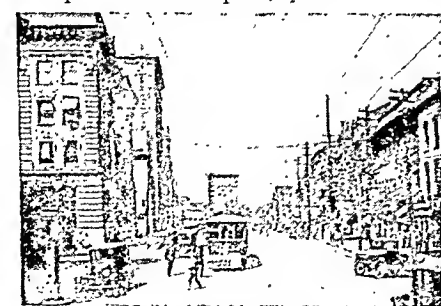
Alexander Hamilton,
American statesman
After Trumbull



Sir Ian Hamilton,
British soldier
Russell



Hamilcar Barca, Carthaginian soldier
From a coin



Hamilton, Ontario. View of King Street, looking west.
The city is an important industrial centre
Courtesy of the Canadian Government

HAMILTON. City and port of Canada. It stands at the western end of Lake Ontario, 40 m. from Toronto. Sometimes called the Birmingham of Canada, Hamilton has manufactures of iron and steel goods, including railway stock and agricultural implements, as well as textiles, tobacco, and furniture. It is a railway centre. The city was founded about 1778, its first inhabitants being loyalists from the U.S.A. Pop. 127,447.

Several other places in the British Empire are named Hamilton. One is the chief town of a district of Victoria, Australia. It is the centre of a pastoral area. Pop. 5,300.

the opposite end the peen. The latter is often split and curved to enable nails to be withdrawn. The word hammer is widely used for any part of a mechanism which strikes as, for example, the hammer of a gun, the hammers in the action of a pianoforte, etc., as well as for objects that are hammer-shaped. See Steam Hammer.

Throwing the hammer is an event at many athletic sports, including the Olympic Games and the British amateur athletic championships. The record throw is 189 ft. 6½ in., by P. Ryan of New York in 1913.

HAMMERFEST. Town of Norway, in the fylke or county of Finnmark. There is a harbour, which is the base of the Spitsbergen and Kara Sea whale fisheries. Here the sun does not set from May 13 to July 29, and does not rise from Nov. 18 to Jan. 23. Pop. 3,338.

HAMMERKOP or **HAMMERHEAD.** African bird, related to the heron. It is about 2 ft.

long and has brown plumage. When the crest of feathers at the back of the head is raised, it gives the head a certain resemblance to a hammer. The bird is found near water, and feeds chiefly on fish, frogs, and lizards.

HAMMERSMITH. Metropolitan borough of the co. of London. It is bounded S. by Fulham and the Thames, where it is fringed by the Upper Mall and Lower Mall; W. by Chiswick and Acton; E. by Kensington; and N. by Kensal Green. It is on the main road from London to Brentford, and is served by the G.W., West London Extension, District, Piccadilly Tube, and L.M.S. Rlys. It was constituted a separate borough in 1899 and covers about 3½ sq. m. It possesses a fine town hall, 1897, a public library, and many churches, almshouses, and schools, the last named including St. Paul's, removed here from the city in 1883, the Godolphin School, dating from the 16th century, and those of the Latymer foundation, 1824. Another building is the Lyric theatre. Two members are returned to Parliament. Pop. 134,400.

HAMMER TOE. Condition in which the first phalanx of the toe is bent upwards, and the second phalanx downwards, the third or terminal phalanx being bent either downwards or upwards.

HAMMERTON, JOHN ALEXANDER (b. 1871). British editor and writer. Born at Alexandria, Dumbartonshire, he took to journalism in Glasgow, 1888, and edited newspapers at Blackpool, Nottingham, and Birmingham before settling in London as a writer and editor of books and periodicals in 1900. His name is associated as editor with many noteworthy publishing enterprises, such as Peoples of All Nations, the Universal Encyclopedia, and the Universal History of the World. Among his books are Stevensoniana, 1903, George Meredith, 1909, Memories of Books and Places, 1928, and Barrie: The Story of a Genius, 1929.

HAMMOCK (Span. hamaca). Swinging bed of netting, canvas, fibre, skins, etc., suspended at each end to supports. On shipboard, and particularly on warships, the hammocks are made of canvas.

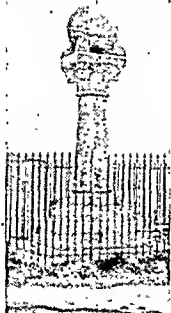
HAMMOND, WALTER REGINALD (b. 1903). English cricketer. Born at Dover, June 3, 1903, he first played for Gloucestershire in 1922. He became prominent as batsman and bowler, and by the end of 1927 had established himself as, next to Hobbs, the most popular batsman in England.

HAMMURABI, KHAMMURABI or **HAMMURABI.** King of Babylon about 2100 u.c. Identifiable with Amraphel, king of Shinar (Gen. 14), he left a remarkable code of laws and letters which illuminate the political and economic conditions of his age. It was inscribed upon a black diorite stele for the temple of the sun-god Shamash at Sippara, and carried thence about 1200 u.c. to Susa. It was found here in three fragments in 1901-2, and is now in Paris.

HAMPDEN, JOHN (1594-1643). English statesman. The eldest son of William Hampden, of Hampden, Bucks, he became member of Parliament for Gram-pound, Cornwall, in 1621; later he sat for Wendover and for Buckinghamshire. In 1627 Hampden was imprisoned for refusing to pay a share of a forced loan raised by Charles I, and in 1635, on the attempt to raise ship-money from inland places, he refused again and was prosecuted. He took part in the impeachment of Strafford, 1641, and in 1642 was one of the Five Members whose attempted arrest by the king led to the outbreak of the Civil War. When the war began Hampden raised a regiment of infantry, and took part in the relief of Coventry and the siege of Reading. He was wounded at Chalgrove, and died at Thame, June 24, 1643.

HAMPSHIRE. County of England, officially the county of Southampton. It has a coastline on the English Channel, where are Southampton Water and Portsmouth Harbour. The Isle of Wight forms part of the county, but has a separate county council. In the N. are the downs, and in the W. is the New Forest. The chief rivers are the Itchen, Test, Avon, Hamble, and Lymington.

Area, 1,645 sq. m. Pop. 1,004,918. and distinguished itself at Tournai, 1794, and Barossa, 1811. Later campaigns include the



Hammerfest. Meridian column, marking end of meridian are



Hammurabi Code. Stone inscribed with the code
Louvre, Paris



John Hampden,
British statesman

Sheep, as well as pigs, are reared. Wheat, barley, and oats are grown, but there is a considerable area of waste or forest land, including, in addition to the New Forest, the forests of Bere, Woolmer, and Alice Holt. Winchester is the county town. Other large towns include the two seaports, Southampton and Portsmouth, and Bournemouth, Southsea, Aldershot, and Eastleigh. The chief rly. line is the Southern Railway, but the G.W.R. also serves the county. Hampshire is partly in the diocese of Winchester and, since 1927, partly in the diocese of Portsmouth.

In the county are the abbey ruins at Beaulieu and Netley, the beautiful old churches at Christchurch and Romsey, old castles at Porchester and Hurst, and the ruins of Basing House. Notable houses include Heron Court, near Christchurch, and Broadlands, which was once the residence of Lord Palmerston. See New Forest; Wight, Isle of.

LITERARY ASSOCIATIONS. Hampshire was first notably used as a literary background in Gilbert White's Natural History of Selborne. Jane Austen described the comfortable classes of the county (Steventon and Chawton). Charles Kingsley dealt with Hampshire in Yeast, described the road to Winchester in Hereward the Wake, and the Hartford Flats in Madam How and Lady Why.

HAMPSHIRE. British cruiser. The first Hampshire fought under Blake in 1655. The last ship to bear the name was a cruiser of the Devonshire class. On June 5, 1916, off the Orkneys, in extremely rough weather, the Hampshire, which was conveying Lord Kitchener to Russia, ran into a minefield and sank. There were only twelve survivors of the disaster, among those lost being Lord Kitchener and his staff.

HAMPSHIRE REGIMENT. Formerly the 37th and 67th Foot. Raised in 1702 and 1758 respectively, this regiment took part in Marlborough's battles. At Dettingen, 1743, and Minden, 1759, it played a notable part,



Hampshire Regimental badge



Hampshire. Map of the southern county, which includes the Isle of Wight

and distinguished itself at Tournai, 1794, and Barossa, 1811. Later campaigns include the

Indian Mutiny, the China War, 1860-61, the Afghan War, 1878-80, and the Burmese War, 1885-87. After the S. African War it saw field service in Somaliland. In the Great War battalions of Hampshires, regular and territorial, served in every theatre of war. The depot is at Winchester.

HAMPSTEAD. Metropolitan borough of N.W. London. Occupying about 3½ sq. m., it is served by the Hampstead (Tube), L.M.S., L.N.E., and Metrop. Rlys. Its chalybeate wells are said to have been known to the Romans. In the 18th century it was a fashionable spa. The church of S. John, 1747, replaced a structure pulled down in 1745, and contains a bust of Keats, by Anne Whitney, presented by Americans. Here are the Haberdashers', Aske's, and University College schools.



Hampstead. Church Row, leading to the 18th century church of S. John
Humphrey Joel

Long a favourite residence of artists and literary men, Hampstead is full of interesting associations. Dr. Johnson wrote *The Vanity of Human Wishes* at Priory Lodge, 1749; Keats, who wrote *Hyperion* and *The Eve of St. Agnes* at Lawn Bank, lived in Well Walk.

The Hampstead Garden Suburb, situated N. of Hampstead Heath Extension, of which it was an outcome, and E. of Golder's Green (q.v.), was founded by Mrs. Henrietta Octavia Barnett, and is owned and managed by a trust. Mrs. Barnett set out the scheme in Feb., 1905, and a company was formed in March, 1906, when the 240 acres were purchased from the Eton College trustees. The first sod was cut May 4, 1907. The scheme aimed at doing something to meet the housing problem, to lay out the suburb on an orderly plan, to provide houses for all classes, and to preserve natural beauty. See Garden City.

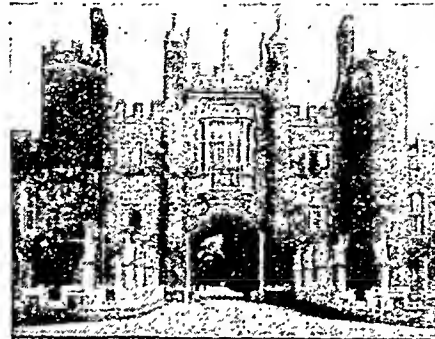
HAMPSTEAD HEATH. Open space in N.W. London. It occupies the summit and N. slopes of Hampstead Hill, at an elevation of 430 ft. above sea level. The heath, famous for its firs, broken hillocks, wild gorse, grassy glades, extensive views, and old inns, covers 288 acres, Parliament Hill (271 acres) and Golder's Hill (36 acres) adjoining. The greater part was acquired as a public recreation ground in 1870, additional ground being added in 1907.

HAMPTON. Urban dist. of Middlesex. It stands on the Thames, 15 m. S.W. of London on the Southern Rly. Hampton Court (q.v.) 1 m. to the S.E., and Bushey Park (q.v.) are within its boundaries. In the churchyard of the parish church of S. Mary lies buried Huntington Shaw (d. 1710), who wrought the iron gates at Hampton Court. At Garrick Villa, formerly Hampton House, E. of the church, David Garrick lived, 1754-79. There is a 16th century grammar school. To the W. of the village are large waterworks under the London Water Board. Near are Kempton Park and Hurst Park racecourses; Hampton has a ferry to Molesey Hurst. The manor is mentioned in Domesday, and was once held by Wolsey. Pop. 10,677.

HAMPTON COURT. Palace on the left bank of the Thames, between Hampton and Hampton Wick, Middlesex, 15 m. S.W. of London Bridge. Built by Cardinal Wolsey in 1515, and surrendered by him to Henry VIII in 1526, it remained a royal residence until the time of George III.

The E. and S. wings were built by Wren; the gardens were laid out for Charles II and William and Mary. The state apartments were opened to the public in 1839; the Haunted Gallery and the Chapel Royal in 1918. Many paintings and tapestries and an astronomical clock are to be seen. Features of the gardens are the grape vine, planted 1768, the Maze, and the Long Water. The Home Park covers 600 acres; adjacent is Bushey Park (1,110 acres), famous for its chestnut avenue and tame deer. The old moat was opened up in 1910. Present residents are principally royal pensioners.

The Hampton Court Conference was a conference arranged by James I in 1604 at Hampton Court between the bishops and four representatives of the Puritan clergy. The Puritans had petitioned James to recognize their views as to certain changes in the prayer book and upon ceremonies and vestments. Their proposals were rejected, and James administered a scolding to their representatives. See Puritans



Hampton Court. The Gatehouse built by Cardinal Wolsey in 1515. The bridge dates from 1535

HAMPTON WICK. Urban district of Middlesex. It is on the Thames opposite Kingston, with which it is connected by a bridge, and is 2½ m. E. of Hampton on the Southern Rly. The duc de Nemours lived at Bushey House. Steele lived at Hampton Wick, and Timothy Bennet, who secured the public way through Bushey Park, was a native. Pop. 2,799.

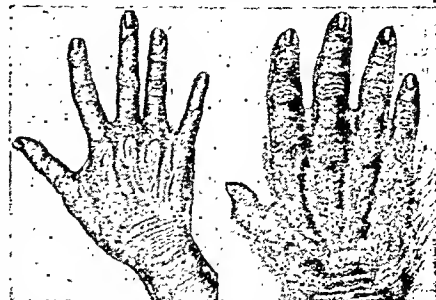
HAMSTER (*Cricetus frumentarius*). Small rodent, common in Asia and northern Europe. It is about a foot long, and has about 2 ins. of tail. The thick glossy fur is yellowish brown in colour. It lives in elaborate burrows, consisting of a dwelling chamber and a granary connected by galleries. Sometimes several granaries are found in a burrow. These are used for storing corn for consumption in winter, during which season the hamster keeps below ground and spends most of its time in a state of profound sleep.



Hamster, a North European rodent

HAMSUN, KNU (b. 1859). Norwegian author. Brought up as a cobbler in the Lofoten Isles, he later obtained employment in the Newfoundland fisheries. In 1888, however, his *Sult*, a novel, was published in a Danish magazine, and immediately brought him fame. His output thenceforward was considerable. *Hunger* (*Sult*), 1899, and *Growth of the Soil*, 1914, are his best known novels in English translations. They were followed in 1921 by

Konerne ved Vandposten (*The Women at the Well*). In 1920 he was awarded a Nobel prize.



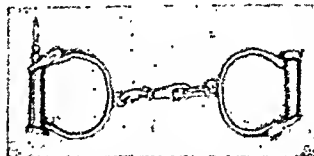
Hand. Left, of a negro; right, of an aged gorilla, showing the shorter thumb typical of the apes

HAND. Prehensile extremity of the arm. It consists of three divisions—the carpus or wrist, consisting of eight small bones; the metacarpus, having five long bones; and the phalanges, of which there are three for each finger and two for the thumb. The hand is supplied with blood vessels derived from the radial and ulnar arteries of the forearm. The palm is protected by a dense layer of tissue lying beneath the skin, known as the palmar fascia. In middle-aged persons, particularly those who suffer from gout, this fascia may become contracted, seriously crippling the hand. This condition, known as Dupuytren's contraction, as a rule requires operative treatment.

There is no fundamental difference between the hands of the higher apes and those of man. The chief difference is in the thumb, always shorter in the ape.

The English measure of length called the hand was originally the breadth of a man's palm. After a time a fixed length was given to it and it is now 4 ins. It is only used for measuring horses.

HANDCUFFS. Devices for fastening the wrists of prisoners. Modern handcuffs consist of two metal rings adjustable to various sizes by means of a ratchet, and fastened together by a short length of chain. Snap handcuffs enable a policeman to imprison one wrist of an offender with a single movement.



Handcuffs. Pair of handcuffs in common use by the British police

HANDEL, GEORGE FREDERIC (1685-1759).

German musician. He was born at Halle, in Saxony, Feb. 23, 1685. He became organist at Halle, and in 1703 he went to Hamburg and played the violin in the orchestra of the Opera House; there his first opera, *Almira*, was produced in 1705. He studied for three years in Italy, and whilst there produced several operas with great success.

In 1710 Handel returned to Germany, and was appointed chapel-master to the elector of Hanover, afterwards George I of England. The same year he came to England, where he spent the remainder of his life, being at one time the organist at Edgware. After the successful production of several operas, he turned to oratorio, and began that series of sacred works upon which his fame rests. *Saul* and *Israel in Egypt* were composed in 1739, the *Messiah* and *Samson* in 1741, *Judas Maccabeus* in 1746, and his last oratorio, *Jephtha*, in 1751. Shortly after this he became totally blind, and died April 14, 1759.



G. F. Handel, German musician
From a picture in Windsor Castle

HANDICAP. In sporting contests, term denoting the bringing together, by means of penalties and allowances, the various competitors in such a manner as to afford an equal chance to each. In foot-racing, billiards, etc., this is accomplished by giving a start to the runner or player who is the inferior performer. In horse-racing, handicapping is effected by apportioning different weights to the various horses entered.

HANDSWORTH. Coal mining centre of Yorkshire (W.R.). It is 4 m. S.E. of Sheffield, the nearest rly. stations being Woodhouse and Darnall on the L.N.E. Rly. Pop. 15,889.

Another Handsworth is an industrial suburb of Birmingham, lying to the N.E. of the city proper. See Birmingham.

HANGAR (Fr. shed). Shed or shelter for aircraft. At first the term was applied to a temporary shelter, such as that erected on the field in wartime. It now denotes also the permanent buildings in which aeroplanes are housed at an aerodrome (q.v.), or the compartment on a naval aircraft carrier in which the machines lie until carried up by the lift to the flying deck.

HANG-CHOW or HANG-CHAU. Treaty port of China, capital of Che-kiang prov. On the Tsien-tang river, and opened to foreign trade in 1896, it is 118 m. S. of Shanghai, with which it is connected by rly. and waterways. It is the seat of a university. The tide in Hang-chow bay, at mouth of the Tsientang, forms a bore twice daily. Pop. 729,950.

HANGING. Death from constriction of the neck, the constricting force being the weight of the body. In modern judicial hanging, in which a long drop is allowed, death is practically instantaneous, being due to fracture or dislocation of the upper cervical vertebrae, which produces compression or rupture of the spinal cord (breaking the neck).

HANKAU or HANKOW. Treaty port of China, in Hu-peh prov. It is on the Yang-tse, 600 m. from its mouth, at the junction of the

Han river.

Founded during the Ming dynasty, it was left in ruins by the Taipings, but was opened to foreign trade, 1862. Hankau is connected by rly. with

Peking, 755 m. distant, and is accessible to ocean-going steamers during summer.

With Hanyang, across the Han river, and Wuchang, it forms an important trading centre. Pop. of the three cities 1,583,900.

HANKEY, SIR MAURICE PASCAL ALERS (b. 1877). British civil servant. Born April 1, 1877, he entered the Royal Marine Artillery in 1895, and in 1902 joined the naval intelligence department, which led to his becoming secretary to the committee of imperial defence. In 1919 he was made secretary to the Cabinet. Created a K.C.B. in 1916, Sir Maurice had much to do with the preparations for the peace conference of 1919, and was the British representative on its secretariat. In 1923 he became clerk of the privy council, retaining his position as secretary to the Cabinet.



Sir Maurice Hankey, British civil servant
Russell

HANLEY. District of Stoke-upon-Trent, formerly a county borough. It is 18 m. from Stafford and 148 m. from London, being served by the L.M.S. Rly. The buildings include the town hall, Victoria Hall, public library, school of art, and technical museum. The staple industry is the manufacture of pottery. There are also foundries and iron-works, while around are extensive coal mines. See Potteries; Stoke-upon-Trent.

HANNAH. Wife of Elkanah, and mother of the prophet Samuel (1 Sam. 1 and 2), who was born in answer to prayer. Fairly common as a Christian name, Hannah means, in Hebrew, grace. See Samuel.

HANNEN, JAMES HANNEN, Baron (1821-94). British lawyer. Born in London, he became a barrister and did some law reporting. In 1868 he was made a judge of the queen's bench, and in 1872 judge of the probate and divorce court. He was president of the admiralty and divorce division, 1875-91, when he was appointed a lord of appeal and created a life peer. In 1888 he presided over the Parnell Commission, and in 1892 was an arbitrator in the dispute concerning the Bering Sea fisheries. Hannen died in London, March 29, 1894.

HANNIBAL (c. 247-183 B.C.). Carthaginian soldier. He was the son of Hamilcar Barca, on whose death he became commander

of the Carthaginian armies. Soon, by laying siege to the allied town of Saguntum, he roused Rome to declare war upon Carthage. With extraordinary skill Hannibal led his army from Spain through the south of Gaul in 218, defeated in the Rhône valley a Roman expedition sent to hold him in check, carried his army over the Alpino passes, descended into the Lombard plain, and routed the Roman armies at the battles of Ticinus and Trebia. In the spring of 217 he pushed southwards, and annihilated the great army of Flaminius at the battle of Lake Trasimene. In 216 he met the Romans again at Cannae in Apulia. This army was also annihilated, with the political effect of bringing over the S. Italians to Hannibal's side. He failed to capture Rome. In 207 the Carthaginians threw another army under Hasdrubal into Northern Italy, but this was destroyed by the Romans on the Metaurus. The battle was decisive. Hannibal remained on the defensive in the S., while the Romans crushed the Carthaginian power in Spain and in Sicily, and prepared a great expedition against Carthage itself. Thither Hannibal was recalled in 203, but the Carthaginian army was crushed at Zama, 202, and in the following year Rome dictated terms of peace. Hannibal then withdrew to Bithynia in Asia Minor, where in 183, finding that his protector Prusias could not resist the Roman demands for his surrender, he took poison.

HANNINGTON, JAMES (1847-85). English bishop. Born Sept. 3, 1847, he was ordained, and was a curate for some years. In 1882 he went out to Uganda as a missionary, and in June, 1884, after a stay in England, he was consecrated bishop of Eastern Equatorial Africa. He reached Mombasa in Jan., 1885. In July he started for Uganda, and when almost at his goal his party was suddenly attacked by the forces of King Mwanga. Together with the men of his caravan, Hannington was murdered, Oct. 29, 1885.



Hannibal, Carthaginian soldier
From a bust found at Capua, now in Naples Museum

HANNO. Name of several eminent Carthaginians. Hanno, surnamed the Great (c. 220 B.C.), was for 35 years the leader of the aristocratic party at Carthage, which favoured peaceful relations with Rome, as opposed to Hamilcar Barca, Hannibal, and Hasdrubal, who advocated war. He was eventually superseded by Hamilcar. Another Hanno was a navigator who lived about 500 B.C. Having passed the Straits of Gibraltar, he undertook a voyage of discovery along the west coast of Africa, an account of which has been preserved in a Greek version, entitled *The Periplus* (Eng. trans. Thomas Falconer, 1797). Another Hanno took part in the battle of Cannae (216) and in later operations in lower Italy.

HANOI. Town of Tongking, capital of French Indo-China. It is on the right bank of the Song-ka or Red river, about 100 m. from its mouth in the China Sea, and in 1902 superseded Saigon as the seat of the governor-general of French Indo-China. A fine rly. bridge, opened in 1902, spans the river, and there are remains of an ancient royal palace. A school of medicine for natives was opened in 1902, and together with a European college formed into the university of Indo-China in 1917. The twin-towered cathedral is a prominent landmark. The citadel, perched on an eminence, is a square, 1,200 yds. to each side, surrounded by a brick wall, and contains many of the public buildings. Near the city is the Great Lake, on the shore of which are a Buddhist temple and a huge bronze image of Buddha. Pop. 103,235.

HANOTAUX, ALBERT AUGUSTE GABRIEL (b. 1853). French historian and statesman. He was born at Beaurevoir, Aisne, Nov. 19, 1853. Entering political life, he was deputy for the Aisne, 1886-89, when he became conspicuous by his opposition to Boulanger. After having been director of the French foreign office, 1892, he was foreign minister 1894-95 and 1896-98. Hanotaux was a firm supporter of the policy that brought about the Franco-Russian alliance; while out of his policy in Africa developed the Fashoda incident of 1898. Hanotaux wrote a *History of the Great War* in 18 vols. and several other historical works.

HANOVER. Province of Prussia, formerly an independent kingdom. The bulk of it lies between the Weser and the Elbe, while another part is between Oldenburg and Holland. In 1873 the territory of Jade was added to it. The capital is Hanover. It has a coastline on the North Sea, and contains the ports of Emden and Wilhelmshaven. Its area is 14,897 sq. m.; pop. 3,190,619.

Hanover developed from an electorate created in 1692, and this in turn was preceded by a duchy of Brunswick-Lüneburg. Ernest Augustus, the first elector, made Hanover his capital, whence his little state was also known as Hanover. His son George married the heiress of Lüneburg-Cellé, and in 1705 added this land to his own. He had succeeded his father as elector in 1698, and in 1714 he succeeded, through his mother Sophia, to the throne of Great Britain.

In 1814 Hanover was constituted a kingdom, and certain changes were made in its area. In 1837 it was separated from Great Britain, and Ernest Augustus, duke of Cumberland, became its king. In 1866 Hanover, a member of the German Bund, decided to take the side of Austria against Prussia. Prussia asked for her neutrality and, this being refused, invaded Hanover. In June the Hanoverian army surrendered, and the country was formally annexed in Sept. See Europe; Germany.

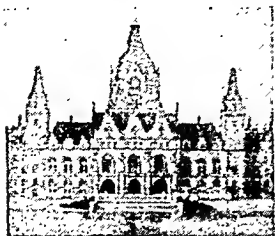


Gabriel Hanotaux, French historian



Hankau. The native quarter of the Chinese treaty port

HANOVER. Town of Prussia, formerly the capital of the kingdom of Hanover and now of the province. It stands at the junction of the Leine



Hanover. Town Hall, built 1803-11, overlooking Masch Park

and the Ihme, 112 m. from Hamburg and 163 m. from Berlin. It is a railway junction, and has many manufactures. Pop. 442,435. In the old town are the market church, dating from the 14th century, and restored in the 19th, and the old town hall, of somewhat later date. The palace, built in 1635-40, is a reminder of the time when Hanover had its own sovereigns. Just before the end a more magnificent residence was erected for them, known as the Guelph Palace; this now houses the technical high school. Modern buildings include the town hall, built 1903-11, and several museums.

HANSARD. Official record of parliamentary proceedings. It was named after Luke Hansard (1752-1828), a Norwich compositor, who, as printer to the House of Commons, continued Cobbett's Parliamentary History under the title of Hansard's Parliamentary Debates. In 1889 Hansard became a public company, and when this was wound up the work was done by contract, the reports from 1895 to 1908 being supplied by The Times staff. Then the state took control, and the debates were reported by a government staff.

HANSEATIC LEAGUE OR **HANSA.** Association for commercial purposes of the commercial towns of N. Germany in the later Middle Ages. Trading towns, while retaining their mutual jealousies, realized the advantages of combination for the purposes of trading in foreign lands, exacting concessions and acting in concert against piracy. In 1282 the German Hansa, which included Cologne, Hamburg, and Lübeck, was permanently established; this prepared the way for a more general combination into the Hanseatic League of the North German commercial towns. The league became so powerful that it was able to dominate the foreign trade of Norway, Sweden, Denmark, and even to some extent of London.

At the end of the 15th century its power was waning; by the middle of the 16th century it had lost all its privileges in England; and by the opening of the 17th century had ceased to be of great account.

HANSOM. Name given to a cab, an improved form of the cabriolet. It was invented in 1834 by J. A. Hansom, a Yorkshire architect, who in 1834 patented the cab which was eventually named after him. It had two enormous wheels, with sunk axle-trees, and a seat for the driver at the side. Subsequent improvements reduced the size of the wheels, fixed the dickey at the back, and provided a pair of double doors in front, with sliding glass folding panels, lowered from the roof by the driver; the hansom could thus be used open, half, or totally closed. See Cab.



J. A. Hansom, inventor of the cab

HANWAY, JONAS (1712-86). English traveller and philanthropist. Born at Portsmouth, Aug. 12, 1712, he was first in business at Lisbon and then at St. Petersburg, which latter city he left, in Sept., 1743, to sell woollen goods in Persia, returning, after many adventures, Jan. 1, 1745. In 1750 he returned to England and published an account of his travels in 1753. From 1762-83 he was a com-

missioner of the victualling office. He founded the Magdalen Hospital for women, and was the first man to use an umbrella in London. He died Sept. 5, 1786.

HANWELL. District of Middlesex. Formerly an urban district, it was included in 1926 in the enlarged borough of Ealing. It has a station on the G.W. Rly., being 7 m. from the terminus at Paddington. Here is the large mental hospital of the London County Council, and cemeteries for Kensington and S. George's, Hanover Square. The Brent and the Grand Union canal flow by here on their way to the Thames.

HANWORTH. District of Middlesex. Situated N. of Kempton Park (q.v.), 1½ m. N.E. of Sunbury and 1½ m. S. of Feltham stations on the Southern Rly., it is on the King's or Cardinal's river, made by Wolsey for the supply of Hampton Court. In 1929 the London Air Park was opened at Hanworth.

HAPSBURG OR **HAESBURG.** Name of the family that ruled over the empire of Austria-Hungary until 1918. The first great Hapsburg was Rudolph, who, in 1273, was chosen German king. Wrestling Austria and Styria from the king of Bohemia and giving them to his own sons, he began the family's long connexion with Austria. In 1437 Albert of Hapsburg, who had married a daughter of the emperor Sigismund, inherited his father-in-law's kingdoms of Hungary and Bohemia. In 1438 he was chosen German king and then became emperor. The two kingdoms were lost when Albert's son Ladislaus died without sons in 1457, but Frederick, another member of the Hapsburg family, had already secured the German throne.

Frederick's son, Maximilian I, married Mary, daughter of Charles the Bold, duke of Burgundy, and his son Philip married the heiress of Castile and Aragon. In this way his grandson, Charles V, the greatest of the Hapsburgs, received a vast inheritance. Charles' brother Ferdinand, who succeeded him, secured by marriage the kingdoms of Hungary and Bohemia for the Hapsburgs, this time permanently until 1918. Henceforward there were two main branches of the Hapsburgs, the Austrian and the Spanish.

When Charles II of Spain died in 1700 the Spanish line became extinct, the throne passing to the Bourbons, and with the death of Charles VI the male line of the Austrian Hapsburgs came to an end in 1740. The existing Hapsburgs are descended from Maria Theresa, the daughter of Charles VI, and her husband, Francis of Lorraine, who brought Tuscany into the family possessions. The so-called Hapsburg empire ended in 1918. See Austria; Bohemia; Hungary.

HARA-KIRI (Jap. belly-cut). Suicide by disembowelment in Japan. The custom originated as a means of honourable death among the medieval feudal nobles, and in the 14th century obligatory hara-kiri was recognized by the mikado as the privileged form of execution for a samurai convicted of disloyalty or breaking the law. Obligatory hara-kiri was abolished in 1868, but the voluntary form continued to survive.

HARBIN OR **KHARBIN.** Town of Manchuria. It stands on the Sungar river, 325 m. N.E. of Mukden. Here the Trans-Siberian, or that section known as the Chinese Eastern Rly., branches S. to Mukden and thence to Peking, Dairen and Korea, while the main line continues to Vladivostok. Harbin was opened to foreign trade in 1909. Pop. 250,400.



Jonas Hanway, English traveller

HARBOUR. Water area partially enclosed and so protected from storms as to provide safe accommodation for shipping. Other essential features of a good harbour are a sufficient area and depth of water for the number and size of the vessels to be accommodated, and safe and easy access to and from the open sea in any weather.

A natural harbour is an inlet or arm of the sea protected from storms by the configuration of the coast, and with an entrance so formed and located as to facilitate navigation whilst ensuring comparative tranquillity within. Cork and Rio de Janeiro are examples. An artificial harbour is one which is protected from the effect of sea waves by means of breakwaters. Sometimes an outer breakwater is constructed upon which the main force of the waves is expended. This forms an outer silting basin, which may also serve as a refuge, while the basin which is contained within the inner breakwaters or moles constitutes a commercial harbour.

A harbour of refuge may be either natural or artificial, and may be used solely as a refuge for ships in a storm, or may also constitute a commercial harbour. A commercial harbour may be either a natural or artificial harbour within which docks, quays, wharves, and piers are constructed and equipped with the necessary appliances for the loading and discharge of cargoes. See Breakwater; Dock.

HARBOUR GRACE. Port of entry of Newfoundland. It stands on Conception Bay and the Reid rly. It has a Roman Catholic cathedral, a court house, and a large, exposed harbour. Pop. 3,825.

HARCOURT, SIMON HARCOURT, 1ST VISCOUNT (c. 1662-1727). English lawyer. Born at the manor house of Stanton Harcourt, Oxon, he was a successful lawyer, and in 1710 was made lord keeper of the great seal. In 1711 he was created a baron and in 1721 a viscount. He died July 23, 1727.

Harcourt, the ancestor of the later Harcourts, bought Nuncham, which is still their seat. His son, Simon (1714-77), was viceroy of Ireland, 1772-77. In 1749 he was made an earl. His two sons succeeded in turn to the titles and estates. The younger, William, the 3rd earl (1743-1830), became a field-marshal. When he died the title became extinct.

HARCOURT, SIR WILLIAM GEORGE GRANVILLE VENABLES VERNON (1827-1904). British statesman. The son and grandson of clergy-men, his grandfather being Edward Harcourt, archbishop of York, he was born at York, Oct. 14, 1827. He was called to the bar in 1864, and from 1869-87 was Whewell professor of international law at Cambridge. Harcourt joined the Liberal party, and in 1868 entered the House of Commons as M.P. for Oxford city. He lost his seat in 1880, but was member for Derby 1880-95, and for W. Monmouthshire from 1895 until his death. He was solicitor-general under Gladstone in 1873, and from 1880-85 he was home secretary.

In 1894, as chancellor of the exchequer, he was responsible for the Budget which established a graduated system of death duties. He succeeded Gladstone in that year as leader of the House of Commons, but not as prime minister. From 1895-98 he led the party in opposition. He died Oct. 1, 1904, having just inherited Nuneham Park and the estate of the Harcourts. He was twice married, and left two sons, Lewis and Robert.

Lewis Harcourt (1863-1922), was born Feb. 1, 1863, and entered the House of



Sir William Harcourt, British statesman

Commons for the Rossendale division of Lancashire in 1904. In 1905 he joined the Liberal ministry as first commissioner of works. Later he entered the Cabinet, and from 1910-15 was colonial secretary, reverting to his former post when the Coalition Government was formed in 1915. He resigned with Asquith in 1916, and was made a viscount. He died Feb. 24, 1922.

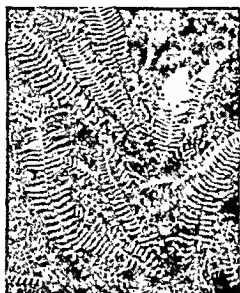


Maximilian Harden,
German journalist

onym of Apostata. In Oct., 1892, he founded the weekly paper *Die Zukunft* (The Future). He helped to found a free theatre in Berlin in 1889, and two of his books, *Word Portraits*, and *Monarchs and Men*, appeared in English. He died Oct. 30, 1927.

HARD FERN

(*Blechnum spicant*). Fern of the natural order Polypodiaceae. It is a native of Europe, N.E. Asia, the Canaries, and N.W. America. The fertile fronds have the divisions narrower and more distant; the barren fronds are broader, evergreen, and more or less prostrate. See Fern.



Hard Fern, *Blechnum spicant*,
one of the polypody ferns

HARDICANUTE OR **HARTHACNUT** (c. 1018-42). King of Denmark and England. The son of King Canute, he succeeded on the latter's death to the throne of Denmark, while England was divided between him and his half-brother Harold. He remained in Denmark until 1040, when Harold died, and he crossed to England, where he died, says the Anglo-Saxon Chronicle, as he stood at drink, June 9, 1042.

HARDIE, JAMES KEIR (1856-1915). British labour leader. Born in Scotland, Aug. 15, 1856, he worked in the mines from the age of seven until his 24th year, when he was elected secretary to the Lanarkshire Miners' Union. From 1882-86 he was editor of *The Cuckoo News*. He became one of the founders and the chairman of the Independent Labour Party, 1893, and was Labour M.P. for West Ham, 1892-95, and for Merthyr Tydfil from 1900 till his death. He started and edited *The Labour Leader*. He died Sept. 26, 1915.



J. Keir Hardie,
Labour leader
Russell

HARDING, WARREN GAMALIEL (1865-1923). American president. Born Nov. 2, 1865, in a farmhouse near the village of Blooming Grove, in Morrow co., Ohio, he represented Marion in the senate of Ohio from 1899-1903, and from 1904-6 was lieutenant-governor of the state. In 1912 he nominated W. H. Taft, and followed him when Roosevelt split the Republican party. In 1914 he was elected to the senate at Washington. In the early stages of the Great War



W. G. Harding,
American President
Henri Manuel

he backed Roosevelt in trying to arouse President Wilson to a sense of impending emergencies, and when the U.S.A. entered the war he favoured the plan for sending a volunteer division to France without delay.

Harding was elected president on Nov. 2, 1920, by 16,181,289 votes to 9,141,750 cast for Governor Cox, his Democratic opponent, carrying 37 out of 48 states and the entire country outside the traditionally Democratic south. The most important act of his administration was the calling of an international conference on the limitation of armaments. Harding died suddenly, Aug. 2, 1923. See Washington Conference.

HARDINGE, HENRY HARDINGE, 1ST VISCOUNT (1785-1856). British soldier and administrator. Born at Wrotham, March 30, 1785, he entered the army and served in the Peninsular War, and in 1815 with the Prussian army at Ligny. In 1820 he entered Parliament as M.P. for Durham, and became in turn secretary of war, chief secretary for Ireland and governor-general of India. He carried through the wars against the Sikhs and was rewarded in 1846 with a viscounty. From 1852 to 1856 he was commander-in-chief. Hardinge died Sept. 24, 1856.

His grandson, Charles Hardinge (b. 1858), a younger son of the 2nd viscount, entered the diplomatic service, and gained experience in several capitals, especially St. Petersburg, 1898-1903. He went to St. Petersburg as ambassador in 1904, returning to London in 1906 to become under-secretary at the foreign office. From 1910-16 he was viceroy of India, being raised to the peerage as Baron Hardinge of Penshurst. He was made a K.G. and in 1920-22 was ambassador to France.

HARDINGSTONE. Village of Northamptonshire, 2 m. from Northampton. Here is the Northampton cross, the best preserved of those erected by Edward I to the memory of his wife Eleanor. The battle of Northampton, at which in 1459 Henry VI was defeated and taken prisoner, was fought on Hardingstone Fields. See Northampton.

HARD LABOUR. Term used in English penology to describe a particular kind of imprisonment. Prisoners sentenced to imprisonment with hard labour pass the first 28 days in strict separation and without a mattress to sleep on. They are usually employed during this time in breaking stones, making heavy coal sacks, or picking oalum. After the 28 days they are put on ordinary industrial labour, and for the rest of their sentence are treated in the same way as prisoners without hard labour. See Penal Servitude; Prison.

HARDWICKE, EARL OF. British title borne since 1754 by the family of Yorke. The 1st earl, Philip Yorke, was born at Dover, Dec. 1, 1690. In 1719 he was chosen M.P. for Leves, and in 1720 became solicitor-general and a knight. In 1723 he was promoted attorney-general. In 1733 Yorke was made lord chief justice and created a peer, and from 1737-56 was lord chancellor. In 1754 he was made an earl. He died March 6, 1764, and the title has since been held by his descendants. The earl's eldest son is called Viscount Royston.

The Hardwicke Society is a legal debating society established about 1835.



1st Earl of Hardwicke,
British lawyer

HARDWICK HALL. Seat of the duke of Devonshire. It is 6 m. from Chesterfield, in Derbyshire. Built by Elizabeth, countess of



Hardwick Hall. One of the seats of the Duke of Devonshire seen from the south-west

Shrewsbury, between 1590 and 1597, it is remarkable for the number and size of its glass windows. Notable features are the picture gallery and the chapel.

HARDWOOD. Term used for a timber that is heavy and close-grained and therefore strong. The opposite term is soft wood. In forestry the term is used for the wood of a broad-leaved tree, such as the beech. See Forestry; Timber.

HARDY, DUDLEY (1867-1922). British artist and illustrator. Born at Sheffield, Jan. 15, 1867, he had much to do with the exhibitions of the Royal Society of British Artists, the Royal Institute of Water Colour Painters, and other London exhibitions. To the general public he was better known as an illustrator in *The Sketch*, *Graphic*, *Punch*, and by his work in books and poster work. Hardy died Aug. 11, 1922.

HARDY, THOMAS (1840-1927). British novelist, poet and dramatist. Born at Upper Bockhampton, near Dorchester, June 2, 1840, he became the pupil of an architect. His first known appearance in print was with an article, *How I Built Myself a House*, in *Chambers's Journal* for March 18, 1865. In 1871 appeared his first novel, entitled *Desperate Remedies*.

Hardy's output of work was very regular. Among his best work were the following books: *Under the Greenwood Tree*, 1872; *Far From the Madding Crowd*, 1874; *The Return of the Native*, 1878; *The Mayor of Casterbridge*, 1886; *The Woodlanders*, 1887; *Tess of the D'Urbervilles*, 1891; and *Jude the Obscure*, 1896. His last full-length story, *The Well-Beloved*, appeared in 1897.

Verses was Hardy's earliest literary activity and his latest. In 1898 he published *Wessex Poems*, including some dating from his activity in the 'sixties. Four other volumes of verse, *Poems of the Past and the Present*, *Time's Laughing-Stocks*, *Satires of Circumstance*, and *Moments of Vision*, succeeded. The most amazing of his works, *The Dynasts*, an epic-drama of the Napoleonic Wars, began to appear in 1904. Two further instalments came in 1906 and 1908. As poetry, drama, and history, *The Dynasts* is a noble contribution to world-literature.

Thomas Hardy was given the Order of Merit in 1910. He was twice married, first, in 1874, to Emma Lavinia Gifford, and next, in 1914, to Florence Emily Dugdale. He died at Max Gate, Dorchester, Jan. 11, 1927. Consult the *Early Life*, 1928, and *The Later Years of Thomas Hardy*, 1930, both by his widow.



Thomas Hardy, British poet,
novelist, and dramatist
Russell

HARDY, SIR THOMAS MASTERMAN (1769-1839) British sailor. Born at Kingston, Dorset, April 5, 1769, he served under Nelson in 1796, and was present at the battle of the Nile. In command of the *Victory* in 1805, he was by Nelson's side when the admiral was struck, was witness to his will, and attended him until his death. Made a baronet in 1806, Hardy was promoted rear-admiral in 1825, and in 1830 became first sea lord. In 1834 he was made governor of Greenwich Hospital, where he spent the remainder of his life. He died Sept. 20, 1839.



Sir Thomas Hardy,
British sailor.
After R. Evans

HARE. Name applied generally to a large family of rodents, which includes the hares proper and the rabbits. They are all remarkable for their long hind legs and ears and their short curved tails, and are capable of great speed. The common hare is distinguished from the rabbit by its larger size, longer limbs and ears, and the reddish-brown hue of its fur. It also differs greatly in its habits. The hare lives usually



Hare. The common red-brown hare, *Lepus europaeus*
Chas. Reid

in the open, crouching in a furrow or in a hollow in the grass, and only takes shelter in the undergrowth of thickets in wet weather. It feeds on corn and vegetables

HARE, SIR JOHN (1844-1921). British comedian and actor-manager. Born in London, May 16, 1844, in 1865 he began to appear in London in the leading parts of the Robertson series of comedies. From 1875-95 he was successively manager of the old Court Theatre, manager with W. H. Kendal of the St. James's Theatre, and lessee of the Garrick. He brought out and played in many of Arthur Pinero's plays, from *The Money Spinner*, 1881, to that of *The Gay Lord Quex*, 1899. One of his most popular parts was Benjamin Goldfinch in *A Pair of Spectacles*, 1890. He was knighted in 1907, and died Dec. 28, 1921.



Sir John Hare,
British actor
Foulsham & Banfield

HARE AND HOUNDS. Variation of cross-country running. One or two of the fleetest runners participating are selected as the hares, the remainder, unlimited in number, being the hounds. The hares set off at a fast pace laying a trail of paper-cuttings as they go, and the pack, who follow at an interval of about ten minutes, try to overtake them.

HAREBELL (*Campanula rotundifolia*). Perennial herb of the order Campanulaceae. It is a native of Europe, N. Africa, N. Asia, and N. America. Near the root-stock the leaves are heart-shaped or kidney-shaped, but up the stem become more slender. The stems have blue bell-shaped flowers.

HAREFIELD. Village of Middlesex. It lies above the Colne, between Uxbridge and Rickmansworth. The church of S. Mary, founded 1300, is rich in monuments. There are remains of Moor Hall, a camera or cell of the priory of S. John, Clerkenwell; also some almshouses founded by the countess of Derby. Pop. 2,812.

HARE-LIP. Congenital deformity in which the upper lip is fissured. Usually there is a central fissure in the margin of the lip. The defect may involve the nose and the hard and soft palate. Hare-lip can be improved by surgical treatment.

HAREM (Ar. hareem, sacred, set apart, i.e. forbidden). Name applied in Mahomedan countries to that part of the house in which the women are secluded. The meaning of the word has been extended to include all the women thus kept apart. In India and Turkey the inmates have more liberty than elsewhere, and the rule of the eunuchs, in whose charge the harems are frequently placed, is less evil. The adoption of western ideas is having its effect on the harem.

HARE'S EAR (*Bupleurum rotundifolium*). Annual herb of the natural order Umbelliferae. It is a native of Europe and W. Asia. The stem is hollow, appearing to run through the base of the thick, oblong or roundish, glaucous leaves. The minute yellow flowers form tiny umbels in the centre of a cup of bracts whose edges are united. A shrubby perennial from Spain is grown in gardens.



Hare's-ear, leaves and flower-head of *B. fruticosum*

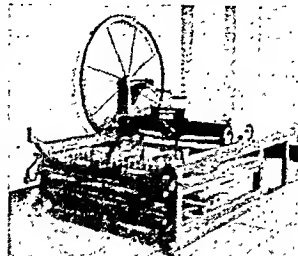
HARE'S-FOOT FERN (*Davallia canariensis*). Fern of the natural order Polypodiaceae. It is a native of W. Europe and the Canaries. The rootstock creeps above ground, densely clothed with shaggy brown scales; the frond is wedge-shaped, cut up into leaflets (pinnae) which are much divided.

HARE'S-TAIL GRASS (*Lagurus ovatus*). Annual grass of the natural order Gramineae. It is a native of W. and S. Europe, N. Africa, and W. Asia. It has numerous stems, broad, flat leaves, and flower spikelets crowded into a white, hairy, oval head which suggested the name.

site. The port was rendered useless by accumulation of sand in the Lézarde, but in 1887 a canal was cut connecting it again with Havre and the Seine, and a new harbour was built along the canal. The port has a trade in coal and timber, and some fishing.

Harfleur was taken by Henry V of England in 1415, being at that period the chief port of Normandy. Pop. 2,700.

HARGREAVES, JAMES (d. 1778). British inventor. A carpenter and weaver of Standhill, near Blackburn, in 1760 he invented an improvement of the carding machine, and about



James Hargreaves. Model of his Spinning Jenny, now in the Science and Art Museum, S. Kensington

four years later built a machine which contained eight spindles in a row. This was called the spinning jenny, and its invention marks the beginning of an era in industrial history. After his death it was asserted that he had appropriated the invention of Arkwright, and the matter was the subject of a lawsuit. See Arkwright; Spinning.

HARICOT, FRENCH BEAN OR KIDNEY BEAN. Seed of *Phaseolus vulgaris*. The green pods, called by the French haricots verts, when boiled form a wholesome vegetable. The beans, either dried or fresh, are boiled. Pron. harryko. See Bean.

HARINGTON, SIR CHARLES HARINGTON (b. 1872). British soldier. Born at Chichester, May 31, 1872, he served on the staff in the S. African War, when he won the D.S.O. During the Great War he was brigadier-general on the general staff, 1915-16, and later chief of staff to General Plumer. He was appointed deputy chief of the Imperial General Staff, War Office, in April, 1918. In Sept., 1920, he was appointed G.O.C. the army of the Black Sea, in 1923 the Northern command, and the Western command, India, 1927. He was knighted in Jan., 1919, and was promoted general in 1927.

HARLECH. Town of Merionethshire. It is 10 m. from Barmouth, on the G.W. Railway, and is famous for its ruined castle. In 1468 the castle was taken by the Yorkists after a long siege, this incident having, it is said, given rise to the Welsh song of *The March of the Men of Harlech*. The town was long the county town of Merionethshire. Pop. 1,000.

HARLEQUIN (Ital. arlecchino). Stock character in pantomime. The origin of the name is uncertain. The harlequin of English pantomime is a mischievous character who plays tricks on the clown and the pantaloon,



Harlech. Castle crowning a rock on the coast of Merionethshire



Earl of Harwood,
British nobleman

HAREWOOD, EARL OF. British title borne since 1812 by the family of Lascelles. Edward Lascelles, the head of a well-known Yorkshire family, was created Baron Harewood in 1796, an earlier creation of this name having become extinct when its first holder died. In 1812 he was made an earl. The family estates are in Yorkshire (W.R.), the chief seat being Harewood House, near Leeds.

In 1929 Henry George Charles Lascelles became the 6th earl. Born Sept. 9, 1882, he was educated at Eton and Sandhurst and served with the Grenadier Guards during the Great War, winning the D.S.O. When Viscount Lascelles he married Princess Mary (q.v.), on Feb. 28, 1922. He succeeded to the title on the death of his father in 1929. Pron. Harwood.

HARFLEUR. Seaport of France. It stands on the Lézarde, near where it falls into the Seine. The chief building is S. Martin's Church, a Gothic building with a high steeple and fine portal. There are ruins of the old castle; a 17th century château occupies the

to whom he is supposed to be invisible, owing to the possession of a wand, and who makes love to and engages in acrobatic dances with the columbine. He wears a tight-fitting spangled dress and is sometimes masked. See Columbine; Pantomime.

HARLEQUINS, Rugby football club. It was established in 1871, and soon ranked as one of the chief of those playing around London. Its first ground was at Wandsworth Common. In 1908 its headquarters were removed to Twickenham.

HARLESSEN. District of Middlesex, in the urban district of Willesden. It lies between Kensal Green and Stonebridge Park, on the Harrow Road. It is served by the L.M.S. and Bakerloo (Tube) Rlys. and has a wharf on the Paddington branch of the Grand Union Canal. Once known as Harlesden Green, a hamlet of Willesden, it is now built over.

HARLEY STREET. London thoroughfare connecting Marylebone Road and Cavendish Square, W. It is named after Edward Harley, 2nd earl of Oxford. Many of the leading medical specialists and physicians have consulting rooms here.

HARLINGTON. Parish of Middlesex. It is NW of Hounslow and 1 m. S. of Hayes and Harlington station on the G.W.R. It gave its name, short of the first letter, which was omitted by an oversight in the patent, to Henry Bennet, 1st earl of Arlington (q.v.). The church of S. Peter and S. Paul contains interesting monuments. Pop. 2,643.

HARLOW. Village of Essex. It is 24 m. from London on the L.N.E. Rly. Excavations in 1928 revealed remains of a Roman temple and other relics of Roman times. Pop. 2,962.

HARMATTAN. Dry, dust-laden wind which blows away from the Sahara between Oct. and March. It brings cool dry weather to the steaming jungles of West Africa, and is health-giving.

HARMODIUS AND ARISTOGITON. Two devoted Athenian friends. When the sister of Harmodius had been insulted by Hipparchus, brother of the tyrant Hippias, they resolved to murder Hipparchus at the festival of the Panathenaea in 514 B.C. Hipparchus was slain, but Harmodius was killed and Aristogiton died under torture. The two friends were honoured as martyrs by later generations of Greeks.

HARMONDSWORTH. Village of Middlesex. It is 1½ m. S. of West Drayton station on the G.W.R. between Harlington and Colnbrook. The manor once belonged to the Benedictine abbey of Holy Trinity at Rouen, from which it passed to William of Wykeham, who settled it upon Winchester College. There is a tithe barn, with three floors and an open timber roof. The ancient church of S. Mary the Virgin was restored in 1863-64, when the old brasses were stolen. Pron. Harmsworth.

HARMONICA. Musical instrument. It consists of glass vessels either selected for their intrinsic notes, or tuned by having water poured into them. Penetrating tones are produced by rubbing the glasses with the moistened finger. First known in the 17th century, the harmonica was improved by Richard Pockrich, and became a fashionable musical instrument in the middle of the 18th century.

HARMONIUM. Musical instrument with a keyboard or keyboards controlling the access of the wind from the bellows to the reeds which produce the sound. The reeds are metal tongues of varying curve and thickness, for quality and of varying size, for pitch. They are free reeds passing through and through their frames as they vibrate. The reeds are fixed above the soundboard in rows parallel with the keyboard, each reed being over a wind hole controlled by its appropriate key. See American Organ.

HARMONY. Art of combining two or more sounds of definite musical pitch, according to accepted rules. Harmony is based upon the scale. Its study presupposes an accurate knowledge of intervals, or the distance from one note to another. Intervals are reckoned (1) from the number of names of notes they contain: (2) inclusively, i.e. counting both limits; and (3) upwards, i.e. from the lower to the higher note. Intervals are either concords or discords. Concords are either perfect (4th, 5th and 8th) or imperfect (major and minor 3rd, and major and minor 6th). 2nds, 7ths, and all augmented or diminished intervals are discords. Intervals one semitone more than perfect or major are augmented and one semitone less than perfect or minor are diminished.

Musie may be described as the resolution of discord into concord. In the following: the first chord contains the note F, which as a 7th from G is discordant with it. It is also a discord with the B, as they form a diminished 5th, which is a discord. The first chord, then, can give no sense of finality, and must be followed by a chord in which no discordant interval appears. That condition is fulfilled in the second chord, which is called the resolution of the first, and this is a simple example of a principle of which the possibilities of extension are endless.

Systems of harmony and art dating from the Middle Ages have been devised from time to time, but the developments of composition leave them successively out of date.

HARMSWORTH. Family name of Viscount Northcliffe (q.v.) and Viscount Rothermere (q.v.). Two other brothers became known as Liberal politicians: Cecil Bisschopp Harmsworth and Sir Robert Leicester Harmsworth, (b. 1870). The latter was M.P. for Caithness 1900-18, and was made a baronet in 1918. Esmond, son of Viscount Rothermere, was M.P. for Thanet, 1919-29.

HARMSWORTH, CECIL BISSHOFF (b. 1869). British politician. Born Sept. 28, 1869, he joined the firm of Harmsworth Bros., later The Amalgamated Press. Turning his attention to politics, in 1906 he was returned to Parliament as Liberal M.P. for the Droitwich division of Worcestershire. He lost his seat in 1910, but in 1911 was elected for S. Bedfordshire, and early in 1915 entered the government as under-secretary for home affairs. In 1918-22 he was under-secretary for foreign affairs, being acting minister of blockade in 1919, but he left Parliament in 1922. Later he became associated with several leading newspaper undertakings.

HARNACK, ADOLF VON (1851-1930). German theologian and church historian. Son of Theodosius Harnack (1817-89), professor of

theology at Dorpat, where he was born May 7, 1851, he began his career as lecturer in church history at Leipzig in 1874. He was appointed professor of ecclesiastical history at Leipzig, 1876. From 1887 to 1905 he was professor at Berlin. He died June 10, 1930.

The most eminent German Protestant theologian of his day, he was the author of many influential works, including Gnosticism, 1873; Ignatius, 1878; Monasticism: Its Ideals and Its History, Eng. trans. 1903; The Apostles' Creed, 1901; What is Christianity?, Eng. trans. 1901; and Studies in the New Testament, Eng. trans. 1907-12.

HAROLD I, CALLED HAREFOOT (d. 1040). King of the English, 1037-40. A son of Canute the Great, on his father's death he disputed the succession of Hardicanute. The Witan divided England between them, Harold being allotted the district N. of the Thames. In 1037, however, he became king of all England, but his reign was disturbed by invaders. He died at Oxford, March 17, 1040.

HAROLD II (c. 1026-66). King of the English. A son of Earl Godwin, he became earl of East Anglia in the time of his brother-in-law, Edward the Confessor, and earl of Wessex when Godwin died in 1053. Henceforward he was the most powerful man in the land. When Edward died he was chosen and crowned king, whereupon his brother Tostig came from Norway with Harold Haardraade, the king of that country, to recover his lost earldom of Northumbria, and William of Normandy claimed the crown which, he alleged, Harold had promised to secure for him when shipwrecked off the coast of France. Harold crushed the Norwegians at Stamford Bridge, but was killed at Hastings, Oct. 14, 1066. See Hastings, Battle of.

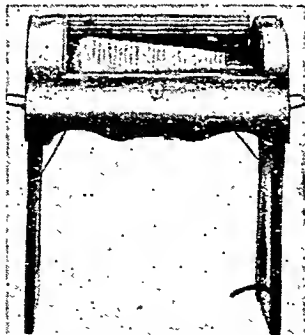
HAROUN AL RASCHID (763-809). Caliph of Bagdad. Haroun was born at Rai, March 29, 763. He succeeded his brother Musa as fifth caliph of the Abbassid line in 786, and opened a reign proverbial for its magnificence and prosperity. Haroun made his court a great centre of art and literature. He waged successful wars against the Greek Empire, 797, and suppressed various provincial revolts. At first he ruled with the powerful aid of the Barmecides, but sudden jealousy made him order their wholesale murder in 803. In the same year he marched against the emperor Nice-



Harp. 1. Modern form for orchestra. 2. Harpist from an Egyptian tomb painting

phorus, invading Phrygia and destroying Hecaleia, and exacted heavy tribute from him. He died in March, 809. Haroun's name is still remembered, if only as a central figure in The Arabian Nights.

HARP. Musical instrument with strings plucked by the fingers. Employed in some form or other by all races and from remote ages, its earliest forms seem to have been suggested by the



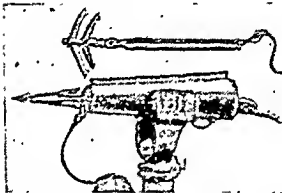
Harmonica. A favourite musical instrument of the 18th century. From Old English Instruments of Music. Methuen & Co.

hunting bow, whose string emitted a musical note. Bow-shaped and two-sided harps were limited in power by the inability of their material to stand the strain of the strings. A third side was added in the next primitive form, and in a few centuries this type was raised to the finished modern form.

In the eighteenth century mechanism was added to shorten some of the strings at will, and thus allow changes of key. About 1810 Sebastian Erard built a double-action harp of six and a half octaves in the key of C flat, with seven pedals to be depressed halfway or entirely, raising each string respectively a semitone or a tone. At the close of the 19th century Messrs. Pleyel brought out a new form of chromatic harp, requiring no pedals. It has a string for each semitone in two sets, representing respectively the black and the white keys of the pianoforte.

HARPENDEN. Urban dist. of Hertfordshire. It is 25 m. N.W. of London on the L.M.S. and L.N.E. Rys. Here are the S. George's co-educational school, and Dr. Stephenson's Home for Waifs and Strays. The 12th century church was, with the exception of the tower, rebuilt in 1862, and contains interesting glass and brasses. Near is Rothamsted, with its agricultural experimental station. Pop. 8,000.

HARPER'S FERRY. Town of W. Virginia, U.S.A. It lies at the junction of the Shenandoah and Potomac rivers, 55 m. N.W. of Washington. It was the scene, on Oct. 16, 1859, of a raid by John Brown (q.v.), the abolitionist, and a few followers, on the armoury, which was held until the following day, when it was recaptured by General Lee. In 1862 the town, together with 12,500 prisoners, was surrendered by the Federals to the Confederates under Stonewall Jackson. Pop. 706.



Harpoon. Gnn with bomb-nosed harpoon. Above, harpoon with barbs extended

HARPOON (Fr. harpon, grappling iron). Weapon used for the capture of whales. In the early days of the whale fishery the harpoon was thrown from the hand by a harpooner; rowed in an open boat, but the modern harpoon is fired by a gun. See Anthropology; Bone Implements; Whaling.

HARPSICHORD. The most important of the stringed instruments with keyboards before the invention of the pianoforte. In the latter the strings are struck by hammers, whereas in the harpsichord they are plucked by quills or leather plectra inserted in "jacks" or up-rights, which are caused to pass the strings when the keys are depressed. In the 18th century instruments had elaborate contrivances for securing variety, such as an extra keyboard, stops controlling plectra of various degrees of hardness, and a swell. See Pianoforte.

HARPY (Gr. harpyiai, snatchers). In Greek mythology, a monstrous bird with a woman's head and long claws. They were sent by the gods to torment the blind Phineus by snatching his food as he raised it to his lips.

HARPY EAGLE (*Thrasaetus harpyia*). Large and powerful bird of prey, found in Central and S. America. Its general colour is white with a black back and tail and grey wings. It will kill animals much larger than itself. It nests either in a tall tree or on the ledge of an inaccessible cliff.



Harpy Eagle, a large S. American bird of prey W. S. Burridge, F.Z.S.

that hound and the beagle, standing about 20 ins. high at the shoulder. In Wales the pure-bred strain is still to be found.

HARRIER (Circus). Genus of hawks, including about 13 species. They are slender

in form, with unusually long legs and wings and comparatively short and small beaks. They are usually found in marshy districts, where they prey upon fish and frogs, in addition to small birds and mammals. Three species occur in Great Britain, though they are rare, namely, the hen harrier (*C. cyaneus*), Montagu's harrier (*C. cinereus*), and the marsh harrier (*C. aeruginosus*), the largest of the three. See illus. below.

HARRINGAY. District of N. London. Built over the country called Green Lanes, a name now given to a main thoroughfare, it lies between Finsbury Park and Hornsey. There are stations on the L.M.S. and L.N.E. Rlys.

HARRIS. Name given to the southern portion of the island of Lewis (q.v.), one of the Outer Hebrides. It is about 20 m. long and of varying breadth, and forms part of the county of Inverness. The parish includes a number of adjacent islands, St. Kilda among them. Sheep are reared and hand-loom weaving is carried on, hence the term Harris tweed. The Sound of Harris divides it from North Uist on the S. Tarbert is the chief place. Pop. 5,500.

HARRIS, GEORGE HARRIS, 1ST BARON (1746-1829). British soldier. Born at Brasted, Kent, March 18, 1746, the son of a clergyman, he entered the artillery and was severely wounded at Bunker Hill in 1775. Proceeding to India he served in the campaigns against Tippoo Sahib, being in command of the force which in 1798-99 stormed Seringapatam and conquered Mysore. In 1815 he was created Baron Harris. He died in May, 1829.

George, the 4th Baron (b. 1851), succeeded to the title in 1872. He was famous as a cricketer, playing for Oxford against Cambridge in 1871, 1872, and 1874. He joined

the Kent county team, and in 1875 became its captain, retaining that post until 1889. Harris played for England against Australia in a test match in 1880, and captained a team that went to Australia. As a Conservative politician he was under-secretary for India, 1885-86, and for war, 1886-89. From 1890-95 he was governor of Bombay.

HARRIS, SIR AUGUSTUS HENRY GLOSSOP (1852-96). British actor and theatrical manager. Born in Paris, he made his first

appearance at the Theatre Royal, Manchester, in 1873. In 1879 he became lessee of Drury Lane, and was part author of *The World* (produced July 31, 1880), the first of the spectacular melodramas which helped to revive the prosperity of the house. He also staged pantomimes at Drury Lane. He was knighted in 1891, and died at Folkestone June 22, 1896.



Sir Augustus Harris. Theatrical manager

HARRIS, JAMES RINDEL (b. 1851). British scholar. Born at Plymouth, he was professor at Johns Hopkins University, Baltimore, 1882-85; at Haverford College, Pennsylvania, 1886-92; lecturer in palaeography at Cambridge, 1893-1903; and professor of theology, Leiden, 1903-4. He was director of studies, Friends' Settlement, Woodbrooke, near Birmingham, 1903-18; and curator of MSS. at the John Rylands Library, Manchester, 1918-25. He travelled widely in the East, where he discovered important MSS. bearing on the Bible. His numerous writings show the wide range of his learning.

HARRIS, JOEL CHANDLER (1848-1908). American writer popularly known as Uncle Remus. Born at Eatonton, Georgia, Dec. 8, 1848, in 1878 he joined the staff of *The Atlanta Constitution*, of which he was editor, 1890-1905, and to which he contributed the first of his Uncle Remus stories concerning the adventures of Brer Rabbit and Brer Fox. These stories, derived from his knowledge of negro folklore, were first collected in 1880 as *Uncle Remus: His Songs and His Sayings*. This volume had a number of successors, including *The Tar-Baby and Other Rhymes*, 1904. He died July 3, 1908. Consult *Life and Letters of Joel Chandler Harris*, by his daughter-in-law, Julia Collier Harris, 1918.



Harrier. Specimen of *Circus cyaneus*

HARRISBURG. City of Pennsylvania, U.S.A., capital of the state. On the Susquehanna river, 105 m. W.N.W. of Philadelphia, it is served by the Pennsylvania and other rlys. It is the see of a Roman Catholic bishop. Its buildings include the capitol, court house, state arsenal and hospital for the insane, and county prison. It has large iron and steel works, repair shops, and carriage works, and manufactures of bedding, boots and shoes, clothing, and flour. Pop. 83,522.

HARRISMITH. Town of the Orange Free State, S. Africa. It is 60 m. from Ladysmith, and stands on the river Wilge at a height of over 5,000 ft. It is an important trading centre and a popular health resort. It was occupied by the British forces on Aug. 4, 1900. Pop. 6,200, of whom 2,546 are whites.



Harpsichord with double keyboard, 5-octave range. English 17th cent. model Victoria & Albert Museum, S. Kensington

HARRISON BENJAMIN (1833-1901). American statesman. Born at North Bend, Ohio, Aug. 20, 1833, grandson of President William Henry Harrison, he joined the Federal army and distinguished himself in the Civil War. Senator 1881-87, he was elected president on the Republican ticket in 1888. During his term of office the treaty of the annexation of Hawaii was negotiated, afterwards withdrawn by Cleveland when president; the first pan-American Congress was held, the McKinley tariff introduced, and the Bering Sea seal fisheries controversy with Great Britain settled by arbitration. Defeated in his candidature for re-election, he abandoned politics for the law. Harrison died March 13, 1901.

HARRISON, FREDERIC (1831-1923). British author and publicist. Born in London Oct. 18, 1831, he was called to the bar in 1858, and from 1877-89 was professor of jurisprudence at the Inns of Court. He was one of the founders of English Positivism (q.v.), and president of the English Positivist committee. Harrison wrote *The Meaning of History*, 1862, enlarged ed. 1894; and *Lives of Oliver Cromwell, 1688, and William the Silent, 1697*. On literature he wrote *The Choice of Books*, 1886; *Victorian Literature*, 1895; and *A Life of Ruskin*, 1902. In 1911 appeared *Autobiographical Memoirs*. He was a noted climber, and in 1908 published *My Alpine Jubilee*. He died Jan. 14, 1923.

His son Austin (1873-1928) was editor of *The English Review* in 1910-23.

HARRISON, THOMAS (1600-60). English puritan and regicide. He was born at New-castle-under-Lyme, Staffs, and became clerk to a London solicitor. In 1642 he joined the body-guard of the earl of Essex, and distinguished himself at Marston Moor. He was in command of the force that took King Charles from Hurst Castle to London, was one of the court that tried him, and signed the death warrant. During Cromwell's absence in Ireland Harrison was in supreme military command in England, 1650-51. He took part in the expulsion of the Long Parliament in 1653, in which year he lost his offices. Refusing to flee the country after the Restoration, he was tried and executed on Oct. 13, 1660.

HARRISON, WILLIAM HENRY (1773-1841). American statesman. Born at Berkeley, Charles City County, Virginia, Feb. 9, 1773, he entered the army and fought with distinction against the N.W. Indians. From 1801-13 governor of Indiana territory, he was responsible for several treaties with the Indians. Member of Congress, 1816-19, and senator, 1825-28, he was elected president in 1840. He died at Washington a month after his inauguration, April 4, 1841.

HARROGATE. Borough and watering place of Yorkshire (W.R.). It is 203 m. from London on the L.M.S. and L.N.E. Rlys., and is noted for its medicinal springs. There are several bathings and pump-rooms, hospitals and hydro-paths, as well as the Royal Hall, concert rooms, opera house, and public gardens. The Stray is a large open space, as is Harlow Moor. Harrogate was originally two villages, Low and High Harrogate. It was made a borough in 1884. Since 1928 an annual musical festival has been held here. Near the town are

Ripon, Fountains Abbey, and Ripley Castle. The district around is known as Knarborough Forest. Pop. 45,000. See Baths; Spa.

HARROW. Raking machine for shallow cultivation of the soil, differing from the cultivator in the absence of wheels. Drag-harrows may have curved tines. Light harrows possess tines arranged on the zigzag principle. The term seed harrow is applied to a light kind by which a coating of soil is drawn over the seeds.

HARROW OR HARROW-ON-THE-HILL. Urban district of Middlesex. It is 10 m. by road N.W. from Hyde Park Corner, and is served by the L.M.S., L.N.E., Met., District, and Bakerloo (Tube) Rlys. On the summit and slopes of a hill rising abruptly 200 ft., it has grown rapidly since the in-



Harrow. 1. 14th cent. parish church, restored by Sir Gilbert Scott. 2. Harrow School; left to right, Old School, Memorial Hall and Speech Room

crease of rly. facilities. Harrow High Street retains much of its old character and contains an inn, the King's Head, dating from 1553. The parish church of S. Mary, founded by Lanfranc, was restored by Sir Gilbert Scott in 1840. It contains old brasses, among them that of John Lyon, founder of Harrow School, monuments and coloured glass. Pop. 21,740. See Middlesex.

HARROW SCHOOL. English public school. Founded by a yeoman named John Lyon, it was opened in 1611, and was long a school for poor children. By the end of the 18th century it had developed into a leading public school. Most of the buildings are modern, these including chapel, library, and speech room, but the original room still remains. Extensions and additions include the fine memorial hall.

The school numbers about 670 boys. There are eleven school houses and a few private boarding houses. It has an upper and a lower school, but is not divided into sides.

HART, SIR ROBERT (1835-1911). Civil administrator in China. Born in co. Armagh, and educated at Queen's College, Belfast, he was in the British consular service in China, 1854-59, and from 1859-1908 in the service of China. He largely created the Chinese imperial maritime customs service and had charge of the lighting of the coast and inland waterways and of the imperial post. Created a baronet in 1893, he died Sept. 20, 1911.

HARTAL. Indian word meaning a day of mourning or humiliation. Hartals have been used as a means of passive resistance to British authority, as in 1930.

HARTE, FRANCIS BRET (1839-1902). American novelist and poet. Born Aug. 25, 1839, he went at the age of 15 to California, where he was a gold-miner, schoolmaster and editor. He is remembered for his *Condensed Novels*, his



Bret Harte, American writer

inimitable verses on *The Heathen Chinee* and his stories, *The Luck of Roaring Camp*, *The Outcasts of Poker Flat*, *Miggles*, and *Tennessee's Partner*. He died at Camberley, May 5, 1902.

HARTEBEEST (Bubalis). Genus of large antelopes found in S. Africa. The hartebeest is one of the swiftest of the antelopes. It is reddish brown or bay in colour, and has ringed horns which first diverge from the forehead like a V and then turn backwards at right angles. See illus. below.

HARTFORD. City of Connecticut, U.S.A. The capital of the state, it stands on the Connecticut river at the head of navigation for large ships, 125 m. W.S.W. of Boston. Its manufactures consist of typewriters, steam-engines, printing machinery, motor vehicles, and hosiery. Pop. 172,288.

HARTINGTON, MARQUESS OF. English title borne by the eldest son of the duke of Devonshire. Hartington is a village in the Peak district. See Devonshire. Duke of.

Hartland Point. Headland on the N. coast of Devon. It forms the S.W. extremity of Barnstaple Bay and has a lighthouse.

HARTLEBURY. Village of Worcestershire. It is a junction on the G.W.R., 6 m. S.E. of Bewdley. The castle is the residence of the bishop of Worcester. Pop. 2,219.

HARTLEPOOL.

Municipal bor. of Durham. It is 18 m. from Durham on the L.N.E.R. The chief industries are shipping and shipbuilding. There is a large fishing trade. The town originated round a monastery founded about 640 and was made a borough in 1590. Known as the Hartlepoons, Hartlepool and W. Hartlepool unite in sending one member to Parliament. Pop. 21,000.

HARTLEPOOL.

West. Co. bor. of Durham. It stands just S. of Hartlepool on the L.N.E.R., and includes Seaton Carew, a watering-place. With Hartlepool, it has a fine harbour, and its docks cover over 350 acres. Large shipbuilding yards, engineering works, saw and flour mills are among the other industries. It is entirely a modern seaport, dating from the opening of the Durham coal-fields. Market day, Sat. Pop. 68,641.

Great damage was caused by a German naval bombardment on Dec. 16, 1914. The casualties were 113 killed, including 30 women and 15 children, and 300 wounded.

HARTMANN, KARL ROBERT EDUARD VON (1842-1906). German philosopher. Born in Berlin, Feb. 23, 1842, he was for a time an officer in the Prussian army. In 1865 he went lame and, forced to retire, he turned to the study of philosophy. In 1869 he published *The Philosophy of the Unconscious*, and later appeared *Modern Psychology*, *The Philosophy of the Beautiful*, and other books which have been translated into English. Hartmann died June 6, 1906. A monist, his Philosophy of the Unconscious is based on an amalgamation of Schopenhauer's doctrine of will with the metaphysics of Hegel and the positiveness of Schelling.



Hartebeest. Specimen of Bubalis caama. See above



Frederic Harrison, British writer Russell



Thomas Harrison, English Puritan

HARTSHORN, VERNON (b. 1872). British labour leader. Born in 1872, he became president of the South Wales Miners' Federation. He was M.P. for the Ogmore division of Glamorganshire in 1918, retaining his seat at subsequent elections, and was postmaster-general in the first Labour govt., 1924. From 1927-30 he was a member of the Simon commission on Indian reforms, and in June, 1930, succeeded J. H. Thomas as lord privy seal. His services were mainly in connexion with the government's unemployment plans.

HARTSHORN. Popular name for ammonia water, ammonium carbonate. The name originally referred to the preparation made by distillation from the antlers of the red deer, *Cervus elaphus*. See Ammonia.



Hart's-tongue Fern
Phyllitis scolopendrium

shaped, with a heart-shaped base. The spore clusters are in thick parallel lines at right angles to the thick midrib. See Fern.

HART TRUFFLE (*Elaphomyces granulatus*). Subterranean fungus of the order Ascomycetes. It is a yellow tuber of depressed spherical form, attached to the roots of conifers, and filled, when ripe, with a purplish-brown mass of spores. Another fungus, *Cordyceps capitata*, is parasitic upon the hart truffle. See Fungus.

HARTY, SIR HERBERT HAMILTON (b. 1880). British musical conductor. Born at Hillsborough, Co. Down, Dec. 4, 1880, he studied music and soon made a name as a composer and a conductor. In 1920 he was appointed permanent conductor of the Hallé Orchestra at Manchester, and in 1925 he was knighted. His *An Irish Symphony* is noted.

HARVARD, JOHN (1607-38). One of the founders of Harvard University. Born in Southwark, London, he was a son of Robert Harvard (d. 1625), a butcher, and educated at the local grammar school and at Emmanuel College, Cambridge. He was married at South Malling to Ann Sadler, of Ringmer, Sussex. In 1637 he went to America, and became second minister of the church at Charlestown, Mass. Dying Sept. 14, 1638, he left half of his estate to a college named after him in New Towne, now Cambridge. There is a Harvard Memorial Chapel in S. Saviour's, Southwark. Harvard House, Stratford-on-Avon, was built in 1596 by John Harvard's grandfather, Alderman Thomas Rogers.

HARVARD UNIVERSITY. Senior university of the U.S.A. It was founded at Cambridge, Mass., and includes the original Harvard College. There is a staff of about 800 and over 5,000 students.



Harvard University. Austin Hall, seat of the law school founded in 1817

HARVESTMAN. Popular name for group of spiderlike arachnids (*Phalangium*), common in autumn. They are distinguished from spiders by absence of a waist and their remarkably long legs. See Arachnida.

HARVEST MITE. Name given to the larvae of a group of mites of the family Trombididae. The common



Harvest Mite,
greatly enlarged

harvest mite, which is covered with scarlet hairs, is found in large numbers on grass and low herbage in summer and autumn. It bores under the thin skin of man and other animals. The best remedy for its bite is to paint the affected part with tincture of iodine, turpentine, or ammonia.

HARVEY, SIR GEORGE (1806-76). Scottish painter. Born at St. Ninian's, Stirlingshire, he was an original associate of the Scottish Academy, 1827, becoming president in 1864. Scottish genre, portraits, and landscapes were treated by him. He died Jan. 22, 1876.

HARVEY, SIR JOHN MARTIN (b. 1867). British actor. Born at Wyvenhoe, Essex, June 22, 1867, he made his first appearance in 1881 at the Court Theatre, and from 1882-96 was with Irving. In 1898 he took over the management of The Lyceum, producing in Feb., 1899, the popular drama, *The Only Way*. As Sydney Carton in that play he became famous. He was knighted in 1921.



Sir John Martin Harvey
British actor

HARVEY, WILLIAM (1578-1657). English physician, discoverer of the circulation of the blood. He was born at Folkestone, Kent, April 1, 1578, and educated at the King's School, Canterbury, Caius College, Cambridge, and the university of Padua, taking his doctor's degree in physic at Padua and at Cambridge in 1602. He settled in practice in London, and in 1607 became fellow of the College of Physicians, and in 1609 physician to St. Bartholomew's Hospital. He died in London, June 3, 1657. See Blood.



William Harvey,
English physician
After C. Jansen

HARWICH. Seaport and borough of Essex. It stands at the mouth of the Orwell and the Stour, 70 m. from London, and is served by the L.N.E.R., which has made it the port for its continental traffic. The industries include fishing, shipbuilding, and the making of fertilisers and cement. It is a yachting centre. A train ferry service to Zeebrugge, Belgium, was inaugurated in 1924. The watering place of Dovercourt is within the borough. Pop. 13,036.

HARWOOD, GREAT. Market town and urban dist. of Lancashire. It is 5 m. N.E. of Blackburn, on the L.M.S. Rly. The chief industries are the manufacture of cotton and the mining of coal in the neighbourhood. Market day, Fri. Pop. 13,596.

HARZ. Mountain range of N. Germany lying between the Leine and the Saale and crossed by the waterparting between the Weser and the Elbe. The Brocken, 3,730 ft., is the highest point. The Upper Harz is a thickly forested district where silver is mined. In the Lower Harz agriculture prevails, and copper is mined at Mansfeld. The whole region is associated with legend and is much frequented by tourists and invalids.

HASAN (625-669) AND **HUSSEIN** (629-680). Sons of Ali (q.v.), adopted son of Mahomet and Fatima, the Prophet's daughter. Hasan is believed to have been poisoned by his wife, Hussein, who married a daughter of Yazdigerd, the last Sassanian king of Persia, was slain in battle at Kerbela. The brothers are venerated by the Shiites as martyrs.

HASDRUBAL OR **ASDRUBAL**. Carthaginian soldier. Left in Spain by his brother Hannibal (q.v.), when setting out on his expedition against Rome in 218 a.c., Hasdrubal carried on the war against the two Scipios, whose object it was to prevent him from reinforcing Hannibal. In 208 he crossed the Pyrenees, and in 207 the Alps, and reached Italy with his army. It was defeated, however, at the battle of the Metaurus, Hasdrubal being killed.

HASELDEN, WILLIAM KERRIDGE (b. 1872). British cartoonist. Born at Seville, Spain, he began his career as a clerk in Lloyd's, London. About 1902 he took up drawing professionally, and in 1904 was appointed cartoonist to *The Daily Mirror*. See Caricature.

HASHISH (Arab. herbage). Confection of Cannabis Indica, or Indian hemp. Made from the dried leaves and small stalks of the plant, it is a drug which produces a mild, pleasurable sense of intoxication. It is also a narcotic and is smoked, drunk, or eaten. The word assassin is derived from hashish. See Hemp.

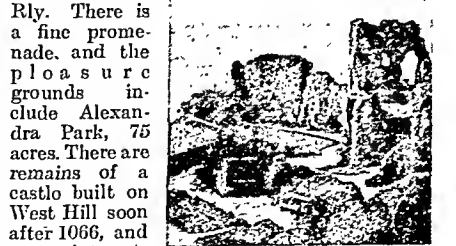
HASLAR. Royal naval hospital at Gosport, Portsmouth. It was opened in 1753, and has been several times enlarged. It has accommodation for 1,116 patients. Attached to the hospital are a fine medical library and museum.

HASLEMERE. Urban district of Surrey. It is 13 m. from Guildford on the S.R. It stands in a valley between Blackdown Hill and Hindhead; around is some of the finest scenery in Surrey. Near is Aldworth, where Tennyson died. Pop. 3,865.

HASLINGDEN. Borough and market town of Lancashire, England. It is 19 m. N.W. of Manchester on the L.M.S. Rly. Cotton, silk, and woollen goods are manufactured, and there are coal mines, stone quarries, and iron foundries. Market days, Tues. and Sat. Pop. 17,485.

HASSALL, JOHN (h. 1808). British artist. Born at Walmer, and educated at Heidelberg, he began life on a farm in Manitoba; then studied art at Antwerp and at Julian's, Paris. A master of poster work, he has also produced many humorous sketches and designs in black-and-white, and several compositions in water-colour.

HASTINGS. County borough and watering place of Sussex. It is one of the Cinque Ports, and includes St. Leonards. It is 62 m. S.E. of London on the Southern Rly. There is a fine promenade, and the pleasant grounds include Alexandra Park, 75 acres. There are remains of a castle built on West Hill soon after 1066, and some interesting churches.



Hastings. Ruins of the Castle which overlooks this seaside town

Fishing is the chief industry. Hastings was made a bor. in 1589, and returned two members to Parliament from 1366 to 1885, since when it has sent one. Pop. 66,496

HASTINGS. Town of North Island, New Zealand. It is 12 m. by rly. S.W. of Napier, in Hawke's Bay dist., and has refrigerating and fruit canning works. Pop. 15,290.

HASTINGS, BATTLE OF. Fought Oct. 14, 1066, between the Normans under William, called after this victory the Conqueror, and the English under Harold II. It took place on a hill to which a later writer gave the name of Senlac, about 6 m. from Hastings. Fighting to the last, Harold and his two brothers were killed and his army was totally destroyed.

HASTINGS, FRANCIS RAWDON-HASTINGS, 1st MARQUESS OF (1754-1826). British soldier and administrator. Born Dec. 9, 1754, son of Sir John Rawdon, afterwards earl of Moira, he served in the American War of Independence. He was governor of Bengal, and commander-in-chief in India, 1813-21, and in 1824-26 governor of Malta. He died Nov. 28, 1826. Created marquess of Hastings in 1817. He married Flora Campbell, in her own right countess of Loudoun. On the death of Henry, the 4th marquess, in 1868, the estates in Leicestershire and Ayrshire passed to his sister, the countess of Loudoun.

HASTINGS, WARREN (1732-1818). British statesman. Born at Churchill, Oxfordshire, Dec. 6, 1732, son of the rector of the parish, he went to India in the service of the E. India Co. He served Clive well in diplomatic work, and in 1773 became governor-general. Despite harassing difficulties, he reorganized the administration of Bengal and laid the foundations of the Indian civil service. Blunders of the authorities in Bombay and Madras forced him into wars, but the boldness with which he faced these emergencies saved the British power in India from destruction.



Warren Hastings, British statesman. After T. Kettle

Recalled in 1785, his trial began in 1788 and lasted over seven years. He was charged with hiring out British troops to exterminate the Rohillas, robbing the begums of Oudh, and being responsible for the judicial murder of Nuncomar. The House of Lords unanimously acquitted him on every charge, and the verdict of successive governors-general was emphatically in his favour. He was ruined financially by the trial, but the E. India Company made tardy reparation by conferring a pension on him, and before his death the House of Commons acknowledged formally his distinguished services. He died at Daylesford, Aug. 22, 1818. See India.

Haswell. Village of Durham. It is 9 m. S. of Sunderland on the L.N.E.R. Coal-mining is the chief industry. Pop. 6,199.

HAT. A covering for the head, distinguished from the cap by having a brim. The modern hat has been traced to the Greeks. In England the silk hat dates from about 1840. Straw hats first became popular about 1850, when the so-called bowler hat, made of hard felt, also came into vogue. In the 20th century soft hats known as the Homburg and Trilby came into favour for men, while the bonnet was superseded by hats for women.

The main types of hats in civilized countries are made of felt, straw, silk and velour, etc. In England the industry is carried on most largely at and near Stockport and in Nuneaton. Formerly the straw plaits from which hats are formed were made at Luton, Dunstable, and other English centres, but now the majority are imported.

Genuine panama hats are imported from Colombia in plateau form, and are blocked in England. Otranto, or simulated panama, comes from Japan. See Costume.

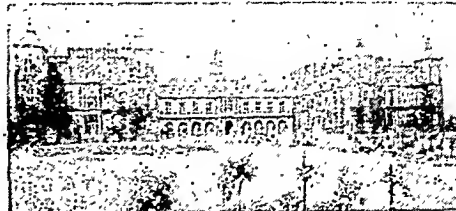
HATCHMENT. Lozenge-shaped panel used to display the armorial bearings of a deceased person. Hatchments were formerly

affixed to the residences of deceased persons and also carried in the funeral procession, to be subsequently hung up in the church. Many country churches in England still retain hatchments. The word is said to be a corruption of achievement. See Heraldry.

HATFIELD. District of Hertfordshire. It stands on the Lea, 17½ m. N. of London, on the L.N.E.R., and is remarkable for its picturesque old houses and handsome church of S. Egheldreda, which dates from Norman times, and was extensively restored in 1872. Pop. 5,695.

HATFIELD HOUSE. This is the magnificent seat of the Cecil. Built of red brick and Caen stone, and one of the most notable examples of Jacobean architecture in the kingdom, it stands in the parish of Hatfield or Bishop's Hatfield.

Erected by Robert Cecil, 1st earl of Salisbury, it was completed in 1611, contains part of the old palace of the bishops of Ely, and stands in a park measuring upwards of 10 m. in circumference. In the park is preserved the oak tree under which, according to tradition, Elizabeth was seated when she received news of her accession to the throne; and in the house are a remarkable collection of MSS. and state papers, many relics of Tudor and Jacobean times, and a number of historical portraits.



Hatfield House. South front of the mansion built in 1611 by Robert Cecil, first earl of Salisbury

HATHAWAY, ANNE (1556-1623). Maiden name of the wife of William Shakespeare (q.v.) She was daughter of Richard Hathaway, yeoman farmer of Shroton, near Stratford-on-Avon, and married Shakespeare Nov. 28, 1582, being eight years older than her husband. In 1928 Burman's Farm, next to Anne Hathaway's cottage, was renamed Hathaway Farm and thrown open to the public.

HATHOR (dwelling of Horus). Egyptian goddess. A sky-deity, cow-headed, or cow-horned, she was the great mother of the early dynastic people. When the goddess was represented in human form, with horned disk, she became identified with Aphrodite. The seven Hathors were benignant fates. Hathor-headed capitals are an architectural motive.

HATRY, CLARENCE CHARLES (b. 1890). British financier. For some years he had a successful career as a company promoter, but in 1920 the Commercial Bank of London which he directed failed for a large sum. In 1929 he entered into heavy engagements, to meet which he and his associates raised money by pledging with the banks forged stock certificates. In Sept. the shares of the Austin Friars Trust and other Hatry companies fell heavily; on the 19th he confessed and on the 20th the Stock Exchange suspended dealings in certain securities. In Jan., 1930, Hatry was tried and found guilty, his sentence being penal servitude for 14 years. The total deficiency was stated to be £13,500,000.

HATTON, SIR CHRISTOPHER (1540-91). English courtier. Born at Holdenby, Northamptonshire, he was admitted to the inner Temple in 1559. Queen Elizabeth employed him in the trials of Babington and Mary Queen of Scots, and he was lord chancellor from 1587 to his death, Nov. 20, 1591. Hatton Garden, London, where his home was, is named after him.

HAUBERK (O.H.G. Hals, neck; bergan, to protect). Coat of chain mail or closely linked iron or steel rings. The Norman hauberk was put on over the head like a modern sweater; other forms were fastened up in front. See Armour.

HAUPTMANN, GERHART (b. 1862). German dramatist and poet. Born at Salzbrunn, Nov. 15, 1862, he studied art, but began playwriting in 1889, producing *Vor Sonnenaufgang*, followed in 1890 by *Erdensfest*; *Einsame Menschen*, 1891; and *Die Weher*, 1892. With an almost repellent naturalism and realistic depiction of the meannesses and ugly trivialities of modern life, he struck a new chord in contemporary literature and art. From 1892 his outlook broadened. His *Eminenz Quint* appeared in 1910, *Atlantis*, 1912, and *Island of the Great Mother*, 1926. He received a Nobel prize in 1912.



Gerhart Hauptmann, German dramatist

HAUSA. Negroid people, mostly N. of the Benue and Niger rivers, Nigeria. Their culture, based on settled husbandry, handicrafts, and trade, advanced under Libyan impetus and the adoption of Islam by the upper classes. Their political power was overthrown by the Fula chief Dan Fodio in 1810, but since the British occupation of Sokoto in 1903 their virile temperament has again emerged. There are vigorous colonies in Tunis and Italian Libya. The Hausa military police regiments in British and Belgian territory are largely recruited from Hausa-speaking W. African negroes. See Negro.

The Hausa language is spoken in Africa by 15,000,000 people of Mahomedan faith, whose original home appears to have been between Sokoto and Bornu. It has been adopted as the trade language from Lake Chad to the Guinea coast, and a readership in the language has been established at Cambridge.

HAUSSMANN, GEORGES EUGÈNE, BARON (1809-91). French administrator. Born in Paris, March 27, 1809, his family was of German extraction. Educated in Paris, he entered the civil service, and became famous as the rebuilder of Paris, being responsible for the fine system of boulevards and the planning of the Bois de Boulogne. He also built bridges and provided Paris with a system of water supply and sewerage. He died in Paris, Jan. 11, 1891. The fine Boulevard, completed in 1928, preserves his name.

HAUTBOY (Fr. hautbois, high-wood). Wood-wind instrument consisting of a conical tube, with side holes, as in the clarinet and flute. It is played vertically with a double



Hausa woman with feet and arm bandaged after the ceremonial application of henna. Above, Hausa man



Baron Haussmann, French administrator

reed, and it first "overblows" at the octave. The tone has a peculiar nasal ring, very pleasant at its best, but harsh when forced. Hautboys were amongst the earliest of wind instruments to secure permanent places in the stringed orchestra. See Bassoon.



Hautboy,
military
model

HAVANA (Span. La Habana). Largest city of the W. Indies. The capital of Cuba, it is a busy commercial centre, linked by rly. with all the chief towns on the island. The bay forms one of the securest harbours in the world. There are many fine buildings, including the magnificent new capitol opened in 1929. The staple industry is the manufacture of cigars and tobacco. Sugar is produced in large quantities, and other manufactures include barrels and cases for the cigar and tobacco supplies, and carriages, wagons, and machinery. Pop. 528,700.

Founded in 1515 on the S. coast, Havana was removed to its present site in 1519, when it was known as San Cristobal de la Habana or Savanna. On Feb. 15, 1898, the U.S. battleship Maine was blown up in the harbour, and the incident led to the Spanish-American War. See illus. below.

HAVANT. Market town and urban district of Hampshire. It stands on Langstone Harbour, 7 m. N.E. of Portsmouth on the S.R. The industries consist of tanning, malting, and brewing. Market day, Tues. Pop. 4,405.

HAVELOCK, Sir HENRY (1795-1857). British soldier. The son of a shipbuilder, he was born at Sunderland, April 5, 1795. Educated at Charterhouse, he studied law until 1815, when he entered the Rifle Brigade. In 1823 he transferred to an Indian regiment, and saw active service in Burma, Afghanistan, and Persia. He distinguished himself during the Mutiny, but was unable to relieve Cawnpore, and only got through to Lucknow when reinforced by troops under Outram. He had just taken that city and been knighted when he died there of dysentery, Nov. 24, 1857. His services were recognized by a baronetcy to his son, Sir H. Havelock-Allan.



Havana. The new Capitol, opened in 1929.
See article above



Sir Henry Havelock,
British soldier

HAVFORDWEST (Welsb, Hwlfordd). Co., municipal bor., market town, and river port of Pembrokeshire, of which it is the co. town. It is on the W. Cleddau river, 8½ m. from Milford, and is served by the G.W.R. Its dominating feature is the keep of the 12th century castle. There is a trade in coal and agricultural and other produce. Market day, Sat. Pop. 5,750.

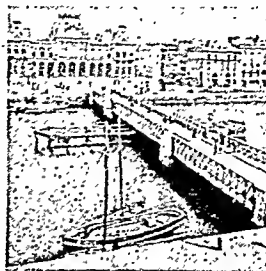
HAVERGAL, FRANCES RIDLEY (1836-79). British poet and hymn-writer. Born at Astley, Worcestershire, Dec. 14, 1836, daughter of the Rev. William Henry Havergal, writer of sacred music, she began to write verse at the age of seven. She is chiefly remembered as a writer of hymns, one being "Take my life, and let it be." She died June 3, 1879.

HAVERHILL. Market town and urban district of Suffolk. It is 16 m. from Cambridge on the L.N.E.R., and is the terminus of the Colne Valley line. The industries include the making of cloth, boots, and bricks, and there is a trade in agricultural produce. Market day, Friday. Pop. 4,083.

The American Haverhill is in Essex co., Massachusetts, on the Merrimack river, 32 m. N. of Boston. An industrial town, it has hoot and shoe factories. Pop. 49,232.

HAVERSACK (Ger. hafer, oats). The canvas bag in which soldiers carry their rations and personal effects. In the British army it is carried at the left side, either suspended from the belt or from a shoulder sling, the latter worn under the belt.

HAVERSTOCK HILL. London thoroughfare. It connects Chalk Farm with Rosslyn Hill, Hampstead. Belsize Park station on the Hampstead (Tube) Rly. is here; Haverstock Hill station on the L.M.S. and L.N.E. Rlys. is at Lismore Circus on the E. Near Belsize Park station is Hampstead town hall, built in 1877. See Hampstead.



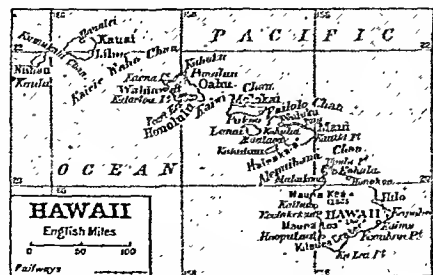
Havre. The Bourse and swing-bridge across the commercial dock

HAVRE or LE HAVRE. Seaport town of France, chief town of the dept. of Seine Inférieure. A modern, well laid out town, it is on the N. bank of the Seine estuary, 49 m. W. of Rouen, and has important engineering works, shipbuilding yards, oil refineries, chemical and dye works, a state tobacco manufactory, and many miscellaneous industries.

Havre is one of the greatest of French seaports, the main centre of trade with N. America, and the docks are extensive and well constructed. There is a regular steamer service between Southampton and Havre. The main block of warehouses covers about 60 acres. The chief trade is in coal, cotton, cereals, woods, sugar, coffee, and cocoa. Pop. 158,000.

Louis XII founded the chapel of Notre Dame de Grâce in 1509, whence came the town's old name of Havre-de-Grâce. During the Great War, Havre was an important base of the British Expeditionary Force, and from Oct., 1914, to Nov., 1918, the seat of the Belgian government.

HAWAII. Name given to a scattered chain of islands in the Pacific Ocean. Formerly called Sandwich Islands, they constitute a territory of the U.S.A. They are of volcanic



Hawaii. Map of the chain of islands which constitute a territory of the U.S.A.

origin, and cover an area of 6,449 sq. m. The inhabited islands are Hawaii, or Owyhee, 4,015 sq. m.; Maui, 728 sq. m.; Oahu, 600 sq. m.; Molokai, 261 sq. m.; Kauai, 544 sq. m.; Lanai, 135 sq. m.; Niibau, 97 sq. m.; Kahului, 69 sq. m.; and Kaula. Hawaii, of which Hilo is the capital, produces sugar, coffee, fruit, and rice, and contains in Mauna Kea (13,805 ft.) and Mauna Loa (13,760 ft.) two of the greatest active volcanoes in the world. There are 342 m. of rlys. Honolulu (q.v.) is the capital and chief port. The indigenous population, of the brown Polynesian race, are of good physique, but little inclined to industry. In language and religion they are related to the Tahitians. Japanese represent two-fifths of the population, which is about 255,000.

In 1805 a leper settlement was established on Molokai island. The islands were discovered, or re-discovered, in 1778 by Captain Cook, who was killed by natives in 1779. Ruled by native kings down to 1891, then by Liliuokalani (1838-1917), they were annexed by the U.S.A. in 1898, and in 1900 organized as a territory.

HAWARDEN. Village of Flintshire, Wales. It stands on a tributary of the Dee, 6 m. W.S.W. of Chester, on the L.N.E.R. There are remains of a 13th century castle, close to which is the modern Hawarden Castle, long the residence of W. E. Gladstone. The church, dedicated to S. Deiniol, has memorials to the Gladstones, and here are a 17th century grammar school and S. Deiniol's Hostel for theological students, founded by Gladstone. Coal mines have been opened. The Welsh name is Penarlwg. Pop. 8,016. Pron. Harden.

HAWES. Village of Yorkshire (N.R.). On the L.M.S. and L.N.E. Rlys., it has a trade in dairy produce, and there is a butter market. Market day, Tues. Pop. 1,430. Hawes Junction, 6 m. away, was the scene of a terrible railway accident, Dec. 24, 1910.

HAWESWATER. Lake of Westmorland. It is 25 m. N. of Kendal, and lies 700 ft. above sea level. It is about 2½ m. long. In 1918 Haweswater was purchased by Manchester as a reservoir for its water supply.

HAWFINCH (*Coccothraustes vulgaris*). Bird of the finch family, closely related to the grosbeak (q.v.). Common in S. Europe, it is frequently seen in England. It is about 7 ins. long, and is a handsome bird with light pinkish-brown breast, dark-brown back, wings banded with black, brown and white, large yellowish-brown head, and large blue beak.

HAWICK. Burgh of Roxburghshire, Scotland. It stands at the junction of the Slitwith the Teviot, 53 m. S.E. of Edinburgh on the L.N.E.R.

Near by are Branxholme and Harden, old residences of the Scotts. The annual festival, known as the "common riding," has been celebrated for upwards of 300 years. The hosiery and woollen manufactures are important, and a noted livestock market is held. The Hawick Burghs formerly returned an M.P. but they are now merged into the co. of Roxburgh. Pop. 16,353. Pron Haw-ick.

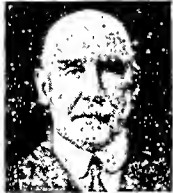
HAWK. Popular name for all birds of prey that are not eagles, vultures, or owls. The term should be restricted to some nine genera, which include the sparrow-hawks, goshawks, and harriers. See Kestrel.

HAWKBIT (*Leontodon*). Genus of perennial herbs of the order Compositae, natives of Europe and W. Asia. In appearance they are much like small dandelions. The flower-heads are yellow.

HAWKE, EDWARD HAWKE, 1ST BARON (1705-81). British sailor. Born in London, he entered the navy in 1720. Knighted for his

services in defeating a French squadron off Rochelle 1747 and elected M.P. for Portsmouth, his great exploit was in 1759 when, blockading Brest, he defeated the French admiral de Conflans in Quiberon Bay. He was first lord of the admiralty 1766-71 and was made a baron in 1776. He died at Sunbury Oct. 17, 1781.

Martin Bladen Hawke the 7th Baron (b. 1860), a famous cricketer, was born Aug. 16, 1860. Educated at Eton and Magdalene College, Cambridge he was Yorkshire's captain 1883-1910, during which period Yorkshire won the county championship eight times. He took out cricket teams to America in 1891 and 1894; to India, 1892-93; and to South Africa, 1895-96.



Lord Hawke,
English cricketer
Russell

HAWK EAGLE. Term best restricted to the genus *Nisaetus*, which comes nearest to the true eagles. The hawk eagles, of which there are several species, are found in S. Europe, Africa, India, and Australasia. Bonelli's hawk eagle (*N. fasciatus*) is often found about the Mediterranean, and is known in India as the peacock killer. It is extremely destructive in the poultry yard. The booted hawk eagle (*N. pennatus*) is no larger than a kite, and has a similar range. It commonly breeds in Spain.

HAWKER. Itinerant dealer or vendor. In law, a hawkier is distinguished from a pedlar as one who conveys his goods by horse or other beast, whereas the pedlar conveys his goods on foot. Hawkers and pedlars must take out licences, the former costing £2, the latter 5s.

HAWKER, HARRY GEORGE (1891-1921). British airman. Born in Australia, he settled in England, where he qualified as an air pilot. His flights became noted, and in some of them he set up world records for height and duration. In 1919 he competed for the prize of £10,000 offered by The Daily Mail for a flight across the Atlantic. He was forced to descend before he reached Europe, but was given a consolation prize of £5,000. Hawker was killed while flying, July 12, 1921.

HAWKER, ROBERT STEPHEN (1803-75). British poet and antiquary. He was born at Stoke Damerel, Devonshire, Dec. 3, 1803, and educated at Pembroke College, Oxford, where he won the Newdigate prize for a poem on Pompeii in 1827. He was vicar of Morwenston, Cornwall, 1834-75. His best known poems are *The Quest of the Sangraal* and *Cornish Ballads*, including *Trelawney*. He died at Plymouth, Aug. 15, 1875.

HAWKESBURY. River of New South Wales. It is formed by the junction of the Nepean and the Grose, is 330 m. long, drains a basin of 9,000 sq. m., and falls into Broken Bay, 25 m. N.N.E. of Sydney. It is proposed to dam its headstream, the Warraganda, to provide irrigation and electric power for the Sydney district.

HAWKING OR FALCONRY. The art of hunting with trained hawks or falcons. One of the oldest and most universal of sports, it was known in China about 2000 B.C., and is men-

tioned as prevalent in Europe by Aristotle, Pliny, and Martial. In Great Britain, hawking was practised in Saxon times, and was probably at the height of its popularity during the reign of Elizabeth.

The hawks employed are of two groups, the long-winged or "hawks of the hire," and the short-winged, or "hawks of the fist." The long-winged comprise the peregrine, the northern falcon, and the Iceland and Greenland varieties; the short-winged consist of the goshawk and sparrowhawk. Hawks are trained to kill grouse, partridges, and woodcocks, and occasionally hares and rabbits. A good dog is essential to assist in starting and retrieving the game. See Falcon.

HAWKINS OR HAWKINS, SIR JOHN (1532-95). English sailor. Second son of William Hawkins, a sea captain, he was born at Plymouth. After a number of voyages in which he seized negroes and exchanged them for merchandise, he was returned M.P. for Plymouth in 1572. Against the Armada, 1588, he was in command of one of his own vessels, the *Victory*, and was afterwards knighted. In 1592 he founded the Sir John Hawkins Hospital at Chatham, and in 1595, under Drake, he sailed to the Spanish Main. He died of fever, off Puerto Rico, Nov. 12, 1595, and was buried at sea.



Sir John Hawkins,
English sailor

His only son, Sir Richard (c. 1562-1622), commanded the *Swallow* in the fight against the Armada, 1588, and in 1593 set sail in the *Dainty* for a voyage round the world. He plundered Valparaiso, 1594, but, caught by two Spanish galleons, he was sent to Spain and kept captive until 1602. He died in London, April 17, 1622.

The British light cruiser, *Hawkins*, completed in 1919, was built at Chatham. Her length is 563 ft., tonnage 9,750, and engine power 60,000 h.p. She carries seven 7.5-inch and eight 3-inch guns, and is oil-burning. Sister ships are the *Effingham*, *Frobisher*, and *Vindictive*. Another, *Raleigh*, was wrecked, 1922.

HAWK MOTH. Popular name for the moths belonging to the family Sphingidae, of which about ten species are natives of Britain.



Hawk Moth. *Sphinx ligustri*, the privet hawk moth

They have long, narrow fore-wings and small hind ones, and mainly fly in the evening. Their caterpillars are always smooth, and usually have a horn-like process on the hindmost segment of the body. See *Death's Head Moth*.

HAWK'S BEARD (*Crepis capillaris*). Small annual herb of the order Compositae, a native of

Europe and the Canaries. The leaves chiefly grow from the root, with few bold teeth: the stem leaves are broader at the base, with ears. The stem is branched, bearing small yellow flower-heads with the florets all strap-shaped. The fruits have a parachute of unbranched silky hairs.

HAWKSHAW, SIR JOHN (1811-91). British engineer. Of a Yorkshire yeoman family, he was educated at Leeds Grammar School. He constructed the Charing Cross and Cannon Street stations and bridges, and built the E. London Railway and the tunnel under the Severn. Made F.R.S. 1855, and knighted in 1873, in 1875 he was president of the British Association. He died June 2, 1891.

HAWKSHEAD. Village of Lancashire. It is picturesquely situated in a valley between Windermere and Conistone. In the grammar school, founded in 1585, the poet Wordsworth was a pupil. Pop. 575.

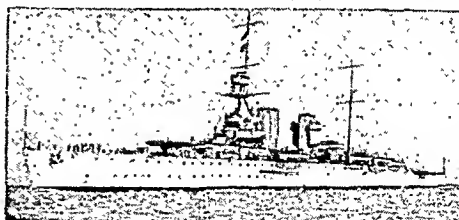
HAWKSMOOR. Estate in Staffordshire. Near Cheadle, it is a beautiful tract of country covering 207 acres, rich in flora and fauna. In 1927 it was acquired by the National Trust.

HAWKSTONE. Parish of Shropshire, 4½ m. N.E. of Wem. Hawkstone Park, once a seat of Viscount Hill, is situated under the N. slope of the Hawkstone hills, in extensive and beautiful grounds.

HAWKWEED (*Hieracium*). Large genus of perennial herbs of the order Compositae. Natives of the N. temperate and Arctic regions, they have milky juice and alternate leaves. The flower-heads are yellow or orange in colour.

HAWKWOOD, SIR JOHN (d. 1394). English soldier. His birth and parentage are uncertain, but he was probably a London apprentice. He won fame in the wars of Edward III, being made a knight. After the peace of Brothigny, in 1360, he became the captain of a band of mercenaries, called the *White Company*, at the head of which he won his great reputation. In 1375 Florence bought his services, and he died in that city. Later his remains were carried to England, and were probably buried at Castle Hedingham, in Essex.

HAWORTH. Urban district of Yorkshire (W.R.). It is 3½ m. S.W. of Keighley, on a branch of the L.M.S. Its chief associations are with the Brontës (q.v.). Penden Hall is regarded as the original of Emily Brontë's *Wuthering Heights*. The 14th century parish church, of which Patrick Brontë was curate, 1820-61, was, with the exception of the tower, rebuilt in 1879-81. In 1927 the parsonage was given by Sir James Roberts to the Brontë Society to serve as a Brontë museum. Pop. 6,605.



H.M.S. Hawkins, British light cruiser, completed in 1919
Cribb, Southsea

HAWTHORN, WHITETHORN OR MAY (*Crataegus oxyacantha*). Small spiny tree of the order Rosaceae. It is a native of Europe, N. Africa, N. and W. Asia. The leaves are wedge-shaped, variously cut into lobes; the flowers are white, in numerous clusters, fragrant, almost hiding the foliage by their abundance. See illus. p. 713.

HAWTHORNDEN. Village of Midlothian. It is 8 m. S.E. of Edinburgh, on the L.N.E.R., and is famous for its beautiful glen, through which the Esk flows, and for the fact that the house here was long the seat of the Drummonds. The poet William Drummond (q.v.) was born in it, and here he died, Dec. 4, 1649.

The Hawthornden Prize is a prize of £100 given every year by Miss Alice Warrender for a work of imagination by an author who is not over 40 years old. In 1928 it was won by Henry Williamson for *Tarka the Otter*, in 1929 by Siegfried Sassoon for *Memoirs of a Fox-Hunting Man*. In 1930 it was awarded to Lord David Cecil for *The Stricken Deer*.



Hawthorne. Clusters of blossom. See p. 712

HAWTHORNE, NATHANIEL (1804-64). American novelist. Born at Salem, Massachusetts, July 4, 1804, he was for many years an official in the customs service and from 1853-57 was American consul in Liverpool. In 1837 he brought out his first book of short stories, *Twice Told Tales*; *Mosses from an Old Manse*, in 1846; and *The Snow Image and Other Tales*, 1851. Many of these stories are tinged with the emotional residuum of the author's Puritan ancestry. In 1850 appeared his masterpiece, *The Scarlet Letter*, a study of the ravages made by a secret sin of adultery in the hearts and consciences of husband, wife, and lover. This was followed in 1851 by *The House of the Seven Gables*, a story of the decay of a family doomed to bear an hereditary curse. In 1852 Hawthorne brought out *The Blithedale Romance*, a satire, and in 1860 appeared his last romance, *Transformation, or The Marble Faun*. He died at Plymouth, New Hampshire, May 19, 1864.



Nathaniel Hawthorne. American novelist

HAWTREY, SIR CHARLES (1858-1923). British actor. Born Sept. 21, 1858, he was educated at Eton and Rugby. His first appearance was in 1881 at the Prince of Wales's Theatre, under the name of Bankes, and he was manager of the Globe. His Majesty's, and the Comedy. He produced many successful plays, and acquired great popularity, especially as Douglas Cattermole in *The Private Secretary*. Knighted in 1922, he died July 30, 1923.



Sir Charles Hawtreay. British actor. Foulsham & Banfield

Hawtreay was a grandson of Rev. Edward Craven Hawtreay (1789-1862) who was headmaster of Eton, 1834-52. He died Jan. 27, 1862.

HAY, IAN (b. 1876). Pen-name of John Hay Beith, Scottish novelist and dramatist. Born April 17, 1876, he was educated at Fettes College and St. John's College, Cambridge. For a time he was language master at his old school. For his services in the Great War he was awarded the M.C. and became a major. His books, characterised by both vigour and humour, include *Pip*, *The First Hundred Thousand*, *Carry On*, and *The Last Million*. His plays include *Tilly of Bloomsbury*, and *A Safety Match*, adapted from his books; also *The Sport of Kings*, produced 1924.

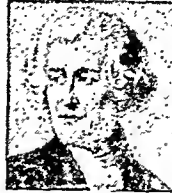


Ian Hay. Scottish novelist. Russell

HAY, JOHN (1838-1905). American diplomat, journalist, and author. Born at Salem, Indiana, Oct. 8, 1838, he was secretary to Lincoln and then editor of *The New*

York Tribune. He was in the diplomatic service at Madrid, Paris, and Vienna, and from 1897-98 was ambassador in London. He was secretary of state from 1898 until his death, July 1, 1905, being responsible for the Hay-Pauncefote and other important treaties. Hay's chief works are the standard life of Abraham Lincoln (with J. G. Nicolay), 1890, and *Pike County Ballads*, 1871.

HAYDN, FRANZ JOSEPH (1732-1809). Austrian composer. The son of a wheelwright, he was born at Rohrau, near Vienna, March 31, 1732. His oratorio, *The Creation*, was produced at Vienna in 1798, and *The Seasons* in 1801. Notable for his great skill in the treatment of the orchestra he composed about 150 symphonies, 77 quartets, and some 40 trios with a large body of religious music and songs. The national anthem of Austria, also familiar as a hymn tune, was composed in Vienna in 1797. He died in Vienna, May 31, 1809.



F. Joseph Haydn. Austrian composer

HAYDOCK. Urban district of Lancashire. It is 3 m. S.E. of St. Helens, on the L.N.E.R. The chief industries are coal-mining and iron-founding. Race meetings are held in Haydock Park. Pop. 10,333

HAYDON, BENJAMIN ROBERT (1786-1846). British painter and author. Born at Plymouth, Jan. 26, 1786, he jeopardised his prospects by quarrelling with the Academy, and after a stormy career he committed suicide, June 22, 1846. Haydon's work as an historical painter was far above the level of his time. One may cite his *Christ's Entry into Jerusalem*, 1820; *Wellington at Waterloo*, 1839; *Banishment of Aristides*, 1846; *Nero playing during the burning of Rome*, 1846. He was the author of an autobiography, published by his widow in 1847; and *Lectures on Painting and Design*, 1844, and other books on art.



B. R. Haydon. British painter. After G. M. Zornlin

HAYES. Urban dist. of Middlesex. It is 1 m. N. of Hayes and Harlington station on the G.W.R. Gramophones, printing presses, aeroplanes, seaplanes, and pianos are made. The parish church of St. Mary, restored in 1873-74, has a 13th century tower, a 16th century wooden roof to the nave, a lych gate, and some interesting monuments. Pop. 11,500.

HAYES. Village of Kent. It is 15 m. from Charing Cross, on a branch of the S.R. Hayes Place, pulled down in 1928, was the favourite residence of the 1st earl of Chatham, who died there, and the birthplace of his son, William Pitt. The Early English church of St. Mary, built on the site of a Roman structure, and containing brasses and other monuments of interest (including one to Chatham) was restored in 1861-62. Hayes Common, a breezy stretch of uplands, 220 acres in extent, was secured to the public in 1869. Pop. 1,010.

HAYES, RUTHERFORD BIRCHARD (1822-93). American president. Born in Delaware, Ohio, Oct. 4, 1822, he served with distinction throughout the Civil War. Member of Congress 1865-67, and governor of Ohio, 1868-72 and 1876-77, he stood for the presi-



R. B. Hayes. American statesman

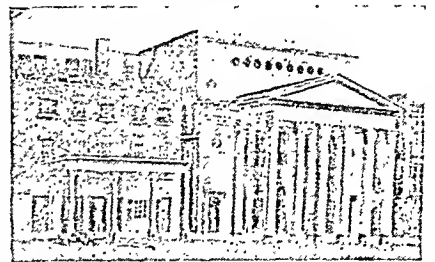
dency in 1876 on the Republican ticket and was elected by one electoral vote. He did much to improve the financial position of the country and pursued a conciliatory policy towards the southern states. He died at Fremont, Ohio, Jan. 17, 1893.

HAY FEVER. Catarrhal affection of the mucous membrane of the eyes, nose, mouth, and air-passages due to irritation by the pollen of various grasses and plants. The disease is common all over Europe and N. America, and chiefly occurs during the hay season. The symptoms are those of a heavy cold with much sneezing and headache. Sufferers from hay fever should avoid agricultural districts during the summer months.

HAYLING. Island of Hampshire. It lies between the harbours of Langstone and Chichester, and has an area of 10 sq. m. It is popular as a seaside resort, and there are golf links. The village of S. Hayling, on the S.R., has a church dedicated to St. Mary. There is a station at N. Hayling, 2½ m. from Havant and 69 from London. Pop. 2,722.

HAYMARKET. London street extending from the E. end of Piccadilly to Pall Mall, S.W. It was so named from the market for hay and straw held here before 1830. The Carlton Hotel and His Majesty's Theatre, on the W. side, cover the site of the King's Theatre or Italian Opera House, later Her Majesty's Theatre, demolished in 1893. The Haymarket Theatre on the E. side was opened July 4, 1821 on the site close to that of one dating from 1720. At the close of Buckstone's management in 1879, it passed to the Bancrofts, under whom it enjoyed great popularity, which continued undiminished under Beerbohm Tree, 1887-95; Cyril Maude and Frederick Harrison, 1896-1905; and later under Frederick Harrison alone.

HAYTER, SIR GEORGE (1792-1871). British artist. Born in London, Dec. 17, 1792, his reputation as a portrait and miniature painter was established when he was appointed portrait and historical painter to Queen Victoria, 1837. In 1838 he exhibited at the R.A. The Queen seated on the Throne in the House of Lords, now in the Guildhall, London. His picture of the Coronation and the Marriage are now in the royal collection at Windsor. His appointment in 1841 as principal painter to the queen was followed next year by a knighthood. He died Jan. 18, 1871.



Haymarket Theatre. Showing the new theatre, opened 1821, replacing the old theatre (left). See above. From an old print

HAYWARD, TOM (b. 1871). English cricketer. Born at Cambridge, March 29, 1871, he joined the ground staff at the Oval in 1891. He first played for Surrey in 1893, and for twenty years was one of the mainstays of the county team. Altogether he scored over 100 runs on 104 occasions.

HAYWARD'S HEATH. Urban dist. and market town of Sussex. It is 38 m. S. of London on the S.R. An important cattle market is held here. The council owns two parks. Market day, Tues. Pop. 5,090.

HAZARA. District of India, in the N.W. Frontier Province. The district contains extensive forests. Maize, wheat, and barley are the chief crops. Mineral resources include

coal, limestone building stone, gypsum, and iron. It exports grain and imports piece-goods, indigo, salt, etc. The area is 3,062 sq. m. Pop. 146,656.

HAZEBROUCK. Town of France. An important rly. junction, it lies on the canalised river Bourro, 32 m. W.N.W. of Lille. It was an important British centre and railroad in the Great War. Pop. 11,564.



Hazel. Leaves, nuts, catkins, and female flower

oily nut, enclosed in a woody shell, and: this in a large, leathery bract. Filberts, cob-nuts, Barcelona, and Spanish nuts are all varieties of this species.

HAZEL GROVE. Urban dist., in full Hazel Grove and Bramhall, of Cheshire. It is 2 m. S.E. of Stockport, on the L.M.S.R. There are silk throwing and cotton industries. Stockport provides the district with water and gas. Pop. 10,125

HAZLITT, WILLIAM (1778-1830). British essayist and critic. Son of William Hazlitt (1737-1820), a Unitarian minister of Irish descent, he was born at Maidstone, Kent, April 10, 1778. In the first rank of literary critics, and a writer who varied his style in harmony with his subject, he is chiefly remembered for his essays, including his *Characters of Shakespeare's Plays* and his *Lectures on the English Poets, English Comic Writers, and The Dramatic Literature of the Age of Elizabeth*. He also wrote a piquant series of personal sketches, *The Spirit of the Age*.



William Hazlitt, British essayist
From a miniature by his brother John

The years 1822-23 were notable for his temporary if passionate attachment to Sarah Walker, which inspired his morbidly egotistical *Liber Amoris*, or the *New Pygmalion*, 1823. Ill-health and monetary troubles darkened his later years, and he died in Frith Street, London, Sept. 18, 1830. He was buried in the churchyard of St. Anne's, Soho.

He left a son, William (1811-93), who was a registrar of the court of bankruptcy, and edited an edition of Montaigne.

HAZLITT, WILLIAM CAREW (1834-1913). British author. Born in London, Aug. 23, 1834, he was the son of William Hazlitt the younger. Educated at Merchant Taylors' School, and called to the bar at the Inner Temple, 1861, he devoted most of his life to literary and antiquarian pursuits. He died Sept. 8, 1913. A voluminous writer, he compiled *English Proverbs and Proverbial Phrases*, 3rd ed. 1906; was the author of *Memoirs of William Hazlitt*, 1867; and *Shakespeare: Himself and His Work*, 3rd ed. 1908.

HAZOR or **HAZUR.** Name of several places in Palestine. The most important was a city in Naphtali (Josh. 11, 1), a little S. of Kedesh,

which was taken and destroyed by Joshua, but having been rebuilt was fortified by Solomon (1 Kings 9, 15). It was afterwards taken by Tiglath Pileser, king of Assyria (2 Kings 15, 29).

HEADACHE. Pain in the head. It is a symptom of a large number of pathological conditions. The simple form is usually the result of fatigue. In dyspepsia it is associated with furred tongue, offensiveness of the breath, constipation, and discomfort after meals. In young girls the condition is often associated also with chlorosis or simple anaemia. Headache is also common in many forms of nervous breakdown such as neurasthenia, anxiety neurosis, and shell shock. Migraine is a form of severe headache, the exact cause of which is unknown.

Errors of refraction leading to eye-strain are another common cause of headache. Frequently recurring headaches indicate that there is some constitutional cause which should be remedied.

HEAD HUNTING. Custom among some primitive peoples of slaying strangers or enemies in order to utilise their heads as cult-objects or trophies. As developed out of human sacrifice by the Austro-Speaking peoples of S.E. Asia and its archipelagoes, its animistic purpose was partly spirit worship, partly a productive rite.

HEADLAM, ARTHUR CAYLEY (b. 1862). British prelate. Born at Whorlton, Durham, Aug. 2, 1862, the son of Rev. A. W. Headlam, he was educated at Winchester and New College, Oxford. He became fellow of All Souls College and was ordained. From 1896-1903 he was rector of Welwyn, and from 1903-1912 principal of King's College, London. In 1918 he returned to Oxford as regius professor of divinity, and in 1923 was made bishop of Gloucester. From 1901 to 1921 he was editor of *The Church Quarterly Review*, and he has written a great deal on theological subjects. In 1927-28 the bishop was among the strongest and ablest supporters of the revised prayer book.



Arthur C. Headlam, British prelate
Russell

HEALTH: Sound condition of the entire animal organism in which all the organs function perfectly. The widespread custom of drinking healths derives from the ancient religious ceremony of pouring libations to the gods, originally at the time of offering sacrifice, and afterwards on solemn occasions, as at ceremonial feasts. This custom was practised by the Greeks and Romans, and with other heathen customs was adapted to their own use by many Christianised peoples. The heathen tribute of honour to the gods, followed by one to the memory of the dead, became among Christians invocations to God and to the saints. From thought of the blessed dead it was a natural transition to tender thought of absent but living friends, and from them again to the friends present in the flesh.

HEALTH INSURANCE. Scheme introduced into Great Britain in 1911 when the first Health Insurance Act was passed through Parliament. Other Acts making minor alterations followed until in 1924 a consolidating and amending Act was passed. This, together with an Act of 1928, now embodies the law on the subject. In 1922, on the establishment of the Irish Free State, that part of Ireland withdrew from the scheme, which now applies only to Great Britain and Northern Ireland.

Except certain classes of workers, all employed persons between 16 and 65 years of age are insured. The contributions are paid by the employer, the employee, and the state. For men the premium is 10d. a week,

and for women it is 9d. The employer pays 5d. and the insured person 5d. if a man, and 4d. if a woman. Those figures are for Great Britain only. In Northern Ireland, where the benefits are somewhat less, the premiums are 8d. and 7d. The employer pays 4d. and an insured person 4d. or 3d., according to sex. These payments are estimated to provide 7/9ths of the total cost of the scheme, leaving 2/9ths as the share of the state. The only exceptions are in the case of workers who receive unduly low wages.

The contributions are paid by putting national health insurance stamps, which can be bought at any Post Office, on a contribution card. Contributions are not required for any week during which the insured person is prevented by illness from doing any work. The whole of the weekly contributions are paid in the first instance by the employer, but he is entitled to deduct the employee's share from his or her wages. Employers should remember that they must pay their share of contributions for any employee who is among the insured class but who, because of the possession of private means, or for some other reason, is exempt from the scheme.

The ordinary benefits to which insured persons are entitled are medical, sickness, disablement and maternity. There is no medical benefit in Northern Ireland, but sanatorium benefit is there provided. At one time this was also provided in Great Britain. In addition approved societies can give additional benefits to their members.

The ordinary rate of sickness benefit is 15s. a week for a man and 12s. a week for a woman, but until a person has been insured for 104 weeks and has paid 104 weekly contributions, the rates are 9s. for a man and 7s. 6d. for a woman. The normal rate of disablement benefit is 7s. 6d. a week for men and women alike, but all those rates are subject to reduction if the person is in arrears with his or her contributions. Qualified insured persons may apply to join the panel of any doctor for medical treatment, though the latter has the right to refuse to accept them. The panel chosen is usually in the insured's own district. See Pensions; Unemployment.

HEALTH, MINISTRY OF. British Government Department. The Act establishing it was passed in 1919, and on July 1 of that year the ministry took over the duties formerly performed by the home office and the local government board, and the work of the national health insurance commission, with their staffs; also certain duties with regard to the health of the children from the board of education. Its authority is confined to England and Wales. Its head is a minister, with a salary of £5,000 a year. The offices are in Whitehall, London, S.W. The Scottish Board of Health became the department of health in 1928.

HEALY, TIMOTHY MICHAEL (b. 1855). Irish lawyer and statesman. The son of Maurice Healy of Bantry, he was called to the Irish bar in 1884. He entered the House of Commons in 1880 as Nationalist M.P. for Wexford, and sat for co. Monaghan, 1883-85; S. Londonderry, 1885-86; N. Longford, 1887-92; N. Louth, 1892-1910; and N.E. Cork, 1910-18. He became an anti-Parnellite after the split of 1890, but in 1900 supported reunion under John Redmond. He was made a Q.C. in 1899 and called to the English bar in 1903. He was first governor-general of the Irish Free State, from Dec., 1922, to Dec., 1927. In 1928 he published *Letters and Leaders of My Day*.



Timothy M. Healy, Irish politician
Russell

HEANOR. Urban dist. and market town of Derbyshire. It is 3½ m. N.W. of Ilkeston on the L.M.S. and L.N.E. Rlys. The industries are coal-mining, iron-founding, and the making of hosiery. Market day, Sat. Pop. 21,436.

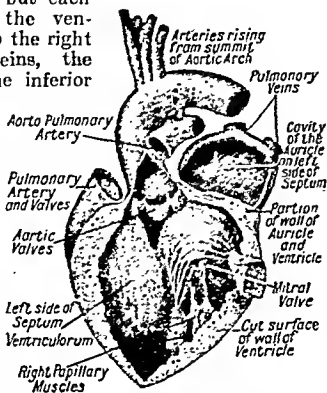
HEARING. Term used for the physiological sensations caused by vibrations exciting the auditory nerve. Sensations of sound are distinguished by three characters—loudness, pitch, and quality. Loudness depends on the extent of movement of the sound waves. The pitch of a sound depends on the number of vibrations occurring per second. It is possible to detect a sound whose pitch is so low as to be produced by 16 vibrations per second; or so high as to be produced by 30,000. There is reason to believe that some animals can hear sounds of a higher pitch, but the sensory cells along each side of the fish, which correspond with the mammalian ear, are only capable of perceiving vibrations of very low frequency—6 per second. The quality of a sound depends on the manner in which the vibrations succeed one another. If these are irregular a noise is produced, if regular and orderly, a musical note. See Acoustics; Audiometer; Ear.

HEARN, LAFCADIO (1856–1904). Author. Born in Leueadia (Santa Maura), one of the Ionian Islands, he was the son of an Irish Army doctor by a Greek mother. He became a journalist in the U.S.A., but in 1891 went to Japan, where he was professor of English in the university of Tokyo, 1896–1903. He married a Japanese wife and became naturalised as a Japanese subject. Hearn wrote with singular acuteness and charm on the people, manners, customs, and spirit of his adopted country. He died Sept. 23 1904.

HEARST, WILLIAM RANDOLPH (b. 1863). American newspaper proprietor. Born at San Francisco, son of Senator George Hearst, he secured control of The San Francisco Examiner in 1886, and made it a remunerative property. In 1895 he bought The New York Morning Journal, ran it in opposition to The New York World, renamed it The New York American, and became owner of similar "yellow" journals in the leading cities of the U.S.A. in addition to weekly and monthly periodicals.

HEART. In anatomy, the chief organ of the circulatory system of the blood. The human heart is a hollow, muscular organ of roughly conical shape, enclosed in a membranous bag called the pericardium. It is placed obliquely in the chest, lying behind the middle part of the breast-bone between the lungs. It consists of two upper chambers or auricles, and two lower chambers or ventricles. The right side of the heart is completely partitioned off from the left, but each auricle communicates with the ventricle of the same side. Into the right auricle open two great veins, the superior vena cava and the inferior vena cava, which return the blood from the body to the heart. The blood passes from the right auricle into the right ventricle, where is also the opening of the pulmonary artery.

The left auricle receives the four pulmonary veins, conveying the blood from the lungs, and opens into the left ventricle, from which springs the aorta or main blood vessel, through which blood is distributed all over the body. The communicating openings between the blood vessels are guarded by flaps, called valves, which prevent any backward flow of the blood.



Heart. Diagram showing left auricle and left ventricle, and other principal parts of the human heart

The heart goes through a series of contractions and relaxations, producing the familiar heart beat, the contraction being known as systole, the relaxation as diastole. In a healthy adult the heart beats on the average 72 times in a minute.

DISEASES OF THE HEART. The following are the main forms of acquired disease:

Endocarditis, or inflammation of the lining membrane of the heart, usually affecting the valves. The disease is due to infection by a micro-organism. Any valve of the heart may be affected by disease. The valve may not close properly (incompetency), with the result that the blood flows back into the chamber from which it has just passed; or the valve may be permanently narrowed (stenosis), so that the passage of blood from one chamber to another is impeded.

Besides changes in the valves, the muscular wall of the heart may suffer from disease. Acute dilatation of the heart (hypertrophy) may be the result of severe muscular effort, or may occur with valvular disease of the heart. Fatty degeneration of the heart may follow wasting diseases and prolonged fever. Pericarditis, that is, inflammation of the membranous sac surrounding the heart, most commonly occurs after acute rheumatism.

Angina pectoris (q.v.) is a term applied to sudden attacks of agonising pain in the heart. They are relieved by inhaling nitrite of amyl. Functional affections of the heart form an important class of disorder. The symptoms include pain over the heart, shortness of breath, dizziness, and palpitation. See Blood; Cardiograph; Pulse

HEARTH. Word generally used to signify the part of the floor of a room on which the fire is laid. It has come to mean the house itself, in such expressions as "hearth and home." In 1662 a tax of 2s on every hearth was introduced in England. The impost was very oppressive, and was abolished in 1689, although then producing £170,000 a year.

In metallurgy the term hearth is applied to the most elementary forms of furnace used for the extraction of metals, and to the beds of more elaborate structures. See Furnace.

HEART'S CONTENT. Port of Newfoundland, on the E. side of Trinity Bay. Here is the terminus of the cable from Valentia, Irish Free State. Pop. 1,000.

HEARTSEASE OR WILD PANSY (*Viola tricolor*).

Herb of the order Violaceae, native of Britain, N. Europe, N. Africa, and Asia. It differs conspicuously from the violets in the lyrate form of leaf with leafy stipules, and in the sepals having earlike processes. The small flowers are whitish, yellow, and purple, the tints sometimes combined in one flower, sometimes distinct. See Pansy.

HEARTSEED (*Cardiospermum halicacabum*). Climbing herb of the natural order Sapindaceae. A native of the tropics, its leaves are divided into coarsely toothed, lance-shaped leaflets. The small

greenish-white flowers form short sprays. The seed vessel is a bladder-like capsule, and the round seeds bear a heart-shaped scar.



Heartsease, flower and foliage

HEAT. Form of energy produced by the transformation of some other form of energy, e.g. by combustion, friction, or chemical action. When a body is heated its temperature increases, the body expands or increases in volume, and if the heating is carried far enough the body changes its state, e.g. from a solid to a liquid, or from a liquid to a gas. Latent heat is the heat needed to bring about such a change of state. Thus the latent heat of melting ice at 0°C. is 80 calories per gramme melted. Similarly when water is vaporised heat becomes latent, and is reconverted into sensible heat when the vapour is condensed. Heat is transferred by conduction, passing from molecule to molecule through the conducting body; by convection, as when the heated air round an incandescent mass expands and rises, giving place to colder air; and by radiation, or wave motion. Specific heat is the amount of heat needed to raise the temperature of a unit mass of a substance through one degree. The specific heat of an elementary substance bears a more or less constant relation to the atomic weight of the element. See Atom: Energy; Temperature; Thermometer

HEATH (*Erica*). Genus of wiry evergreen shrubs of the order Ericaceae, natives of Europe, Africa, and N. Asia. The slender, rigid leaves are much like small pine-needles, and are disposed mostly in whorls. The four petals are always united to form an egg-shaped, bell-shaped, or tubular corolla. Four species are natives of Britain, including purple heath (*E. cinerea*); the cross-leaved heath (*E. tetralix*); the crimson flowered tring heath (*E. ciliaris*) of S.W. England; and the Cornish heath (*E. vagans*). Many of the exotic forms are grown in English greenhouses.

HEATHCOAT, JOHN (1783–1861). British inventor. Born at Duffield, Derbyshire, Aug. 7, 1783, he started a business as a lace and net manufacturer in Loughborough, and in 1808 produced his great invention, a machine for making imitation pillow lace. In 1816 his factory at Loughborough was destroyed by the Luddites (q.v.); consequently he moved to Tiverton, where he set up as a lace manufacturer. From 1832–59 he was M.P. for Tiverton, and there he died, Jan 18, 1861.

HEATHER (*Calluna vulgaris*). Gregarious shrub of the order Ericaceae, native of Europe, W. Siberia, Azores, and N. America. The leaves are three-sided and minute, overlapping in four rows; the flowers rosy-purple, the four stiff sepals being much larger than the bell-shaped corolla. The plant covers vast extents of heath and moorland. The wiry stems and branches are useful for thatching, making brooms, and for fuel.

HEATHFIELD. Village of Sussex. It is on the Cuckmere, 15 m. from Tunbridge Wells with a station on the Southern Rly. It once had a cannon foundry.



Heartseed, foliage, flower and seed pod

HEATHFIELD, GEORGE AUGUSTUS ELIOTT, 1st BARON (1717–90). British soldier. Born at Stobs, Roxburghshire, Dec 25, 1717, he

The church of All Saints is mainly a 15th century building. Lord Heathfield took his title from here; he lived at Heathfield House, the old seat of the Deacres, and is buried in the church. From Gibraltar Tower, erected to his memory, there is a fine view The hamlet of Cade Street adjoins Heathfield. Pop. 3,178

joined the 2nd Life Guards in 1739, served with his regiment in the war of the Austrian Succession and was wounded at Dettingen and Fontenoy. Colonel of the 1st Light Horse in 1759, he distinguished himself in the Seven Years' War under Prince Ferdinand in the campaign of 1759-61. Promoted major-general in 1759, and lieutenant-general in 1765, he was sent in 1775 to command Gibraltar. In 1779 the Spanish opened the siege of the fortress, which Eliott held stubbornly for four years. On his return he was knighted, and in 1787 was raised to the peerage. He died July 6, 1790.



1st Baron Heathfield,
British soldier
After Reynolds

HEATING. In climates subject to low temperatures it is necessary for health and comfort to produce artificial warmth. The open coal-fire is an inefficient means of heating, while the closed coal-stove, standing in the room and connected with the chimney by a pipe, is probably the cheapest and most economical. Oil, gas, and electric stoves are efficient, but comparatively costly to run. The many systems of central heating are superior to any form of isolated heating, and one or other of them is almost invariably adopted for large buildings.

In the hot-water system the water heated in a boiler circulates through pipes and radiators in various parts of the building. In the steam-heating system the radiators are supplied with steam and the water of condensation drains back to the boiler. In the hot-air system the air, after being heated in a casing surrounding the furnace, rises through pipes to registers in different parts of the building, where it may be tempered with cold air admitted to the flue from outside.

HEATON. Common topographic term in the Manchester dist., S.E. Lancs. Heaton Norris, Heaton Mersey, Heaton Chapel, Heaton Moor all lie S.E. of Manchester near the Mersey, and are interested in the cotton industry. Heaton Norris (pop. 10,846) is separated from Stockport by the Mersey.

Heaton Park, in the urban dist. of Prestwich, formerly the seat of the earls of Wilton, was bought by the Manchester corporation in 1902, and the mansion houses collections of pictures and Oriental arms and armour.

HEATON, SIR JOHN HENNIKER (1848-1914). British postal reformer. Born at Rochester, he was Conservative M.P. for Canterbury in 1885-1910, and was created a baronet in 1912. He had large interests in Australia and, though never holding an official position in the government, he accomplished, as a private member, universal penny postage for letters within the British Empire, 1898, penny postage between the U.S.A. and the United Kingdom, 1908, money orders by telegraph in



Sir J. Henniker
Heaton, postal
reformer
Elliott & Fry

Great Britain, and a parcel post to France. He died Sept. 8, 1914.

HEAVEN. In Christian theology, the dwelling-place of God, the abode of the ascended Christ and the final home of the righteous. Belief in a future life is found in most primitive religions. It assumes various forms, some of which are inconsistent with the idea of a happy state after death. Both Hinduism and Buddhism have evolved complex doctrines of the hereafter. According to the Buddhist theology the state of final

blessedness consists in Nirvana, which involves the loss of individual existence. The highest heaven is a condition in which desire and pleasure have no place. The Koran teaches the resurrection of the body and represents the beatitude of the faithful as consisting of enjoyments of a sensual character. See Immortality.

HEAVISIDE LAYER. Ionised region of the upper atmosphere having a high degree of electrical conductivity. It is believed to exist at a height of about 60 miles above the earth. The layer is named after Dr. Oliver Heaviside, who suggested its existence in 1901. Wireless waves sent out by a transmitter may take a direct course over the earth's surface, or may strike the Heaviside layer and be deflected at an angle, reaching the earth again at some distant point. The reflecting power of the layer is much greater during the hours of darkness. Short-length waves travelling over the ground are soon absorbed and dissipated, and thus have a relatively short range, but if they are inclined upwards the waves are deflected by the Heaviside layer and reach a distant station with comparatively little loss of strength.

In broadcasting the effects of the Heaviside layer are apparent in the increased range of a receiver during the hours of darkness, both ground waves and deflected waves then reaching the receiver. During daylight hours it is chiefly the groundwaves which are received. See Wireless Telegraphy.

HEBBURN. Urban dist. and town of Durham. It stands on the Tyne, and is virtually a suburb of Jarrow. Shipbuilding, engineering, and chemical, rope, and sail manufactures are the chief industries. Pop. 25,000.

HEBDEN BRIDGE. Urban dist. and town of Yorkshire (W.R.). It stands on the Hebdon and Calder rivers, 8 m. W.N.W. of Halifax, on the L.M.S. Rly. The manufactures consist of cotton, silk, and fustians, and there are dye-works. Pop. 6,459.

HEBDOMADAL. Derived from the Greek word for seven, the name is given to a council in the university of Oxford, first appointed in 1631.

HÉBÉ (Gr. youth). In Greek mythology the goddess of youth. She was the daughter of Zeus and Hera, and was given in marriage to Heracles when he became a god. She was the cup-bearer of the gods before Ganymede. Her Roman counterpart was Juventas.



Hēbé, goddess of youth:
statue by Thorwaldsen
Thorwaldsen Museum,
Copenhagen

HEBER, REGINALD (1783-1826). British prelate and hymn-writer. He was born April 21, 1783, at Malpas, Cheshire. From 1804 until 1807 he was a fellow of All Souls, Oxford, and then became incumbent of Hodnot, Shropshire. He was Bampton lecturer, 1815; preacher at Lincoln's Inn, 1822; and second bishop of Calcutta 1822-26. He died April 3, 1826. He was the author of a number of hymns, including Holy, Holy, Holy, Lord God Almighty, and From Greenland's icy Mountains.



Reginald Heber,
British prelate
After T. Phillips

His half-brother, Richard Heber, born at Westminster, Jan. 5, 1773, was M.P. for Oxford University, 1821-26, and was one of the founders of the Athenaeum Club. He died Oct. 4, 1833. Scholar and book collector, he amassed more than 146,000 volumes, many of which he annotated.

HEBREW. The Hebrew language, belonging to the Middle Semitic or Canaanitic branch of the Semitic language, is closely related to Arabic, Aramaic, and Babylonian. Its characteristics include: two genders: three consonant roots and a comparative scarcity of adjectives. Originally consisting only of consonants, a system of vowel sounds, now in common use, was introduced by the Masoretes in the 7th century.

Hebrew is the original language of most of the O.T., outside which few examples of old Hebrew literature have survived. There is remarkably little variation between the earlier and later writings when it is considered that they cover nearly a thousand years. Differences of vocabulary, however, point to two periods in the language, probably divided by the return from the Exile.

Revivals of Hebrew letters include that which began in Italy in the 18th century, and is associated with the poet M. H. Luzzatto. This movement spread to Germany and later to Galicia. By the middle of the 19th century Russia took the lead, producing such writers as Abraham Mapu (1808-67), a creator of the Hebrew novel, Peretz Ben Moshe Smolenskin (1839-84), the essayist and novelist, and Constantine A. Shapiro (1840-1900), the poet. To more recent times belong poets like H. N. Bialik, Saul Tschernihovsky, Jacob Cohen, and Z. Schner.

The Hebrew religion, founded by Moses, claims exceptional consideration as the parent of two other great and world-wide monotheistic faiths, Mahomedanism and Christianity. Its wonderful development was carried on by a series of great men—among whom the patriarch Abraham is outstanding—who suddenly appeared as leaders and prophets. Regarded as the spiritual father of Israel, Abraham's migration from Mesopotamia (Ur of the Chaldees) to Palestine was due essentially to a religious impulse: it was a protest against degeneration in the Babylonian moon-worship. See Alphabet.

HEBREWS, EPISTLE TO THE. One of the canonical books of the N.T. In the English versions it bears the title The Epistle of Paul the Apostle to the Hebrews, but can hardly have been written by S. Paul, since it differs radically in language, style, and thought from the other Pauline writings. The use made of the O.T. by the writer suggests that his purpose was to save his readers from a relapse into Judaism. It would seem to have been written towards the end of the 1st century A.D.

The Gospel according to the Hebrews is one of the more important of the N.T. Apocrypha, which has survived only in fragments found in the writings of the fathers of the Church. It seems to have been written originally in Aramaic, and to have been intended for the Jewish Christian congregations of Palestine.

HEBRIDES. Group of islands off the W. coast of Scotland. Usually divided into the Inner and Outer Hebrides, the two groups are separated from each other by the Little Minch. The Inner Hebrides include Skye, Mull, Islay, and Jura. The Outer Hebrides, known as gneiss islands, include Lewis, with Harris, N. and S. Uist, Benbecula, and Barra. St. Kilda lies 40 m. west of N. Uist; the Flannan Islands are an isolated group W. of Harris.

The islands number over 600, but only about 100 are inhabited. They fall within the counties of Ross and Cromarty, Inverness and Argyll. In most parts the soil is sparse. Sheep-rearing and fishing are the staple industries. Stornaway, on Lewis, is a herring centre;

whisky is distilled in Skye, Mull, and Islay; tweeds are made in Harris; and slate is quarried in some of the smaller islands. In 1918 Lord Leverhulme (q.v.) purchased the island of Lewis with part of Harris to develop the fishing and weaving industries. The total area is about 2,800 sq. m.; pop. 80,000.

HEBRON (anc. Kirjath-Arba; Arab. El Khalil). Town of Palestine. It stands in the valley of Mamre, and partly on the slopes of two low hills, 16 m. S.S.W. of Jerusalem. A sacred city, it is one of the oldest in Palestine. It was the abode of Abraham, Isaac, and Jacob, besides other patriarchs, and its old walled mosque of Machpelah, opened to the public in 1928, is supposed to cover the tomb of Abraham. When Moses sent spies to view the Promised Land, they went to Hebron. Joshua gave it to Calch, and it was afterwards made a city of refuge. Here David was anointed king, and he chose it for his first capital.

In 1187 Hebron fell into the hands of the Saracens, and it remained in Mabomedan hands until the end of the Great War. It was occupied by the British under Allenby, Dec. 7, 1917, in the campaign in Palestine. Pop. 16,577.

HECATE. In Greek mythology, the goddess of night, the moon, child-birth, and of magic. In art she is represented in triple form, probably symbolic of her different spheres. Pron. Hek-a-tec.

HECKMONDWIKE. Urban district and market town of Yorkshire (W.R.). It is 8 m. S. by E. of Bradford on the L.M.S. Rly. Blankets, rugs, and carpets are manufactured, and there are iron foundries, machine shops, and dye works. In the neighbourhood are collieries. Market day, Tues. Pop. 9,031.

HECTARE (Gr. hekaton, hundred; Lat. area, area). Superficial or land measure of the French metric system. It is equal to 100 ares, or 10,000 sq. metres, being thus equal to 2.471 English acres.

ECTOGRAPH. Device for making a number of copies of a document, etc. It consists of a slab of gelatin material. The original document is prepared with a special aniline ink, and firmly pressed for a time on the gelatin, which absorbs the ink. From this a large number of duplicates may be obtained.

HECTOR. In Greek legend, son of Priam, king of Troy, and Hecuba, and husband of Andromachē. He was the chief champion of the Trojans during the war with the Greeks. He met his death at the hands of Achilles, to whose chariot his body was tied, and dragged off to the Greek camp. At the personal entreaty of the aged Priam, Achilles gave back the body for burial. See Andromachē; Iliad; Troy.

HECUBA (Gr. Hekabē). Wife of Priam, king of Troy, by whom she was the mother of Hector, Paris, Cassandra, and many other children. At the taking of Troy she was carried away captive by the Greeks to the Thracian Chersonese. Eventually she was metamorphosed into a dog, and threw herself into the sea. The events of her later life are the subject of Euripides' tragedy Hecuba.

HEDGE. Live fence in a garden or between fields. The best quick-growing plants for hedges are privet, whitethorn, laurel,

myrobella plum, and euonymus. All these should be planted in the autumn in country gardens; in the spring in towns or suburban areas. The most handsome permanent hedges are formed by box, yew, or holly, but all these are of slow growth.

HEDGEHOG (Erinaceus europaeus). Common British mammal, belonging to a genus with many species in various parts of the world. It is about 10 ins. long, and has a short tail of about 1½ in., a snout somewhat like that of a pig, and short limbs. Hedgehogs have the power of rolling themselves into a ball with the head and limbs tucked in so that nothing but their defensive armour of sharp spines is presented to an enemy. They are nocturnal in habit, and feed on insects, snakes, worms, snails, and birds' eggs, varied occasionally by small birds and mammals, together with fruit and roots.

HEDGEHOG MUSHROOM (Hydnum). Genus of fungi of the natural order Hymenomyetaceae. They are characterised by the spore-bearing surface taking the form of fleshy, awl-shaped spines instead of the plate-like gills of the common mushroom. Several species are among the best of the edible fungi, notably *H. repandum*, which grows in woods, sometimes forming rings or a segment of a circle. Another good esculent is *H. imbricatum*, with rough scaly top of a warm brown colour.

HEDGE MUSTARD (Sisymbrium officinale). Annual herb of the natural order Cruciferae. It is a native of Europe, W Asia, and N. Africa. The leaves are deeply cut into lance-shaped lobes; the flowers are pale yellow and minute, in a spray. Another species is the Garlic mustard (*S. alliaria*) with kidney-shaped lower leaves, and larger, white flowers, with a strong odour of garlic when bruised.

HEDIN, SVEN ANDERS (b. 1865). Swedish explorer. Born at Stockholm, Feb. 19, 1865, from 1885 he made many adventurous journeys in Asia, including three in Tibet, during which he attempted to enter Lhasa. In the last of these Tibetan explorations, in 1906, his two years' stay enabled him to construct the first detailed map of that district. His works include *Adventures in Tibet, 1904*; *Trans-Himalaya, 1909*; *The War Against Russia, 1915*; *My Life as an Explorer, 1925*; *The Gobi Desert, 1929*.

Hednesford. Colliery centre of Staffordshire, 10 m. N. of Walsall. Pop. 5,768.

HEDON. Borough of Yorkshire (E.R.). It stands near the Humber, 5 m. from Hull, and has a station on the L.N.E. Rly. Before the foundation of the port of Hull it was a flourishing port. It has a notable cruciform church, S. Augustine's. Hedon received a charter from Henry II. There is an aerodrome. Pop. 1,321.

HEDONISM (Gr. hēdonē, pleasure). View of life which regards pleasure (bodily or mental) as the greatest good. It was the chief doctrine of the Cyrenaics, and to a certain extent of the Epicureans. A refined form of hedonism, represented by Bentham, James and John

Stuart Mill, Herbert Spencer, and others, has been associated with the doctrine of utilitarianism, which, while upholding the hedonistic theory, sought the greatest happiness of the greatest number. See Utilitarianism.

HEEM, JAN DAVIDSZ DE (c. 1600-84). Dutch painter. Born at Utrecht, he was the son of David de Heem (c. 1570-1632), a still-life painter of distinction. He learned much from his father, but surpassed him both in variety of his still-life subjects and in technical equipment. Examples of his work are to be found in many German galleries and at the Louvre, Amsterdam, and The Hague, and the Wallace Collection has two.

His son was Cornelis de Heem (1631-95), who also carried on the style of his family in painting, working at Antwerp and The Hague.

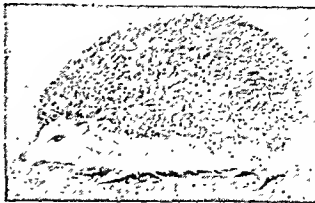
HEGEL, GEORG WILHELM FRIEDRICH (1770-1831). German philosopher. Born at Stuttgart, Aug. 27, 1770, he was appointed in 1801 to a professorship at Jena, which he was obliged to relinquish owing to the political upheaval. In 1808 he became rector of the academy at Nuremberg, in 1816 professor of philosophy at Heidelberg, and succeeded Fichte at Berlin in 1818, where he died Nov. 4, 1831.

The style of Hegel's writings is extremely involved and obscure. His system is divided into three parts: logic, the science of the pure ideas, of universal notions; the philosophy of nature, the development of the real world; the philosophy of spirit (mind), the development of the ideal world, the concrete spirit that attains actuality in ethics, politics, art, religion, and science.

HEGESIAS. Greek philosopher. Belonging to the Cyrenaic school, he flourished in Alexandria about 320-280 B.C. He regarded the attainment of positive enjoyment as impossible, and declared that death was preferable. According to him, the prevention of pain and indifference to externalities were the objects the wise man should set before him.

Another Hegesias was a sophist and rhetorician, a native of Magnesia at the foot of Mt. Sipylus in Asia Minor. He is considered the originator of the Asiatic or florid school of oratory.

HEIDELBERG. Town of Baden, Germany. On the Neckar, 12 m. from its junction with the Rhine, it is an important rly. centre, and has manufactures of surgical and other scientific instruments, and cigars. A cable rly. runs from the corn market to the castle. The university, founded in 1386 by the elector Rupert, became a stronghold of Protestantism. The present buildings date from 1712. Heidelberg's most interesting building is the castle.



Hedgehog. Specimen of the common British variety



Hedgehog Mushroom. Specimen of the edible *Hydnum repandum*



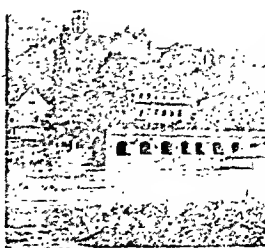
Hedge Mustard. Flowers and lobed leaves



Hector, the Trojan champion, as sculptured by Canova



G. W. F. Hegel, German philosopher: From a print



Heidelberg. The 13th century castle on a hill above the town

begun in the 13th century. The chief portions are the 16th century Otto Heinrichsbau, richly decorated with sculptures, and the 17th century Friedrichsbau, restored 1897-1903. The great tun of Heidelberg, holding 47,000 gallons, is in the cellars. Pop. 74,892.

The Heidelberg Catechism is a summary of the reformed evangelical faith, published at Heidelberg, 1563. It was approved by the Synod of Dort in 1619, and has been translated into many languages.

The Heidelberg jaw is the name of a fossil mandible of primitive man found in a sand-pit at Mauer, near Heidelberg, in 1907. See Anthropology: Ethnology; Man; and illus. p. 98.

HEILUNG KIANG. Province of China. It is one of the three provinces of Manchuria, and is traversed by the Chinese Eastern Rly. The area is 167,000 sq. m., and the capital Tsihsihar. The Amur river is sometimes called the Heilung Kiang. See Amur.

HEINE, HEINRICH (1797-1856). German poet. Born at Düsseldorf, Dec. 13, 1797, of a poor Jewish family, he studied law at the universities of Bonn, Göttingen and Berlin. In 1822 he published a collection of Poems, followed in 1823 by Tragedies, which, although they contained some of the most familiar poems later incorporated in his Book of Songs, were appreciated by only a few. In 1825 he became a convert to Christianity. Owing to the great success of his two volumes of *Pictures of Travel*: *The Journey in the Harz Mountains*, 1826; *The North Sea*; *Buch Le Grand*, 1827, he decided to devote himself to literature; and with the appearance of *The Book of Songs* in 1827 he became the most popular German poet of his day.

Like all young men of letters of the time, Heine was stirred by the revolution of 1830, and in 1831, disappointed and embittered by the treatment meted out to him at home, he settled in Paris, which remained his home for the rest of his life. There he did some journalistic work and wrote the four volumes entitled *The Salon*. In 1844 he published two volumes of *New Poems*, and a satiric epic, *Germany, a Winter Tale*. These were followed in 1847 by *Atta Troll*, generally recognized as his finest sustained poem, and in 1851 by the collection of poems entitled *Romanzero*. But in 1845 Heine fell a victim to creeping paralysis, and he died in Paris, Feb. 17, 1856.

HEIR. One who has the right of succession to an estate. Before the changes made in the Law of Property Acts of 1925 there was to most landed estates an heir at law, usually the eldest son, who succeeded to it. This relic of primogeniture is now abolished, and the succession to landed estates, if not settled by will, passes to the relatives according to the rules governing the property of intestates. The word heir is still used, however, in a general way for one who will succeed.

In English law an heirloom is something, a picture or piece of silver, for instance, that goes with a settled estate. See Intestacy.

HEJAZ or **HEDJAZ.** Formerly a Turkish vilayet, now a component part of the Arab kingdom of Hejaz and Nejd. It lies to a depth of some 200 m. along the E. coast of the Red Sea for about 800 m. N. of Asir. It contains the holy cities of Mecca and Medina, its principal source of wealth being the annual pilgrimage to Mecca. Jidda (Jedda), the port of Mecca, is the chief port. Yenbo is the port of Medina. The Hejaz rly. runs from Medina to Damascus and Beirut. The area of the united state is about 112,500 sq. m. Pop. between 350,000 and 400,000.

In 1916 the grand sherif of Mecca proclaimed his independence of Turkish rule, and was formally recognized by the Allies as Hussein, King of the Hejaz. An army was organized, which fought against the Turks and proved of great assistance to Allenby in his campaign in Palestine. In 1924, following an unsuccessful war with Ibn Saud, sultan of Nejd, Hussein abdicated in favour of his son. The latter was forced to abdicate in 1925, when the ruler of Nejd captured Mecca and proclaimed himself king. In 1927 Great Britain recognized the independence of Ibn Saud and the united state of Hejaz and Nejd. See Arabia; Hussein; Nejd.

HEJIRA or **HEGIRA** (Arab. hijra). Word meaning flight applied specially to the flight of Mahomet from Mecca to Medina in A.D. 622, from which event the Mahomedan era is reckoned. The Mahomedan era was inaugurated by the caliph Omar in 639, and is reckoned from July 16—the first day of the first month of the year in which the flight took place. Dates of the Mahomedan era are indicated by the letters A.H. (anno hegira), in the year of the flight.

HEKLA or **HECLA.** Volcano of Iceland. In the S. of the island, about 20 m. from the coast and 70 m. E. of Reykjavik, it is 5,109 ft. high, and has one large crater, 1½ m. in circumference, and several subsidiary ones. It has been active frequently.



Hecla. The great active volcano of Iceland, which is over 5,000 feet high.

HEL. In Norse mythology, daughter of Loki. She is described in the Prose Edda as purely evil, care being her god, hunger her dish, and starvation her knife. In other myths she was the guardian of the plains under the earth peopled by the happy dead, as well as of the caves of punishment.

HELDER. Seaport of the Netherlands, in the prov. of N. Holland. It stands at the northern extremity of the prov. and is separated from the island of Texel by the Mars Diep, a channel 2 m. in width. It owes its importance to its position at the entrance to the Zuyder Zee. About a mile E. of the town is the harbour of Nicuwe Diep, where are docks and shipyards and a naval cadet school. Pop. 29,192.

HELEN (Gr. Helenē). In Greek legend the woman of surpassing beauty whose seizure by Paris was the cause of the Trojan War. According to the earlier stories she was the daughter of Tyndareus and Leda, Castor and Pollux being her brothers. In a later version, Leda was visited by Zeus in the form of a swan, and gave birth to an egg, from which Helen, Castor and Pollux came forth. Helen became the wife of Menelaus, king of Sparta, and when Paris, son of Priam, king of Troy, came there on a visit, Aphrodite, in fulfilment of a promise to give Paris the most beautiful woman in the world, caused her to fall in love with the handsome visitor. After the capture of Troy Helen returned to Sparta with her husband, though, according to some legends, they sojourned for eight years in Egypt before reaching home.

HELENA, FLAVIA JULIA (d. 328). Wife of the Roman emperor Constantius Chlorus and mother of Constantine the Great. She was born of humble origin in Nicomedia, and

became famous for her devotion to Christianity. In her old age she made a pilgrimage to Jerusalem, and, according to a legend which first appears at the end of the 4th century, she discovered there the sepulchre of Our Lord and the wood of the Cross.

HELENSBURGH. Burgh and watering place of Dumbartonshire. On the N. bank of the Firth of Clyde, 4 m. N. of Greenock and 24 m. N.W. of Glasgow on the L.N.E. Rly., it was founded in 1777 by Sir James Colquhoun, after whose wife it was named. There is a monument to Henry Bell, a pioneer of steam navigation, who died here. The grounds of the Hermitage have been laid out for public use.

HELICON (mod Zagará) Mt. in S.W. Boeotia, ancient Greece. Its beautiful scenery caused it to be regarded as the home of the Muses, to whom there was a temple and in whose honour games were celebrated. The well of Aganippē at its foot, and the fountain of Hippocrēnē were also sacred to them.

HELICOPTER (Gr. helix, spiral; pteron, wing). Name for a type of flying machine which can raise itself vertically by means of horizontally revolving propellers or air-screws. Many attempts have been made to construct such a machine, but without success. In 1921 Oehmichen tested a helicopter in France which lifted 584 lb with a 25-h.p. engine. No attempt was made, however, to provide a method for balancing or moving forwards.

In a type of flying machine invented by Señor de la Cierva in 1920-23, and called by him the autogiro, a rotor or windmill revolving freely on a vertical axis at the centre of gravity of the aircraft is substituted for the supporting planes of the conventional aeroplane. Unlike the lifting air-screw of the helicopter, however, the rotor of the autogiro is not driven by mechanical power, but turns with the air pressure set up on its vanes when the aircraft is driven forward by the traction air-screw. The rotor has usually four blades, which are linked to the vertical shaft.

An initial impulse must be given to the rotor to cause it to revolve at the minimum speed necessary for support and flight. This is done by deflecting the slip stream from the traction air-screw on to the rotor blades while the aircraft is kept at a standstill. In this way the machine can take off with quite a short run. In making a landing the autogiro glides down to within a short distance from the ground and then drops vertically. If necessary an almost vertical descent may be made from a height, the rotor turning as the aircraft slowly comes to the ground, and in this way acting as a parachute. See Aeronautics; Aeroplane; Autogiro; Flight.



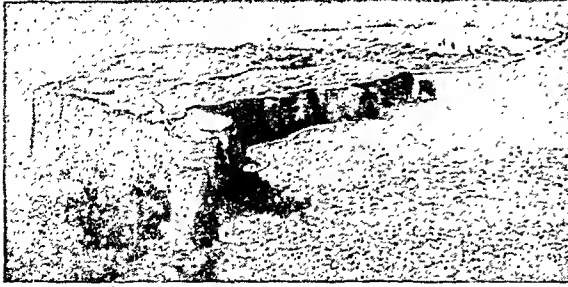
Autogiro light two-seater landplane, a machine which embodies features of the helicopter. See text.

Courtesy of The Cierva Autogiro Co.

HELIGOLAND or **HELGOLAND.** Island in the North Sea, belonging to Germany. It is about 44 m. from the mouths of the Weser and Elbe. Its circumference is about 3 m., having been steadily reduced by erosion. Its cliffs rise sheer from the ocean on all sides but the S.E., where there is a flat bank of sand. It is ½ sq. m. in area, and at one time was peopled mainly by Frisian fisher-folk and pilots.

Heligoland was taken from Denmark by Britain in 1807. Ceded by Britain to Germany

in 1890 in exchange for certain rights on the E. coast of Africa, it was strongly fortified by Germany, who by the peace treaty (1919) was compelled to dismantle the whole fortress.

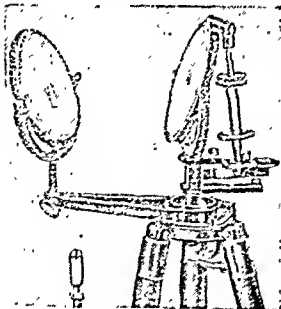


Heligoland, as it appeared when the Great War was at its height; this war harbour, which was practically impregnable, full of war vessels

BATTLE OF HELIGOLAND. This battle was a naval engagement between the British and the Germans, Aug. 28, 1914. Acting on information received from their submarines as to enemy movements in the light of Heligoland, the British decided to carry out a sweep. The Germans were completely surprised, and their 1st flotilla of destroyers was broken up by Tyrwhitt's light cruisers *Arctusa* and *Fearless* and 33 destroyers and Keyes's submarines.

Later the battle cruisers *Lion*, *Queen Mary*, *Invincible*, and others opened fire on the *Mainz*, leaving her helpless and sinking. The German *Cöln* was shelled till she burst into flames and was later sunk. From the *Mainz* the British rescued 350 men. The result of the battle was the loss by the Germans of 3 light cruisers and 1 destroyer, with 712 killed, 140 wounded, and 379 captured. The British casualties were 31 killed and 52 wounded.

HELIOGRAPH. Instrument consisting of a mirror capable of revolution, and so of reflecting the rays of the sun or of some artificial source of light over considerable distances. It is used principally for military signalling, especially in mountainous districts, and its messages are conveyed by long and short flashes in the Morse code. It was used in the S. African war.



Heliograph. Cavalry type with 3-inch mirrors
Courtesy of J. H. Steward

HELIOPOLIS (City of the Sun). Town of ancient Egypt, the chief seat of religious learning, formerly containing a famous university for the education of the priests. Called On in the Bible (Gen. 41, 45), it was known to the Egyptians as Annu. Portions of the great temple of the sun remain. Cleopatra's needles formerly stood here. Near is New Cairo, a residential suburb, connected with Cairo by electric railway.

HELIOS. In Greek mythology, god of the sun, identified in later times with Apollo, and sometimes called Hyperion. He crossed the sky day by day from east to west in a chariot drawn by four horses. See Apollo.

HELIOSTAT. Mirror mounted on an axis parallel to the axis of the earth and moved by clockwork so that it rotates with the same angular velocity as the sun, the image of which it reflects. In short, it follows the sun, and in consequence the rays of the sun when

reflected from it pass always in a fixed direction. See Spectroscopy

HELIOTROPE (*Heliotropium peruvianum*). Perennial plant with shrubby stem, of the order Boraginaceae a native of Peru. It has broad lance-shaped, wrinkled, and hairy leaves and clusters of lilac or dark-blue salver-shaped flowers which are pleasantly scented, whence its name of cherry pie. Heliotropin is a white crystalline substance with the odour of heliotrope, used as a perfume for soaps and toilet preparations. Chemically it is the methylene ether of pyrocatechinic aldehyde, and is also known as piperonal. Heliotropin is used in medicine.

HELIUM. Inert colourless gas of the argon family. It was first detected in 1868 by Lockyer in the spectrum of the sun's chromosphere during an eclipse. It is an element, with the symbol He, atomic weight 2, and atomic number 4. Helium is found in many minerals, chiefly those which contain uranium. It exists in the atmosphere to the extent of four parts in a million, and is contained in several natural gas supplies, also in many mineral springs. The density of helium is 1.98, and next to hydrogen it is the lightest gas known. As it is not inflammable, helium is used as the lifting gas in airships. See Atom: Gas; Radium.

HELL. In modern English, place or condition of punishment for impenitent sinners after death or after the final judgement. In the Authorised Version of the Bible it had the wider meaning of the place of the departed. The R.V. has distinguished between Hell and Hades. It should be noticed that the clause in the Apostles' Creed, "He descended into Hell," should be "He descended into Hades."

The Roman Catholic Church still holds to the doctrine of Hell developed by the medieval church which was greatly influenced by Augustine. According to this even unbaptized infants and virtuous pagans are in Hell. The severity of this view is, however, greatly mitigated by the belief that there are different regions in Hell, that of limbo, which is assigned to unbaptized infants, not being a place of torment.

HELLAS. Originally a small district of Thessaly inhabited by Hellenes, the supposed descendants of the legendary king Hellen, son of Deucalion. The name afterwards came to be applied by the Greeks to all places inhabited by those of their race. See Greece.

HELLEBORE (*Helleborus*). Genus of perennial herbs of the order Ranunculaceae, natives of Europe and N. and W. Asia. They have large leaves



Hellebore. Flowers and leaves of *H. foetidus*

deeply cut into lobes which are arranged finger-fashion. The showy parts of the flowers are the sepals which are coloured, whilst the petals are converted into small nectar-tubes. Owing to their cathartic and narcotic properties they were formerly used in medicine. *Helleborus niger* is the so-called Christmas Rose (q.v.); *H. foetidus*, stinking hellebore or setterwort; and *H. viridis*, the bear's-foot.

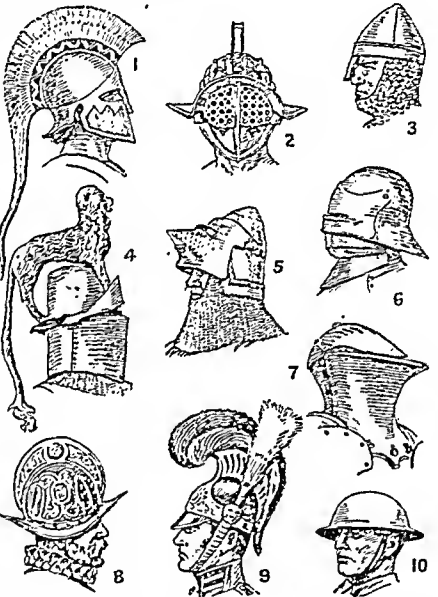
HELLENISM. Term applied to the school of culture which sought models of

artistic expression in the art of ancient Greece. Its chief characteristics in the best period of its development, both in art proper and in literature, were restraint and a sense of proportion and harmony. See Greece; Greek Art.



Heliotrope. Flower clusters of the sweet-scented herb

HELLESPONT (mod. Dardanelles) In ancient geography, strait separating the Thracian Chersonese from Asia. It was supposed to have derived its Greek name *Helle-spontos* (sea of Helle) from Helle, daughter of Athamas, who in her flight from her step-mother, Ino, on the ram with the golden fleece, fell into the sea and was drowned. See Dardanelles; Leander



Helmet. 1. Ancient Greek helmet. 2. Roman gladiator's helmet. 3. Norman helmet, 11th cent. 4. Heaume and crest of the Black Prince, 14th cent. 5. Visored bascinet, and camail, French c. 1400. 6. Salade, German, second half of 15th cent. 7. Tilting heaume, German, c. 1485. 8. Comb morion, English, 16th cent. 9. Helmet of trooper of Lie Guards, 1815. 10. Modern British helmet

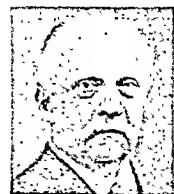
HELMET. Defence for the head in fighting. Helmets were worn by fighting men from very early times, and we know something about the kind of helmet worn by the Egyptians, Assyrians, Greeks and Romans. They were part of the armour of the knights.

In the 18th century a helmet based somewhat on the Greek form was adopted for heavy cavalry by most European armies, and this in turn gave place to the helmets of the dragoons and household cavalry worn only for ceremonial parade. The modern shrapnel helmet is based upon the 15th-century chapel de fer. Anti-gas helmets were used in the Great War.

HERALDIC HELMETS. In early art the helmet was represented as large as compared with the shield, and was placed indifferently full face or in profile. Modern practice enjoins that the sovereign and princes of the blood should have a helm of gold, with seven-barred

visor (grillos) placed full face, or affrontée. Various other types of helmets are used to denote lesser degrees of rank. See Armour; Casque; Heraldry; also illus. p. 642.

HELMHOLTZ, HERMAN LUDWIG FERDINAND VON (1821-94). German scientist. Born at Potsdam. Aug. 31, 1821, Helmholtz was a descendant of William Penn. He made a study



H. von Helmholtz,
German physicist

of director of the Physico-technical Institution of Charlottenburg, to which he was appointed in 1887. Helmholtz was responsible for many advances in the study of the eye and the nervous system. The invention of the ophthalmoscope is due to him. In 1856-66 was published his work *Physiological Optics*, one of the greatest advances in the theory of vision, etc., of the 19th century. His work on hearing, entitled *Sensations of Tone*, published in 1863, holds a like position in acoustics. He died at Charlottenburg Sept. 8, 1894.

Héloïse (c. 1101-64). French abbess, famous for her relations with Abélard (q.v.).

HELOT (Gr. *heilôtes*). Lowest section of the community in Sparta. Their position was analogous to that of the medieval villein in England and of the Russian serf before his emancipation, though they belonged to the state, and not to any individuals, and could not be removed from the land. The ruling class of Spartans employed them to cultivate their farms, and they had to hand over a fixed quantity of the produce of the farm each year, being allowed to keep any surplus. In time of war they served as light-armed infantry, and sometimes as oarsmen.

HELPS, SIR ARTHUR (1813-75). British essayist. Born at Streatham, July 10, 1813, and educated at Eton and Trinity College, Cambridge, in 1860 he became clerk to the privy council, a post which he held until his death. In this capacity he came much into contact with Queen Victoria, and at her request edited *Prince Albert's Speeches and Addresses*, and *Leaves from a Journal of Our Life in the Highlands*. His original works are numerous and included the popular *Friends in Council*. He was knighted in 1872, and died in London, March 7, 1875.

HELSINGFORS (Finnish Helsinki). Capital of Finland. It stands on the Gulf of Finland, 250 m. by rly. W. of Leningrad. Besides being an educational, scientific and industrial centre, it is an important commercial city and port. The university, founded at Åbo (Abo) in 1640, was moved to the capital in 1827 when Åbo was burned down. The port consists of three harbours and a roadstead with a good anchorage. Pop. 220,004. See Finland.

HELSTON. Borough and market town of Cornwall. It stands on the Cober, 10 m. W.S.W. of Falmouth on the G.W. Rly. and is noted for the annual celebration on May 8 of a festival known as the Furry or Flora Dance.



Helsingfors, Lutheran church
of S. Nicholas

It was one of the stannary towns, and tin and copper were extensively worked. Near is Looe Pool, into which legend says the sword Excalibur was thrown. Market day, Mon. Pop. 2,930. See Flora Day.

HELVETIY. N. Mountain of the Lake District. It is on the borders of Cumberland and Westmorland overlooking Ullswater. Its height is 3,118 ft. See Lake District.

HELVETIA. Old name for Switzerland. It comes from the Helvetii, a tribe who lived there about 200 B.C. In 58 B.C. they invaded Gaul, but were defeated by Julius Caesar. The name Helvetic Republic was given to the republic set up in Switzerland by the French Directory in 1793. Its capital was Lucerne, but it only lasted until 1803. See Switzerland.

HEMANS, FELICIA DOROTHEA (1793-1835). English poet. Born at Liverpool, Sept. 25, 1793, she was the daughter of George Browne, a merchant. In 1812 she married Captain Alfred Hemans, but they separated four years later. As a child Mrs. Hemans had shown much precocity, and a volume of her poems was published when she was 14. Her chief works are *The Siege of Valencia*, 1823, an unacted play; *Lays of Many Lands*, 1825; *The Forest Sanctuary*, 1825; her own favourite *Songs of the Affections*, 1830; *Hymns for Childhood*, 1834. She died May 16, 1835.

HEMEL HEMPSTEAD. Borough and mkt. town of Hertfordshire. The old town is on the river Gade, 24 m. N.W. of London, and near the Grand Union Canal, with a station on the L.M.S. Rly. In the High Street are fine houses and some old inns. Gadebridge Park is on the west. The name is also given to a rural district. The ancient church of S. Mary, partly rebuilt in 1846 and restored in 1863, has 14th and 15th century roofing and interesting monuments. Market day, Thurs. Pop. 13,832.

HEMIMORPHITE. Important ore of zinc, containing over 50 p.c. of the metal. A hydrous zinc silicate, it is remarkable for its form of crystallisation and for the electric character of the crystals with variation of temperature. The crystals are colourless or slightly yellow, blue, red, brown, or green. It is found with other zinc ores in Carinthia and Westphalia, and in parts of England and the U.S.A. See Zinc.

HEMIPTERA. Order of insects, including bugs, plant lice, water scorpions, lice, and others. There is a beak for piercing or sucking. There are generally four wings, the fore ones being horny. See Bug; Insect.

HEMLOCK (*Conium maculatum*). Biennial herb of the order Umbelliferae. A native of Europe, N. Africa, N. and W. Asia, it has a stout, furrowed stem, spotted with purple, and is 2 ft. to 4 ft. high. The leaves are wedge-shaped, finely divided, fern-like; flowers small, white, in compound umbels. All parts of the plant, but especially the fruits, contain an oily, poisonous fluid, the active principle of which is an alkaloid, coniine. Poisoning by hemlock was the usual death for condemned criminals among the ancient Greeks, and Socrates died in this way.

HEMLOCK SPRUCE (*Tsuga canadensis*). This is an evergreen timber tree of the order Coniferae. A native of N.E. America, it attains a height of 60 ft. to 80 ft. It is a timber tree and the bark is used for tanning.

HEMP. Commercially, a general name for textile fibres produced by a number of unrelated plants. African bow-string hemp is

yielded by *Sansevieria guineensis*; Indian bow-string hemp by *Calotropis gigantea*; Bengal, Bombay, Madras, Brown, and Sunn hems by *Crotalaria juncea*; Jubbulpore



Hemp, or Cannabis
sativa

hemp by *Crotalaria tenuifolia*; Indian, hemp by *Apocynum cannabinum*; brown Indian hemp by *Hibiscus cannabinus*; Manila hemp by *Musa textilis*; and sisal hemp by *Agave sisalana*. True hemp (*Cannabis sativa*) is cultivated for its fibre in most European countries. The fibre is used in the production of strong ropes and twines, and woven into wear-resisting wrappers, conveyer belts, sail-cloth, and fire-hose. Hemp is used as a drug or intoxicant under the names of bhang, ganja, and charas. Hashish is the Arabic name given to a preparation of the leaves.

HEMP AGRIMONY OR BLACK ELDER (*Eupatorium cannabinum*). Perennial herb of the order Compositae, a native of Europe, N. Africa, and N. and W. Asia. It has a branching stem about 4 ft. high, and the leaves are divided into three or five lance-shaped toothed leaflets. It is one of the simplest of the composite flowers, each head consisting of five or six pale purple tubular florets, but the heads are gathered into large clusters.



Hemp Agrimony
or Black Elder

HEMP NETTLE (*Galeopsis tetralix*). Annual herb of the order Labiatae, a native of Europe and N. and W. Asia. It has a bristly stem, with swollen joints, and oval-lance-shaped leaves with coarsely toothed edges. The rosy or white flowers are in whorls.

HEMSWORTH. Urban district of Yorkshire (W.R.). It is 8 m. S.E. of Wakefield on the L.N.E. Rly. Mining and stone quarrying are the chief industries. The hospital and free grammar school were founded in the 16th century. Pop. 12,940.

HENBANE (*Hyoscyamus niger*). Biennial herb of the order Solanaceae, a native of Europe, N. Africa, and N. and W. Asia. The leaves are oval, lobed or toothed, the upper ones clasping the stem; the flowers are large, funnel-shaped, and dull yellow, veined with purple (see illus. p. 456). The fruit is a many-sided capsule with a distinct lid. The dried leaves are used in medicine. The active principles are poisonous alkaloids known as hyoscyamine and hyoscyne or scopolamine.

HENDERSON, ARTHUR (b. 1863). British politician. Born in Glasgow, Sept. 13, 1863, he became a moulder at Newcastle and was soon a leading trade unionist. He was on the town councils of Newcastle and Darlington, and in 1903 was mayor of Darlington. His name was mentioned as a parliamentary candidate for Newcastle in 1895, but it was not until 1903 that he entered the House of Commons as Labour M.P. for Barnard Castle. He was chairman of the party in Parliament 1908-10 and 1914-17. In May, 1915, he joined the coalition ministry as minister for education, and in Dec., 1916 became minister without portfolio. In 1917 he visited Russia, and on his return differences with Lloyd George led to his resignation in Aug.

In 1918 at the general election, Henderson



Arthur Henderson,
British politician

lost his seat at Barnard Castle, but was returned for Widnes in 1919. In Jan., 1923, he was elected for East Newcastle, but in a few months he lost his seat there, so in 1924 one was found for him in Burnley. In the first Labour Government (1924) he was home secretary and in the second, formed in 1929, secretary for foreign affairs. In the interval he acted as chief whip of the Labour party.

HENDON. Urban district of Middlesex. It stands on high ground, near the river Brent, 8 m. N.W. of London, with stations on the L.M.S. Rly and the Hampstead Tube. The main street, called The Burroughs, runs S.W. to Station Road, which leads to the Edgware Road, by the Brent Reservoir, where are the Upper Welsh Harp and the Old Welsh Harp, holiday resorts. There is an aerodrome, where the annual R.A.F. display takes place.

The old Perpendicular parish church of S. Mary has a battlemented tower. In 1928 the rural district council bought Headstone manor farm, at one time a residence of the archbishops of Canterbury, to make a recreation ground; in the grounds is a 15th century tithe barn. In 1928-9 University College, London, erected an observatory in Mill Hill Park. Pop. 75,747. See Aerodrome.

HENGIST. Anglo-Saxon chief, reputed the leader of the first Anglo-Saxon invaders of England. The story is that the British king Vortigern invited the Anglo-Saxons, or some people of kindred race, to come over and help him against his enemies. Under Hengist and his brother Horsa, they came in or about 450, landing at Ebbsfleet in Kent. They settled in Thanet, becoming little kings. Hengist reigned until 488.

HENGIER'S CIRCUS. Amphitheatre, formerly in Argyll Street, Regent Street, London, W. It was built by Frederick Charles Hengier in 1871, and rebuilt in 1884, on the site of Argyll House. The site is now occupied by the Palladium, a variety theatre.

HENLEY, WILLIAM ERNEST (1849-1903). British writer. Born at Gloucester, Aug. 23, 1849, he was educated there. Settling in



W. E. Henley,
British poet
Elliott & Fry

London in 1877, he edited successfully the weekly paper *London, The Magazine of Art, The Scots* (afterwards the *National Observer*, and *The New Review*. Meantime he obtained recognition as poet with *A Book of Verses*, 1888. He edited, with T. F. Henderson, the *Centenary Burns*, 1896-97, to which he contributed a noteworthy critical appreciation of the poet; also *Lyra Heroica*, 1891, a book of verse for boys. With his close friend, R. L. Stevenson, he collaborated in four plays. He died at Woking, July 11, 1903.

HENLEY-ON-THAMES. Borough and market town of Oxfordshire. It stands on the N. side of the Thames, 36 m. from London, and is served by the G.W. Rly. A fine bridge, built in 1786, crosses the river here. The church of S. Mary, with a lofty tower, is an old building. Market day, Thurs. Pop. 6,841.

Henley Regatta, the famous sporting fixture, consists of rowing and sculling races for amateurs. It takes place annually in July.

HENNA. Powdered leaves of *Lawsonia alba* or *inermis*, a shrub that grows in tropical Asia. It is used for dyeing the hair a reddish-brown colour.

HENRIETTA MARIA (1609-69). Queen of Charles I. (q.v.). The youngest daughter of Henry IV of France, she was born in Paris, Nov. 25, 1609. Betrothed to Charles in 1624, after he had failed to secure a Spanish bride,

she was married to him by proxy in May, 1625, just after Charles's accession. The queen was fond of gaiety and extravagant, but her partiality for the Roman Catholics governed almost all she did in English politics, and her activities just before the outbreak of the Civil War did much to fan the flame of discontent. In 1644, she left England and never saw Charles again, although she urged him continually to resist, and was always scheming in his interests and those of their children.

She returned to England in 1660, living for some time at Somerset House, London. She died at Colombes, Aug. 31, 1669.

HENRY. Unit measurement of inductance (q.v.). When the inducing current is changing at the rate of one ampere per second and produces in an adjacent circuit a pressure difference of one volt, the degree of inductance is equal to one henry. See Henry, Joseph.

HENRY I (1068-1135). King of England. Born at Selby, Yorkshire, he was the third surviving son of William the Conqueror. On the death of William II he promptly secured the throne in the absence of his elder brother Robert of Normandy. In the course of his reign of thirty-five years (1100-1135) he won for himself the name of the lion of justice. His only son, William, was drowned in the White Ship. He left his throne to his only daughter, Matilda; but on his death, Dec. 1, 1135, the crown was claimed by his nephew Stephen.

HENRY II (1133-89). King of England, the first of the Plantagenets. He was born at Le Mans, March 5, 1133, the son of Geoffrey, count of Anjou, who was the second husband of the Empress Matilda or Maud, daughter of Henry I of England. He succeeded his father as count of Anjou, received his mother's duchy of Normandy, and married Eleanor, duchess of Aquitaine, in 1152. In 1154 he succeeded Stephen on the English throne in place of his mother, who still survived. His later years were vexed by the disobedience of his sons, and he was fighting against one of these, Richard, when he died at Chinon, July 6, 1189. His sons were Henry and Geoffrey, who predeceased him; Richard, and John who became kings of England. See illus. p. 167.

HENRY III (1207-72). King of England. Born at Winchester, Oct. 1, 1207, he succeeded his father, John, in 1216, while the struggle with the barons was still in progress. During the years of his minority the country was well governed, first by Pembroke and then by Hubert de Burgh. In 1227 Henry's personal reign began.

This was largely occupied with struggles with the barons who were irritated and the country impoverished by the riches heaped by the king upon his foreign friends, some of whom came over with his wife, Eleanor of Provence, whom he married in 1236. In 1264 he was defeated by Simon de Montfort, after whose death in 1265 he was dominated by his son, afterwards Edward I. Henry died Nov. 1, 1272.

HENRY IV (1367-1413). King of England. Born near Spilsby, Lincolnshire, April 3, 1367, he was the son of John of Gaunt, duke of Lancaster, grandson of Edward III, and cousin of Richard II. During Richard's reign he was one of the lords appellant who opposed the king's early policy. In 1398, being then known as duke of Hereford, he was sent into exile. On his father's death he returned to England in 1399, nominally to claim his estates, actually to depose Richard and set

himself on the throne. With him began the rule of the house of Lancaster. Henry died March 20, 1413. He had six children, including Henry V and the dukes of Bedford, Clarence and Gloucester.

HENRY V (1387-1422). King of England. Born Aug. 9, 1387, as prince of Wales, Henry acquired training as a soldier in the campaign against the Percys and in Wales, and he played an active part at the council table during his father's last years. At the beginning of his reign he turned his mind to the project of reviving the untenable claim of the English kings to the French crown. In 1415 an expedition set sail for Normandy, laid siege to Harfleur, and captured it. Leaving a garrison there, Henry, with a small force, won the victory of Agincourt, Oct. 25, 1415. On May 21, 1420, the treaty of Troyes was signed which recognized Henry as heir to Charles and regent during his life, while it gave him the hand of the princess Catherine in marriage. Henry died of dysentery at Vincennes, Aug. 31, 1422. See Agincourt.

Henry V,
King of England
After an unknown
artist.
Nat. Port. Gallery

HENRY VI (1421-71). King of England. Born Dec. 6, 1421, the only son of Henry V, he succeeded to the thrones of England and France, Aug. 31, 1422. During his childhood the government was in the hands of a council, while his uncle, the duke of Bedford, acted as regent in France. The second section of the reign, 1435 to 1453, witnessed the gradual expulsion of the English from France.

The third period of the reign was marked by the rivalry between the Yorkists under Richard, duke of York, on the one side, and the Beauforts, the descendants of John of Gaunt, duke of Lancaster, aided by the queen, Margaret of Anjou, on the other. York was recognized as protector during the king's temporary madness. In 1460 Henry was taken prisoner, and it was agreed that he should retain the crown, but that his successor should be Edward duke of York. York was killed at Wakefield, Dec. 31, 1460, and soon Henry escaped from his captors and found refuge in Scotland. In 1465 he was caught again and imprisoned in the Tower. In 1470 Warwick revolted against Edward, drove him out of the country, and again set Henry on the throne. But in 1471 Edward returned, and finally crushed the Lancastrians at Barnet and Tewkesbury. Henry was put to death, May 21, 1471.

To Henry England owes Eton College and King's College, Cambridge.

HENRY VII (1457-1509). King of England. Born at Pembroke Castle, Jan. 28, 1457, his father, Edmund Tudor, married Margaret Beaufort, a descendant of John of Gaunt, duke of Lancaster, and it was through his mother that Henry claimed the English throne. Edmund, who had been made earl of Richmond, died just before his son's birth and Henry spent his early days mainly in France. In 1485 he landed in Wales and marched to

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Bosworth where a decisive battle was fought, and Richard III was killed. Parliament recognized Henry as his successor and he secured his position by marrying Elizabeth, daughter of Edward IV.

Henry's great task was the re-establishment in England of a strong government, which he did by destroying the power of the remnant of the nobles left by the War of the Roses. He died April 22, 1509, leaving his successor an unprecedented accumulation of wealth. Henry had two sons, Arthur, his successor Henry, and two daughters, Margaret and Mary. Margaret's marriage to James IV of Scotland was responsible for the union of the two crowns in 1603.

HENRY VIII (1491-1547). King of England. Born at Greenwich, June 28, 1491, he succeeded his father in 1509, his elder



Henry VIII,
King of England
After Holbein

brother Arthur having died in 1502. After obtaining a papal dispensation, he married his brother's widow, Catherine of Aragon. His reign falls into two definite periods, the first, that of Wolsey's ascendancy, ending in 1529. The second is marked by the complete establishment of the royal supremacy, in which Henry's principal

agent was Thomas Cromwell.

The last six years of his reign were marked by a desultory war with France, and by the overthrow of an invading Scots army at Solway Moss in 1542. Henry married six times. The marriage with Catherine of Aragon was annulled; Anne Boleyn was executed on charges of treasonable infidelity; Jane Seymour died in giving birth to the future Edward VI; the marriage to Anne of Cleves was pronounced void within a few weeks of its celebration; Catherine Howard suffered the same fate as Anne Boleyn; but the sixth wife, Catherine Parr, survived her husband. Henry died Jan. 28, 1547. His three children all succeeded him on the throne. See England.

HENRY. Name of seven rulers who were German kings and heads of the Holy Roman Empire. Henry I, duke of Saxony, was chosen German king in 919. Known as the Fowler, he reigned until 936, when his son Otto became king and later emperor.

Henry II, duke of Bavaria, was elected king in 1002 and in 1014 was crowned emperor. He died in 1024 and his interest in the affairs of the church led to his canonisation in 1146. Henry III, son of Conrad II, became king in 1039 and was crowned emperor in 1046. He died Oct. 5, 1056. Henry IV, son of Henry III, was born Nov. 11, 1050 and was only six years old when he became king on his father's death. At first under regents, his own reign began in 1069 and was mainly occupied by his struggle with Gregory VII on the subject of investitures. His later years were troubled by the revolts of his sons, and he was taken prisoner and forced to abdicate. He died Aug. 7, 1106.

Henry V, recognized as the successor of his father Henry IV in 1099, became king in 1106 and was crowned emperor in 1111. In his reign the investiture controversy was settled by the concordat of Worms (1122).

Henry VI, son of the great emperor Frederick I, reigned from 1190 to 1197. He married Constance, daughter of the king of Sicily, and became king of that island. He died Sept. 28, 1197, leaving a young son, the emperor Frederick II. Henry VII was crowned emperor in 1312 and died Aug. 24, 1313. His son was John, the blind king of Bohemia.

HENRY. Name of four kings of France, of whom Henry IV was the most notable.

Henry I, a son of Robert I, was king from 1031 to 1060. Henry II, a son of Francis I, married Catherine de Medici, and was the father of three sons who became kings of France—Francis II, Charles IX and Henry III. A daughter married Henry of Navarre. He was wounded in a tournament and died July 10, 1559.

Henry III was king of Poland for a few weeks before he succeeded his brother Charles IX as king of France in 1574. After a reign passed in civil war he was murdered Aug. 1, 1589.

HENRY IV (1553-1610). King of France. Born at Pau, Dec. 14, 1553, he was a son of Antony of Bourbon and his wife Jeanne d'Albret, queen of Navarre. He was brought up as a Protestant, and spent part of his youth at the French court, where he was educated. In 1572 he married Margaret, sister of Charles IX; six days later the massacre of St. Bartholomew occurred. In the same year Henry became king of Navarre.

The absence of children to the French king and his brothers made Henry an important person in France, and for the next thirteen years he was concerned in its various intrigues. The Guises and their party were determined to prevent his accession, but events compelled Henry III to recognize the king of Navarre, who became titular king of France on Aug. 1, 1589. Henry had now to conquer his kingdom, which he did by a wise mixture of diplomacy and force. On May 14, 1610, he was assassinated by Ravallac. His lawful issue included Louis XIII, Gaston, duke of Orleans, and Henrietta Maria (q.v.), the queen of Charles I.

HENRY (1862-1929). German prince. The younger son of the emperor Frederick, he was born at Potsdam, Aug. 14, 1862. Educated partly at Cassel, he was trained for the navy, which he entered, after a voyage round the world, in 1880. In 1901 he was made admiral, and later became inspector-general of marine. When the Great War broke out he was commander-in-chief of the navy. He died April 20, 1929.

HENRY, GEORGE. Scottish painter. Born at Ayrshire, he studied at the Glasgow School of Art. In 1890 a picture of The Druids, executed in collaboration with E. A. Hornel, called attention to both painters, and in the same year Henry's Galloway Landscape, at the Glasgow Institute, marked a new departure. Rich colouring and tone distinguish The Blue Gown, now in the Cape Town Gallery. The Mirror, Gold-fish, and The Blue Veil are representative of his nameless portraits. He was elected R.S.A. in 1902, and R.A. in 1920.

HENRY, JOSEPH (1799-1878). American physicist. Born at Albany, New York, Dec. 17, 1799, he became professor of mathematics and natural philosophy at Albany Academy in 1826. There he at once showed a remarkable ability in electrical research and experiment, improving the electro-magnet to such an extent that his experiments marked a definite epoch in the practical applications of the electric current. In 1831-32 Henry carried out a series of important experiments in the transmission of electric current which was the forerunner of the telegraph. His discovery in 1842 that the discharge of a Leyden jar induced discharges in other circuits some distance away was a fundamental discovery of wireless telegraphy. In 1846 Henry was appointed secretary to the Smithsonian Institution. He died May 13, 1878.



Henry IV,
King of France
After Pourbus, Louvre

HENRY, MATTHEW (1662-1714). Non-conformist minister and commentator. The son of Philip Henry, he was born at Broad Oak, Flintshire, Oct. 18, 1662, and studied for the law. In 1687, having been ordained, he became a Presbyterian minister at Chester, where he was extraordinarily successful and influential. He remained there until 1712, when he became minister of a church in Hackney. He died at Nantwich, June 22, 1714. Henry wrote much, but is especially noted for his Exposition of the Old and New Testament, frequently republished, which was completed by several nonconformist divines.

HENRY, O. (1862-1910). Pen-name of William Sydney Porter, American writer. Born at Greensboro, N. Carolina, Sept. 11, 1862, he became editor of a humorous weekly called The Rolling Stone, in Austin, Texas; afterwards he joined the staff of The Post in Houston. In 1898 he began to write short stories for the magazines, of which twelve volumes have been collected. Among the best of his stories are The Trimmed Lamp, The Last of the Troubadours, The Passing of Black Eagle, The Furnished Room, The Defeat of the City, The Cop and the Anthem, The Last Leaf, The Lost Blend, Vanity and Some Sables, Lost on Dress Parade, Roses, Ruses and Romance, and Little Speck in Garnered Fruit. Henry died in New York, June 5, 1910.



O. Henry,
American author

HENRY, PATRICK (1736-99). American orator. Born at Studley, Virginia, May 29, 1736, he was of Scottish-Welsh descent. Unsuccessful as a farmer and tradesman, he took up law, and rapidly built up an extensive practice. As a member of the Virginia House of Burgesses, he attacked the Stamp Act of 1765. He died June 6, 1799.

HENRY (1394-1460). Portuguese prince, called the Navigator. Son of King John I, he was born at Oporto, March 4, 1394. His mother was a daughter of John of Gaunt. He began to send out sailors on voyages of discovery, with intervals continuing his work for nearly 50 years. He himself went on one or two voyages, but was mainly occupied with organizing and financing the expeditions. He made his home at Sagres, where he erected an observatory and set on foot something like a college of navigation. He died Nov. 13, 1460.

HENSON, HERBERT HENSLEY (b. 1862). British prelate. Born Nov. 8, 1862, he was educated at Oxford. Having been ordained he became head of Oxford House, Bethnal Green, where he worked until made vicar of Barking, and incumbent of St. Mary's Hospital, Ilford. From 1900-12 he was canon residentiary of Westminster and rector of St. Margaret's. Appointed dean of Durham in 1912, he took an active interest in the university there. In 1917 he was



Herbert H. Henson,
British prelate
Russell

consecrated bishop of Hereford, and in 1920 was translated to Durham. Henson was the leading exponent of broad church ideas, including a liberal theology and a close cooperation with Nonconformists. Later he came forward as an advocate of disestablishment.

HENTY, GEORGE ALFRED (1832-1902). British writer. Born Dec. 8, 1832, he served in the army purveyor's department in the Crimean War. In 1866 he became correspondent for The Standard, and saw much fighting.

These experiences he turned to good account in his long series of books for boys. Among the best are *The Young Franc-Tireurs*, *With Clive in India*, and *By Pike and Dyke*. Henty died Nov. 16, 1902.

HEPHAESTUS. In Greek mythology, god of fire and the working of metals. He was the son of Zeus and Hera, but was so disliked by his mother that she threw him out of Olympus. He is represented as having been lame from birth or lamed by a fall. In art he is depicted as a stoutly-built man with a beard, holding a smith's hammer and tongs. Hephæstus was identified by the Romans with Vulcan. See Aeschylus; Vulcan.

HEPPLEWHITE, GEORGE (d. 1786). English furniture maker. After serving his apprenticeship with Robert Gillow at Lancaster, he started a business in London which his widow carried on after his death as A. Hepplewhite & Co. Hepplewhite's name is identified with the style in furniture which followed the Chippendale period, and was a cautious revolt against the solidity of the latter. Its characteristic was the curvilinear. In the tracery of cabinets and bookcases straight rather than curving lines were used, cabinets being placed on tall legs. The chairs had shield, oval, circular, hoop, and interlaced heart, fretwork backs. See illus. p. 384.

HEPTARCHY. Word denoting the seven kingdoms into which Anglo-Saxon England was supposed to have been divided before 800. The seven were Kent, Essex, Sussex, Wessex, Mercia, East Anglia, and Northumbria.

HERA. In Greek mythology, sister and wife of Zeus and daughter of Cronos and Rhea. One of the major deities of ancient Greece, by Zeus she became the mother of Arts, Hephæstus, and Hēbē. She is represented as being of a jealous disposition. Hera had frequent quarrels with her husband and on one occasion plotted with Athena and Poseidon to put him in chains. For this she was beaten by Zeus and herself put in chains. Her annoyance with Paris (q.v.) for his judgement against her led her to side with the Greeks in the Trojan War. In art Hera is represented as a woman of stately beauty. The Romans identified her with Juno (q.v.).



Hera, Greek goddess
From a bust in the
British Museum

HERACLIAN (d. A.D. 413). Roman general and usurper. For the murder of Stilicho (408), he was made count of Africa by the emperor Honorius, whom he assisted in putting down the usurper Attalus. Having been raised to the consulship he proclaimed himself emperor and landed in Italy, but after a severe defeat returned to Carthage, where he was put to death by the emperor's orders.

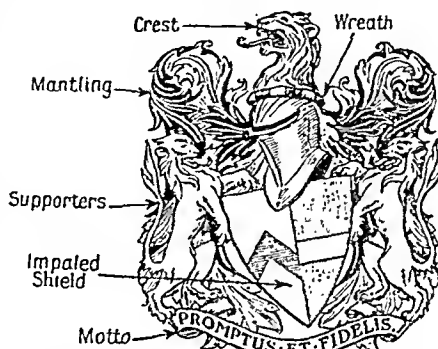
HERACLIUS (575-641). East Roman emperor, 610-641. The son of the governor of Africa, he seized the throne when the empire was threatened by Persians in the E. and by Avars and Slavs in the W. After defeating the Avars, Heraclius took the field against the Persians, and gained a decisive victory (627) over Chosroes II. This success was counterbalanced by losses in the W. After this Heraclius was chiefly occupied with religious disputes. While thus engaged, new foes arose, the Arabs, who made themselves masters of Syria and Egypt. Overwhelmed by anxieties Heraclius left the empire at his death, which took place in 641, in a deplorable condition.

HERALD (old Fr. *herault*). Name given to certain officials in ancient and modern times. In the Homeric age of ancient Greece, this

herald or *kéryx* acted as confidential servant to the kings and princes. In historical times his functions were religious, political, and judicial. His person was sacred; he had free meals in the Prytaneum, a seat of honour in the theatre, and received a salary. In Rome, the herald was a public or private crier.

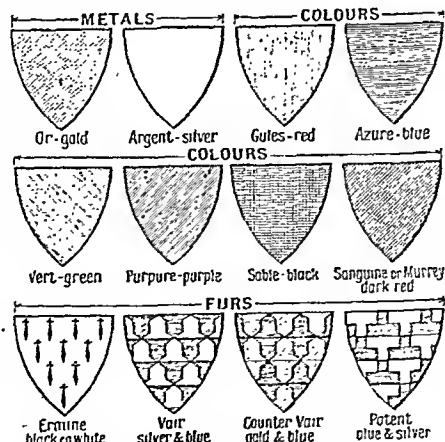
In early mediæval times the heralds acted as messengers of sovereign princes. Soon they were appointed to look after armoury, register pedigrees, and see that knights observed conduct becoming their dignity. In England they were made into a college of arms. See College of Arms.

HERALDRY. In systematic form heraldry cannot be traced back further than the 12th century. Artistically at its height in the Middle Ages, heraldry began to decline under the Tudors, reaching its lowest point in the 19th century. Coats of arms are displayed on shields, roundels, ovals, lozenges (now reserved for spinsters and widows, and unaccompanied by crests), banners etc.



Heraldry. Armorial achievement (imaginary), showing method of impaling a man's arms (chevron) with those of his wife (bar or fess)

An achievement of arms usually consists of shield and crest, often with a motto, and sometimes supporters flanking the shield. Anciently a device surmounting a knight's headpiece, the crest should strictly be placed on a helmet over the shield. Its modern separate use on livery buttons, etc., usurps a function of the badge. Though shields exist without a crest, possession of the latter may be taken as arguing the existence of a cor-



Heraldry. System of indicating metals, and principal colours and furs. Others include tenné (tawny), ermines (reverse of ermine), erminois (like ermine, but with gold field), pean (reverse of erminois), counter-potent, and potent-counter-potent

responding shield. Besides being granted by, or on behalf of, the sovereign, armorial bearings were anciently assumed by local authority, or at will, and were even devised in like manner

to other property. These three last-named methods are not now officially recognized. Mottoes, however, are at the present time treated with far greater latitude.

Heraldic tinctures are metals (e.g. gold) and colours (e.g. gules). Furs include ermine, etc. Chevron, chief, etc., are ordinaries; other charges including lion, fleur-de-lis, hennant, etc. Marks of cadency and difference are employed. Arms may be impaled, the shield being divided vertically to include the arms of a man's wife, or, perhaps, his office, quartered (subdivided, indicating descent from other families) or may display the arms of the wife, if an heiress on an inescutcheon in the centre of the shield. There can be any number of quarterings, though their use is now strictly defined. Dimidiation was virtually the impalement of a half of each of two coats or hedges. Continental heraldry differs considerably from British. See Allusive Arms; Arms; Bar; Bend; Cadency; Chevron; Chief; Ermine; Fess; Garter; Hatchment; Lion; etc.; consult also *The Romance of Heraldry*, C. W. Scott-Giles, 1929.

HERAT. City of Afghanistan, sometimes called the key of India, from its strategic position. It is situated on the Hari Rud, at an altitude of 3,000 ft. about 400 m. almost due W. of Kabul. Founded by Alexander the Great, it is an important centre of roads. It stands in a very fertile district, and manufactures carpets and silks. Pop. 20,000.

HERB. Plant whose stem, from the absence of woody tissue, dies to the ground annually. Herbs, however, may be annual, biennial, or perennial in duration. Annuals spring from the seed, flower, fruit, and die all within one season. Biennials during their first season accumulate a store of food in an underground rootstock which is expended the second season in the production of an aerial stem, flowers and fruit; then they die. Perennials produce annual stems in succession during an indefinite number of years, such stems dying in autumn after their valuable contents have been withdrawn into an underground rootstock, tuber, bulb, or corm. The word is also used, in the plural, by gardeners to indicate those plants, whether herbs or shrubs botanically, which are employed for flavouring in cookery.

A herbalist is one who deals in herbs, especially those useful for medicinal purposes. A herbal is a book in which plants and names are described. A herbarium is a collection of dried plants attached to loose sheets of paper, arranged in general, and these again grouped in natural orders. See Botany.

HERBERT, JOHANN FRIEDRICH (1776-1841). German philosopher and educationist. Born May 4, 1776, while acting as a tutor in Switzerland he made the acquaintance of Pestalozzi, whose system aroused in him an interest in education. In 1805 he became professor of philosophy at Göttingen, and in 1808 succeeded Kant at Königsberg. In 1833, having incurred the displeasure of the Prussian authorities by his advanced ideas, he returned to Göttingen, where he died Aug. 14, 1841.

Herb Bannet. Variant name of the common avens. See Avens.

Herb Christopher. Variant name of the baneberry (*Actaea spicata*). See Bancherry.

HERBERT. Name of a noted English family, now represented by the earls of Pembroke, Powis and Carnarvon, and various other nobles. The family sprang from a landholder in Monmouthshire who lived in the time of Edward III. A descendant became.



Heraldry. Inescutcheon. Method of indicating marriage with an heiress

about 1430, the owner of Raglan Castle, and his sons took the name of Herbert. Sir William Herbert became lord of Pembroke, and in 1468 was made earl of Pembroke. He was killed in 1469, and his earldom died out in 1491. The first earl had an illegitimate son, Richard, who was made marquess of Powis. His son William was made earl of Pembroke in 1551, a title since held by his descendants. See Pembroke; Powis.

HERBERT, ALAN PATRICK (b. 1890). British humorist. Born Sept. 24, 1890, he was educated at Winchester and New College, Oxford, became a barrister, and began to write for Punch. In 1924 he joined that journal's regular staff, and over the initials A. P. H. was one of its most regular contributors. His books include *The Old Flame*; *She Shanties*; *Plain Jane*; *Misleading Cases*; and *The Trials of Topsy*. During the Great War Herbert served with the Royal Naval Division in Gallipoli and France.

HERBERT, GEORGE (1593-1633). English poet and divine. Born April 3, 1593, he was fellow of Trinity College, Cambridge, 1616, and public orator, 1619-27. Disappointed of court preferment, he turned to the study of divinity. He was proband of Leighton Bromswold, Hunts, 1626, and was rector of Fugglestone with Bemerton, near Salisbury, Wilts, 1630-33. He died of consumption, March 3, 1633. Herbert's chief work, *The Temple, Sacred Poems and Private Ejaculations*, was first printed in 1633 and ranks with the best religious verse in the language.

HERBERT OF CHERBURY, EDWARD HERBERT, 1ST BARON (1583-1648). English philosopher, historian, and diplomatist. Born March 3, 1583, he fought with distinction under the prince of Orange in the Netherlands, 1614, and was twice ambassador to Paris. He was rewarded with an Irish peerage and then an English peerage as Baron Herbert of Cherbury. At first a supporter of the royalist party, he subsequently went over to the parliamentarians. He died Aug. 20, 1648. Herbert of Cherbury is usually called the founder of English deism, a system of natural religion. His chief work is *De Veritate* (*On Truth*); 1624. His autobiography was published in 1764.

Herb Mercury. Variant name of the perennial herb dog's mercury (*Mercurialis perennis*). See Dog's Mercury.

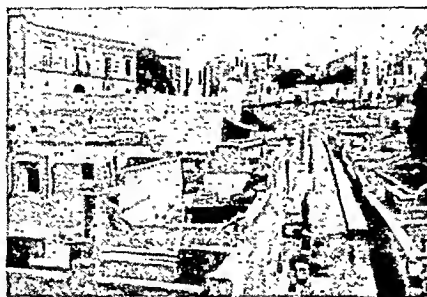
HERB PARIS (*Paris quadrifolia*). Perennial herb of the order Liliaceae, a native of Europe and N. and W. Asia. It has a stout creeping rootstock, a round stem, bearing near its summit a single whorl of four large oval leaves, and above them the solitary flower, consisting of four large green sepals and four very narrow yellow petals. The eight or more stamens are continued as long points beyond the anthers. The ovary is purple, very large and shining, and develops into a black four-celled berry. The flower has an offensive odour which attracts flies.

HERB ROBERT (*Geranium robertianum*). Soft, hairy annual herb of the order Geraniaceae, a native of Europe, N. Africa, and W. Asia. Its leaves are divided into five leaflets, which are again finely lobed and divided, smelling disagreeably when bruised. The flowers are pale purple, streaked with red, produced all through the season. The whole plant often turns red.



Herb Robert, leaves and flowers

HERCULANEUM (Gr. Herakleion). Ancient Italian coast town, between Naples and Pompeii, at the foot of Mt. Vesuvius. In Nero's time it was greatly damaged by an earthquake, and in the autumn of 79 was totally destroyed, together with Pompeii, by an eruption of Vesuvius. The villages of



Herculaneum. General view of the excavations looking along one of the streets of the buried Roman city

Portici and Resina were built over the site. The architectural remains are inferior, but the works of art superior, to those of Pompeii. Of the latter, the pictures of Theseus and the Minotaur, the statues of Nero and Germanicus, of members of the Balbus family, and a sleeping Faun, deserve mention. See Pompeii; Vesuvius.

HERCULES (Gr. Heraklēs). Hero in Greek classical mythology. He was the son of Zeus by Alcmene, wife of Amphitryon,



Hercules, Antike colossal statue, the Farnese Hercules. Naples Museum

king of Thebes. The celebrated Twelve Labours of Hercules are: (1) The slaying of the Nemean lion; (2) The destruction of the Hydra of Lerna; (3) The capture of the Arcadian stag; (4) The capture of the Erymanthian boar; (5) The cleansing of the stables of Augeas; (6) The destruction of the Stymphalian birds; (7) The capture of the mad bull of Minos; (8) The capture of the man-eating horses of Diomedes; (9) The taking of the girdle of Hippolyte; (10) The seizure of the oxen of Geryon;

(11) The taking of the three golden apples from the garden of the Hesperides; (12) The bringing of Cerberus from the lower world. Besides these labours Hercules performed many other deeds.

Hercules is the name of a N. constellation between Lyra and Boötes.

Pillars of Hercules is the ancient name for the rocks forming the entrance to the Mediterranean Sea, namely, Calpe (Gibraltar) in Europe, and Abyla (Ceuta) in Africa. Legends describe them as torn asunder by Hercules to admit the Atlantic or as joined together to keep out ocean monsters.

HERCULES BEETLE. Large species of beetle. Belonging to the genus *Dynastes*, it is found in the tropical districts of America. It is often between five and six inches long; and the male has a pair of large horns which somewhat suggest the pincers of a crab.



Hercules Beetle. The male carrying his mate between his horns

HERDER, JOHANN GOTTFRIED VON (1744-1803). German critic and poet. Born Aug. 25, 1744, after early struggles he managed to enter Königsberg University. He became a school teacher and pastor at Riga in 1764, and first preacher at Weimar, 1776. In 1789 Herder was made vice-president of the consistory at Weimar. He died Dec. 18, 1803.

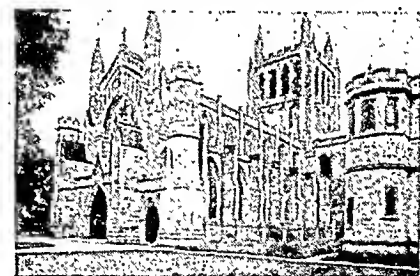
Herder's Ideen zur Philosophie der Geschichte des Menschheit is notable for its anticipation of the evolutionary theory.

HEREDITY. Vital or organic relation between successive generations which secures the general persistence of characteristic resemblances between offspring and parents, and yet allows new ones to emerge. The natural inheritance of an animal includes all that the creature is, or has, to start with, when in the germ cell stage, in virtue of its relation of organic continuity with the germinal material of its parents and ancestry.

The material basis is the germ cell, the special bearers of the factors, or determiners, of hereditary qualities being the rodlets or granules called chromosomes, which are definite in number for each living species.

When the fertilised egg-cell is dividing and re-dividing to form a mass of embryonic cells, out of which tissues and organs are soon formed, some of the original germinal material is kept apart to form the germ cells of the offspring. Thus there is continuity of the germ plasma, and it is on this continuity that the persistence of hereditary characters depends. The main fact of heredity is the persistence of a particular kind of organization and activity from generation to generation. It is useful to distinguish between the persistence of the general fundamental characters, from which there is never much divergence, and the persistence of more superficial and recent features, which is less secure.

In 1865 Mendel stated an important law of heredity, which remained almost unnoticed till 1900. It may be stated thus: Inheritance consists in part of "unit characters" which



Hereford. The 12th cent. cathedral from the south-west. The west front was reconstructed 1800-05

are inherited as a whole or not at all. When two parents differ in respect of two contrasted unit characters these do not blend, but one of them—hence called the dominant—appears more or less in its entirety in the offspring, while its analogue—the recessive—drops more or less out of sight for the time being. In the history of the germ cells

there is a separation of the determiners or factors of the contrasted "unit characters," so that each germ cell is pure as regards the character, either having it or not having it. This is called segregation. See Biology; Cell; Evolution; Mendelism; Variation.

HEREFORD. City and borough of Herefordshire, of which it is the county town. It stands on the Wye, mainly on the left bank, 144 m. from London on the G.W. and L.M.S. Rlys. Notable features of the cathedral are the nave, the lady chapel, the crypt, and the

library with its chained books. Other buildings are the bishop's palace, the beautiful college of the vicars choral, and Coningsby hospital. The cathedral school was founded in 1384. There are a few remains of the castle and of the town walls. Every third year a musical festival of the choirs of Gloucester, Worcester, and Hereford cathedrals is held here. Pop. 23,324.

Hereford is the name of a bardy breed of cattle raised in Herefordshire and neighbouring counties. The body is red, the abdomen white. Pure Herefords are fine beef producers.

EARL OF HEREFORD. English title long borne by the family of Bohun. Miles of Gloucester was made earl of Hereford in 1141, his lands passing later to a daughter, Margaret, wife of Humphrey Bohun. Their grandson, Henry, was made earl of Hereford in 1199, and his descendants held the title until 1373. In 1397 Henry, afterwards Henry IV, was made duke of Hereford.

Viscount Hereford is an English title borne by the family of Devereux since 1550.

HEREFORDSHIRE. County of England. With an area of 842 sq. m., it is fairly level in the centre, but on its borders are the Malvern Hills on the E. and the Black Mountains in the S. The chief river is the Wye, with its tributaries, the Lugg, Arrow, Dore, and Frome. The Temese is a tributary of the Severn. The county town is Hereford; other towns are Leominster, Ledbury, and Ross.

Herefordshire is chiefly noted for cider and cattle. Its sheep, too, have a high reputation. The chief railway in the county is the G.W., but it is also served by the L.M.S. It is in the diocese of Hereford and the Oxford eirenit. Of its many castles, the chief are Richard's Castle, Clifford, Weobley, Hereford, Wilton, Goodrich, and Wigmore. Pop. 113,189.

The Herefordshire regiment now forms part of the Shropshire Light Infantry (q.v.).

HEREROLAND. Country forming part of S.W. Africa, also called Damaland or Damaland. It lies between Great Namaqualand on the S. and Ovamboland on the N. The coastal region is waterless desert; behind is a mountainous district, and beyond this there is good pastoral and agricultural country. The chief towns are Windhoek, Karibib, Rehoboth, Gobabis, Omaruru, and the port of Swakopmund. The only harbour is Walvis Bay.

The Hereros are a nomad pastoral people. In 1884 their country was annexed by Germany. Since the British occupation in 1915 they have been gathered into reservations. See Africa.

HERWARD.

English hero, called the Wake. He held land in Lincolnshire, just before the time of William the Conqueror, and soon after the conquest became associated with those who disliked the Norman rule. He

took part in an attack on Peterborough, and was the leader of those who resisted the king in the Isle of Ely. The story says he escaped when William made his way into the isle, in 1071.

A romance by Charles Kingsley entitled *Hereward the Wake, Last of the English*, sets forth the outlawry, travels, and adventures of the hero Hereward.

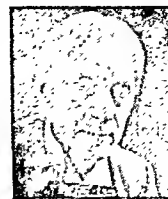
HERIOT. The arms of a vassal which on his death were returned to his lord. Later the term denoted something paid in kind or in money in lieu of this, and was applied, where the manorial system prevailed, to a beast or some other portion of the property of a tenant, taken by the lord on the tenant's death.

HERIOT, GEORGE (1563-1624) Founder of Heriot's Hospital, Edinburgh, Scotland. He was goldsmith to Queen Anne, wife of James VI, and jeweller to the king. After James's accession to the throne of England he settled in London in 1603. He left the residue of his property to found the hospital which bears his name. Extensively renovated in 1828, this is now a college with a day school attached, managed by the Heriot Trust, which contributes to the endowment of the Heriot Watt College, named after James Watt, and has founded a number of bursaries for schools in the city.

HERITOR. Term used in Scots law for the owner in fee of heritable property in a parish, i.e. for owners of immovable property. It includes corporations, but excludes titulars of lands or titles, superiors, mine owners and lessees. Replacing the old word parishioners, heritors are responsible for the upkeep of parish churches, etc.

HERKOMER, SIR HUBERT VON (1849-1914). British painter. Born at Waal, Bavaria,

the Dudley Gallery, London, and a contributor of sketches to *The Graphic*. In 1874 his great success, *The Last Muster*, appeared at the Academy. He was elected A.R.A. in 1879, and R.A. in 1890. In 1883 he founded his famous school of art at Bushey, and from 1885-94 was Slade professor at Oxford. Knighted in 1907, he died March 31, 1914.



Sir Hubert Herkomer, British painter
Mills

on its beach. See Channel Islands.

HERMAE. Small pillars surmounted by a head generally of Hermes. They were set up in large numbers in public places in the towns of Greece. It was the alleged mutilation by Alcibiades (q.v.) of the Hermae of Athens on the eve of the expedition to Sicily in 415 B.C. that led to his disgrace.

HERMAPHRODITE. Biological term for an organism in which the two sexes are combined. Some low species of animals and many plants are normally hermaphrodite. The term is applied in medical science to those cases in which glands corresponding to the male testicles and female ovaries are found in one person; also to the more common cases in which the sex of the individual is doubtful. See Sex.

In Greek mythology Hermaproditus was the son of Hermes and Aphrodite. The nymph of a fountain by Halicarnassus fell in love with the youth, and the two combined to form a being with the characteristics of both sexes.

HERMAS. Early Christian writer. Supposed to have been a brother of Pope Pius I, he appears to have flourished in the first half of the 2nd century, when he wrote an allegorical work, called *The Shepherd*, giving a valuable picture of the state of Christianity at Rome during the period.

HERMES. In Greek mythology, son of Zeus. He became an adept in robbery, stealing the trident of Poseidon, the girdle of Aphrodite, and the sword of Ares. He found favour with Zeus, who took him to be his messenger and ambassador. He became the god of eloquence and good fortune, and the patron of merchants, travellers, and also of thieves. In art Hermes is represented as a handsome youth. He wears the petasos or broad-brimmed hat, bears the caduceus or staff, and has winged sandals.

Hermes was the name of a British cruiser employed as a seaplane carrier. On Oct. 31, 1914, she was sunk by a German submarine in the Strait of Dover as she was returning from Dunkirk to England. Another Hermes is an aircraft carrier built 1918-20.

HERMITAGE. Retreat, cell, or habitation of a hermit or recluse. In modern usage the name is often applied to buildings that have nothing in common with the original meaning, e.g. to a palace of Catherine II in Leningrad, used later as a museum and picture gallery. There was a Hermitage, in the old sense of the term, at Warkworth, Northumber-



Herefordshire. Map of the English border county, famous for its agriculture and orchards, showing the course of the river Wye



Hermes, with the infant Bacchus, from the statue by Praxiteles

Museum, Olympia, Greece

land, and one on S. Herbert's Island, Derwentwater. Hermitage Castle is a ruined Border stronghold in Roxburghshire.

The name Hermitage is given to a French wine grown near Valence, in the Drôme. Red Hermitage resembles Beaune in colour and strength: the white wine is similar to Chablis

HERMIT CRAB. Popular name for a group of small crabs which take up their abode in the empty shells of whelks and other gastropods or in living sponges. The hinder half of the body is not protected by a hard carapace. The abdomen is provided with a pair of grasping appendages by which the crab clings tightly to the shell, from which it is not easily extracted. There are also land crabs with like habits. See Crab.

HERMON. Mt. of Syria. It forms the S. extremity of the Anti-Lebanon range and is now known as the Jebel esh Sheikh. It is 9,380 ft. high, and on its slopes are the ruins of a great temple of Baal. The range called Little Mt. Hermon is 24 m. S.E. of Acre.

HERNE BAY. Urban district and watering place of Kent. It is 12 m. from Margate and 7 m. from Canterbury with a station on the Southern Rly. Attractions include a long esplanade, a pier with a large pavilion, a concert hall, and a winter garden. To the E. is Reculver (q.v.), and inland is the village of Herne, with an old church. Pop. 14,000.

HERNE HILL. District of London, S.E. It lies between Brixton on the W. and Dulwich on the E. and has a station on the Southern Rly. It is in the boroughs of Camberwell and Lambeth. At No. 28, Herne Hill Ruskin lived in 1823-43, and at No. 30 in 1843. Brockwell Park adjoins the district.

HERNIA or **RUPTURE.** Latin name given to the protrusion of an organ or part of an organ through an opening in the cavity which normally contains it. The term, however, is commonly applied to the protrusion of organs in the abdominal cavity through weakened spots in the abdominal wall. Such a hernia consists of a sac formed by the peritoneum, and of the contents of the sac, most frequently a part of the intestine.

HERO OF ALEXANDRIA. Famous Alexandrian mathematician. The exact dates of his life are unknown, but his reputation has survived for several memorable discoveries in mathematics and science. Hero was responsible for a number of mechanical inventions, the chief of which is an automatic fountain working by air pressure. He is also credited with the description of a small stationary steam-engine.

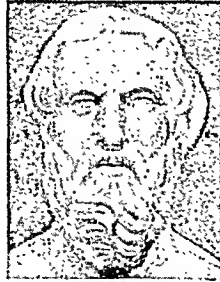
In Greek legend Hero is the name of a priestess of Aphrodite at Sestos, on the Hellespont opposite Abydos. See Leander.

HEROD (74-4 B.C.). King of Judaea, called the Great. The son of Antipater, he was appointed ruler of Galilee at the age of 25. When Palestine was invaded by the Parthians Herod escaped to Rome, where Antony and Octavian made him king of Judaea. He returned to Palestine in 39 B.C. and captured Jerusalem in 37. After the battle of Actium (31) Herod was confirmed in his position by Octavian, and thenceforward he governed Palestine on behalf of Rome.

Herod Antipas, son of Herod the Great, by Malthace, a Samaritan, was made tetrarch of Galilee and Peræa by his father's will. Divorcing his first wife, he married Herodias, wife of his half-brother, by whom he had a daughter, Salomé. Antipas was denounced by John the Baptist, whom Antipas first imprisoned and then, at the instigation of Herodias and Salomé, put to death. Jesus was examined before Herod. Antipas went to Rome c. 38-40, and, being accused of treason, was banished and died in exile.

Herod Agrippa I (d. A.D. 44), grandson of Herod the Great, was made king by Caligula. His son Herod Agrippa II (d. A.D. 100) was the last of the Herodians, as the family of Herods is called. Paul appeared before him in A.D. 60. See Agrippa; Palestine.

HERODOTUS (c. 484-424 B.C.). Greek historian, commonly called the Father of History. Born at Halicarnassus in Asia Minor, the first half of his life was spent in travel. He lived some time at Samos, where he learned the Ionic dialect in which he wrote his history. About 446 B.C. he came to Athens. By the time he reached middle life he had travelled in Persia, Egypt, Italy, and Sicily, and had visited even the N. shores of the Black Sea.



Herodotus, Greek historian
Dust in Naples Museum

The theme of his history, which consists of nine books, is the great struggle between the Persians and the Greeks. The work is virtually a sketch of the history of the world, as then known, with geographical, archaeological, and other digressions, but its veracity has been impeached.

HEROIN or **DIAMORPHINE HYDROCHLORIDE.** Alkaloid obtained by acting on morphine with acetic acid. It is used in medicine to allay cough in phthisis and asthma.

HERON (Ardea). Name given to the birds of the various genera of the family Ardeidae, which includes the herons proper and the bitterns. They are closely related to the storks and ibises, and include some 70 species, widely distributed, but specially numerous in tropical marshes and swamps. They are all carnivorous, feeding mainly on fish, frogs, and insects. All have long legs for wading purposes, long necks, and a long, straight, pointed beak.



Heron. Specimen of the European
Ardea cinerea

The European or common heron (A. cinerea) was formerly preserved for hawking. It still breeds in many parts of Gt. Britain, usually in parks. See Boatbill; Egret.

HERRENHAUSEN. Palace just outside the town of Hanover, formerly the residence of the electors and kings of that country. Built just before 1700 by Ernest Augustus, the father of George I, it remained a royal palace until 1866. Around it are gardens laid out in the French style. See Hanover.

HERRICK, ROBERT (1591-1674). English poet. The son of a London goldsmith, after graduating at Cambridge, he returned to London, joined the Jonson circle, and in 1629 became vicar of Dean Prior, near Ashburton, Devonshire. Ejected by the Puritans in 1647,

he returned in 1662, being buried at Dean Prior, Oct. 15, 1674. Described by Swinburne as the greatest song-writer ever born of English race, Herrick lapsed at times into coarseness and monotony, but at their best his Hesperides and Noble Numbers are exceedingly beautiful.

HERRING (Clupea harengus). Fish belonging to the same genus as the sprat and pilchard, found near the land in the northern parts of the Atlantic. There are about 60 species. The common herring is found in schools which swim near the surface of the sea, and are constantly moving from place to place following their food—tiny crustaceans. The summer eggs are deposited at some distance from the shore, but the winter ones are usually shed in brackish water about the mouths of rivers. The young fish take two to three years to become adult.

The herring is an important food fish, owing to its nutritious qualities and its great abundance. It is specially numerous in the North Sea and along the E. coast of Scotland. It is taken in drift nets. Yarmouth is a noted centre of the herring curing industry.



Herring. Specimen of the common
herring found in the Atlantic and
northern seas

HERRINGS, BATTLE OF THE. Fought Feb. 12, 1429, between the English and the French, the latter aided by the Scots. A small force carrying provisions to the English army besieging Orleans was attacked by the French and Scots at Rouvray. The English formed a hollow square, the provision wagons (containing quantities of salt fish for use during Lent) being placed in the centre, and the enemy were beaten off.

HERRIOT, EDOUARD (b. 1872). French statesman. Born July 3, 1872, he was elected mayor of Lyons in 1905. He entered parliament as a senator. At the general election of 1919 he resigned his seat to become a deputy for the Rhône Department. He became leader of the Radical-Socialist party, the victory of which in May, 1924, led to his forming a government. This was defeated in the senate on April 10, 1925, and Herriot resigned. He was again premier for a few days in 1926. From 1926 until Oct., 1928, Herriot was minister of public instruction in the Poincaré cabinet. See Franco.

HERSCHEL, SIR WILLIAM (1738-1822). Astronomer. Born at Hanover, Nov. 15, 1738. He came to England in 1757, teaching music.

In his spare time he studied astronomy, and in 1774 he made his first telescope. Although he did a great deal of work for the improvement of the telescope, his reputation will rest upon his discovery of the planet Uranus in 1781. A physicist and astronomer of the first rank, Herschel was a bly assisted in his researches by his sister, Lucretia Caroline (1750-1848), who discovered five new comets and a number of nebulæ and star clusters. He died Aug. 25, 1822.

Sir William Herschel's only son, John Frederick William (1792-1871), began a systematic study of the heavens in 1822, the whole of the northern hemisphere coming under his survey. In 1834 he established an observatory at the Cape of Good Hope,



Robert Herrick,
English poet

From the frontispiece
of his "Hesperides"



Sir William Herschel,
English astronomer
After J. Russell, R.A.

in order to survey the southern hemisphere. In 1838 he was created a baronet. He died May 11, 1871.

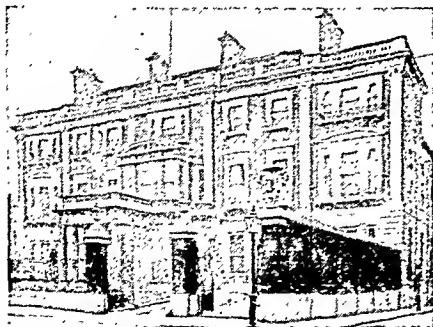
His son, William James (1833-1917), entered the Indian civil service in 1853, and was appointed to the Hooghli district. He there established a system of finger-print identification, which was introduced for civil purposes in Bengal. He succeeded his father as baronet, 1871, retired in 1878, and died Oct. 24, 1917. See Finger Print.

HERSCHELL, FARRER HERSCHELL, 1st BARON (1837-99). British lawyer and politician. Born Nov. 2, 1837, he was called to the bar in 1860, and in 1872 was made a Q.C. In 1874 he was elected M.P. for Durham, and in 1880 became solicitor-general. He was lord chancellor in 1885-86 and again 1892-95. He died March 1, 1899. Richard, the 2nd baron (1878-1929), was in the diplomatic service.

HERTFORD. Borough, market and eo town of Hertfordshire. It stands on the Lea, 24 m. N. of London, on the L.N.E. Rly. It contains a shire hall, corn exchange, public library, and art school. Here are the Blue Coat girls' school, and a grammar school founded by Richard Hale in 1617. The castle, built by Edward the Elder in 905, and several times reconstructed, is used as municipal offices; the grounds are open to the public. It has a large agricultural trade, and flour milling, brewing, and printing industries. Market day, Sat. Pop. 10,702.

HERTFORD, MARQUESS OF. British title borne since 1793, and also earlier, by the family of Seymour. In 1537 Edward Seymour, afterwards the protector Somerset, was made earl of Hertford. His grandson, William Seymour, was made marquess of Hertford and duke of Somerset, and the two titles remained united until 1675, when the marquessate became extinct. Francis Seymour (1718-94), a descendant of Somerset, was made earl of Hertford, and in 1793 earl of Yarmouth and marquess of Hertford. He was succeeded in 1794 by his son, Francis Ingram Seymour, (1743-1822), as 2nd marquess.

Francis Charles Seymour Conway, 3rd Marquess (1777-1842), only son of the 2nd marquess, was an M.P. before succeeding to the title in 1822. His son, Richard Seymour Conway (1800-70), who became the 4th marquess, was a collector of pictures and works of art, which now form part of the Wallace Collection (q.v.). The 5th marquess was a cousin of the 4th, and from him the title passed to its present holder.



Hertford House, Manchester Square, London, in which the Wallace Collection is housed

HERTFORD HOUSE. Name of two London mansions, both associated with the Seymour family. The house at 105, Piccadilly, became the home of the Isthmian Club, which vacated it in 1920, the mansion being afterwards put up for sale. That in Manchester Square, W., was begun in 1776 by the 4th duke of Manchester. In 1788 it became the Spanish embassy; later it passed to the 2nd

marquess of Hertford. The 4th marquess bequeathed the house and his art treasures to Sir Richard Wallace, whose widow in 1897 bequeathed them, with additions, to the nation. Hertford House was bought by Parliament and opened as a public art gallery in 1900. See Wallace Collection.

HERTFORDSHIRE OR **HERTS**. County of England. It has an area of 632 sq. m. and is bounded N. by Cambridgeshire, S. by Middlesex, E. by Essex, N.W. by Bedfordshire, and S.W. by Buckinghamshire. The more important rivers are the Colne and Lea. Nearly parallel with the Lea is the artificial New River which brings water to London. The Grand Union Canal passes through the county.

Agriculture, market gardening, and the cultivation of fruit for the London market are leading pursuits. The county is served by the L.M.S., L.N.E., and Met. Rlys., and also by the Bakerloo Tube (to Watford). The chief towns include Hertford (eo town), St. Albans, Watford, Hitchin, Hatfield, and Ware. Pop. 333,195.

LITERARY - ASSOCIATIONS. Bacon lived at Gorhambury, took his title of viscount from St. Albans, and was buried in the church of S. Michael. With St. Albans are associated the names of Matthew Paris, Sir John Mandeville, Dr. Cotton, and the background of Dickens's novel, *Bleak House*. With Charles Lamb are associated Mackery End and Widdford. Hoddesdon has memories of Prior and Izaak Walton.

The Hertfordshire regiment, once a distinct unit, is now included in the Bedfordshire Regiment (q.v.).

HERTZ, HEINRICH RUDOLF (1857-94). German physicist. Born Feb. 22, 1857, his name will always be associated with the discovery of Hertzian waves of wireless telegraphy. In 1880 he became assistant to Helmholtz at the Berlin Institute. On his appointment to the professorship of physics in 1885 at Karlsruhe Polytechnic, he began the study of electro-magnetic waves. Hertz showed the refraction, diffraction, and polarisation of the electric waves and their correspondence with those of light and heat. Till his death, Jan. 1, 1894, Hertz continued to publish regularly papers on his remarkable discoveries. See Wireless Telegraphy.

HERTZOG, JAMES BARRY MUNNIK (b. 1866). South African statesman. He was one of the Boer generals in the war, 1899-1902, afterwards becoming an ardent champion of the nationalists. A member of the Union Cabinet, 1910-12, his animosity against Botha and Smuts and his anti-British views caused his retirement. In the Great War he and ex-president Steyn refused to denounce the rebellion of Beyers and De Wet in 1914. Elected leader of the Nationalist party in

1915, he advocated Dutch supremacy. In June, 1924, as the result of the general election, he became prime minister, being again returned to power after the general election of 1929, with a majority of only eight over all parties.

HERVE, GUSTAVE (b. 1871). French journalist. Born at Brest, Jan. 2, 1871, he became a teacher, but lost his position owing to his attacks on militarism. In 1905 he founded



Hertfordshire. Map of the county to the north of Middlesex famous for its agriculture and market gardening

La Guerre Sociale, in which he expressed advanced opinions, including a general strike and a refusal of military service. The result was a period of imprisonment, and other prosecutions followed. In 1914 Hervé supported the war and renamed his paper *La Victoire*. He wrote for *Le Petit Parisien*, and his books include *La Grande Guerre*, in 10 vols.

HERVIEU, PAUL ERNEST (1857-1915). French dramatist and novelist. Born Nov. 2, 1857, he was called to the bar, and later entered the diplomatic service, but in 1881 he resigned and thenceforward devoted himself to journalism and literature. His first novel, *Diogène-Chien*, 1882, was followed by a collection of journalistic narratives. Having established himself as a novelist, he won fresh fame as a dramatist, among his plays being *L'Enigme*, 1901, produced in English as *Caesar's Wife*; *Le Dédale* perhaps his best, 1903; and *Connais Toi*, 1909. His collected plays were published in 3 vols., 1900-4. Elected to the French Academy in 1900, he died Oct. 25, 1915.

HERZEGOVINA OR **HERCEGOVINA**. District of S.E. Europe. It lies on the N.W. of the Balkan Peninsula, and is surrounded by Bosnia, Serbia, Montenegro, and Dalmatia. It consists of mountains with high forested valleys and cultivated plateaux in between. It is watered by the Narenta, on which is its chief town, Mostar. It produces barley, tobacco, timber, excellent wine and much fruit. Its area is 3,562 sq. m.; pop. 265,330.

After its conquest by the Turks it was a Turkish province. As a result of the Berlin congress, July, 1878, it was handed over, with Bosnia, to Austria, who annexed both and formed them into the provincial governments of Bosnia-Herzegovina in 1908. In 1918-19, after the fall of the Austrian Empire, Herzegovina became a portion of the new kingdom of the Serbs, Croats, and Slovenes. See Austria; Yugoslavia.



J. B. M. Hertzog, S. African statesman

HESHBON. Ancient city of Palestine At the N.E. corner of the Dead Sea, the capital of Sihon, king of the Amorites, it was captured by the Israelites on their way to Canaan (Numb 21, 25)

HESIOD (fl. c. 700 B.C.). Greek didactic poet. He lived at Ascra, at the foot of Mt. Helicon in Boeotia. A farmer by profession, one of his poems, *Works and Days*, is a didactic poem, part of which is largely a manual of agriculture, to which Virgil is much indebted.

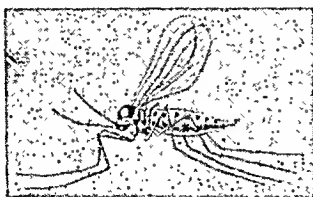
Hesiod's other surviving poem, *Theogony*, is an account of the creation of the world, and a history of the gods and demi-gods.

HESPERIDES. In Greek mythology, nymphs who guarded the golden apples of Hera (q.v.). Their gardens were variously fixed in the Far West by different legends. The quest of three of these golden apples was one of the twelve labours of Hercules (q.v.). The name was chosen by Robert Herrick (q.v.) as title for a series of poems

HESS, WILLY (b. 1859). German musical conductor. Born at Mannheim, July 14, 1859, he slowly built up a reputation. In 1903-4 he taught at the Royal Academy of Music, London, and from 1904-10 was concert master of the Boston symphony orchestra. In 1910 he was made head of the state high school in Berlin and leader of the Halin Quartette there

HESSE. State of the German republic, until 1918 a grand duchy. In the west of the country, its area is 2,968 sq. m. It is divided into three provinces, Upper Hesse, Rhenish Hesse, and Starkenburg. Part of Prussia separates Upper Hesse from the others, and the republic has small, isolated pieces of territory elsewhere, one being Wimpfen. The Rhine and the Wetter flow through the state. Darmstadt is the capital, and before 1866, when there were several states of Hesse, the grand duchy was known as Hesse-Darmstadt. Other towns are Mainz, Offenbach, Worms, and Giessen. Agriculture is the main occupation, and coal and iron are mined. The constitution provides for a landtag of 70 members and a small cabinet. Pop. 1,358,445

HESSIAN FLY (*Cecidomyia destructor*). Dipterous insect of the gall midge group. One of the most destructive farm pests in the world, it resembles a minute gnat, not quite $\frac{1}{8}$ in. in length, and deposits its eggs on the leaves of wheat and other cereals. These hatch in a few days, feed on the plant for about three weeks and then pupate and turn into the imago. The adult stage lasts only a few hours, during which time mating takes place and the eggs are deposited.



Hessian Fly. A destructive midge, greatly enlarged

HESSELE. Urban district and market town of Yorkshire (E.R.). It stands on the Humber, $\frac{1}{2}$ m. S.W. of Hull, of which it is practically a suburb. It has a station on the L.N.E. Rly. Market day, Thurs. Pop. 8,000.

HEST BANK. Watering place of Lancashire. It stands on Morecambe Bay, $\frac{3}{4}$ m. from Lancaster, and has a station on the L.M.S. Rly. The name of the parish is Slynne with Hest. From here coaches formerly crossed the sands of Morecambe Bay to Kent's Bank, 9 m. away. Pop. 540.

HESTON. Village of Middlesex. It is 12 m. W.S.W. of London on the Metropolitan Dist. Rly. With Isleworth it forms the urban dist. of Heston and Isleworth. In 1928 an aerodrome was opened and this is the alternative airport for London. Pop. urban dist., 46,664.

HETEPHERES. Egyptian queen, mother of Cheops, the Pharaoh of the 4th dynasty who built, it is thought, the great pyramid at Gizeh.

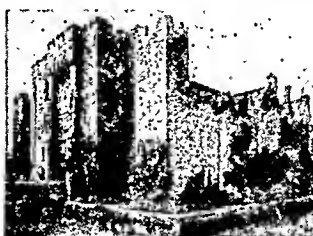
In 1927 her tomb was opened, and the articles found included her alabaster coffin, alabaster vessels, gold cups and implements of gold copper and flint

HETERODYNE RECEPTION OR BEAT RECEPTION A method of receiving continuous wave wireless signals invented in 1906 by Fessenden. Incoming waves are imposed upon waves of a slightly different frequency produced by a local oscillator, the resulting series of low-frequency oscillations being rectified in the usual manner. See Beat.

HETMAN (Ger. *Hauptmann*, head man or captain). Polish military title. In the old kingdom of Poland the head of the army bore the title of great hetman, but after the defeat and disbanding of the army in 1792 the rank ceased to exist. See Cossack.

Hetton. Urban dist. and colliery centre of Durham. It is 7 m. S.S.W. of Sunderland on the L.N.E.R. Pop. 17,279.

HEVER CASTLE. Residence of the Hon. J. J. Astor (q.v.), near Edenbridge, Kent. In Edward III's time a castle was built here by Sir William de Hevre, and in the 15th century a new one was erected by Sir Geoffrey Boleyn. Here his descendant Anne Boleyn lived. The castle fell into decay and was later restored. It was purchased about 1890 and restored by the 1st Viscount Astor and was later the residence of his son, Hon. J. J. Astor.



Hever Castle, Kent, built in the 15th cent. and restored by Viscount Astor

HEWART, GORDON HEWART, 1ST BARON (b. 1870): British lawyer. Born Jan. 7, 1870, after a journalistic career he turned to the law and was called to the bar in 1902, becoming K.C. in 1912. Elected Liberal M.P. for Leicester, 1913, in 1916 he joined the Coalition government as solicitor-general, and in Jan., 1919, was promoted attorney-general. In 1922 he became lord chief justice and was made a peer. His book *The New Despotism*, an attack on bureaucratic tendencies, appeared in 1929.



Baron Hewart, British lawyer

HEXATEUCH (Gr. hex, six; teuchos, volume). Term invented by modern scholars in order to include in the same group as the Pentateuch a sixth book, the Book of Joshua, which is linked closely by its contents and style to the preceding five books and is based upon the same documentary sources See Bible; Pentateuch.

HEXHAM. Market town and urban district of Northumberland. It stands on the S. bank of the Tyne, 20 m. from Newcastle, on the L.N.E.Rly. The chief building is the priory church, known as the abbey, a magnificent Early English building. Other interesting buildings are the old moot hall and the manor office.

Hexham grew up around the church founded in the 7th century, and at one time had its own bishop. After the Norman Conquest the town and district, called Hexhamshire, was a liberty ruled by the bishop and later by the archbishop of York. It was not united with Northumberland until 1572. Market day, Tues. Pop. 8,849.

The battle of Hexham was fought May 15, 1464, between the Lancastrians, led by Henry Beaufort, duke of Somerset, and the Yorkists under Lord Montagu, the latter being victors.

HEYSHAM. Seaport and watering place of Lancashire. On the S. side of Morecambe Bay, 5 m. from Lancaster, on the L.M.S. Rly., it has a good harbour and is a terminus of steamer services to Belfast and Douglas, Isle of Man. In 1928 Heysham was incorporated in the borough of Morecambe.

HEYTHROP. Village of Oxfordshire, 3 m. N.E. of Chipping Norton. It gives its name to a pack of foxhounds. Heythrop House was long the residence of Albert Brassey (1844-1918), master of the pack for over forty years. Near are the Rollright Stones, forming an ancient stone circle. Pop. 247

HEYWOOD. Borough and market town of Lancashire. It is 9 m. N. by E. of Manchester on the L.M.S. Rly. It has cotton and woollen factories, and manufactures of machinery and chemicals. Queen's Park was presented by Queen Victoria. Market day, Fri. Pop. 26,693.

HEYWOOD, THOMAS (d. c. 1650) English actor and dramatist. In 1598 he became an actor in Henslowe's company and, after the accession of James I, a member of the queen's company of players. About 1596 he wrote his first play, *The Four Prentices of London*, and in 1633, in a prefatory address to *The Traveller*, he claimed to have had

"either an entire hand, or at the least a main finger" in 220 plays. Of these pieces only 35 are known to exist. He attempted every kind of drama, and also wrote pageants, poems, translations, and various prose works. Of his plays, *Edward IV*, 1600, and *A Woman Killed With Kindness*, 1603, are perhaps the best examples. His *Life of Queen Elizabeth* appeared, 1631.

HEZEKIAH. King of Judah (2 Kings 16, 18-20; 2 Chron. 29-30). He succeeded his father, Ahaz, at the age of 25, and was a notable reformer, who abolished the centres of idolatrous worship and destroyed the brazen serpent of Moses, which at this time seems to have been regarded as a kind of idol. He also cleansed the Temple and restored the worship of Jehovah. Hezekiah was a man of considerable literary and poetic gifts, and is regarded by the Jews as one of their most famous monarchs.

HIAWATHA. One of the many names of a traditional personage of miraculous birth. He is believed by various tribes of the N. American Indians to have been sent to teach them the arts of peace.

The Song of Hiawatha is an epic poem by H. W. Longfellow, 1855. Taking as model for his verse form the unrhymed Finnish epic of *The Kalevala*, the poet gave the story of Hiawatha from his wondrous birth to his final passing "To the land of the Hereafter" Coleridge-Taylor (q.v.) made a cantata of it.

HIBERNATION (Lat. *hibernare*, to pass the winter). Dormant or torpid condition in which many animals and plants pass through the winter. In the case of animals it may be complete or intermittent. It is not so much caused by cold as by the lack of food which cold produces. Mammals and reptiles, after laying up a store of fat in their tissues, retire into winter quarters and fall asleep. During this period the body temperature falls, the pulse is reduced, respiration is feeble, and other functions are suspended entirely. Among insects hibernation is almost general where the food is vegetation, and it may be passed in any stage of the life cycle—either as egg, larva, pupa, or perfect insect. The phenomenon is quite common among plants, many of the bulbs and underground rhizomes

representing the hibernating condition, while others illustrate the opposite condition—æstivation—when the plant is seeking to avoid the dangers of drought.

HIBERNIA OR **IVERNIA**. Name given to Ireland by Latin writers. See Ireland

HICCUGH. Convulsive action caused by spasmodic contraction and descent of the diaphragm. It is most frequently due to overdistention of the stomach with food or wind, and is sometimes a symptom in more serious diseases. Pron. hiccup.

HICHENS, ROBERT SMYTHE (b. 1864). British novelist. Born at Speldhurst, Nov. 14, 1864, and educated at Clifton, he attracted attention by his story *The Green Carnation*, 1894. He developed his vein of social satire in *The Londoners*, 1897, but the finest and most popular of his books is *The Garden of Allah*, 1905, which has been dramatised. His other novels include *The Call of the Blood*, *Bella Donna*, and *Doctor Artz*. He has also written *The Real Woman* and other plays.



Robert Hichens,
British novelist

In the Wilderness, and Doctor Artz. He has also written *The Real Woman* and other plays.

HICKORY (Carya). Genus of trees of the order Juglandaceae, natives of N. America. The leaves are large, divided into oblong leaflets arranged feather-fashion, like those of the nearly related walnut trees. The flowers, which are without petals, are male or female: the males in hanging catkins, the females in a short spike at the end of the new shoots. The husk of the large fruit splits into four segments, revealing the thin-shelled nut. The timber of the hickory is hard and tough.



Hickory. Leaves and nuts
of the N. American tree

HICKS, EDWARD SEYMOUR (b. 1871). British actor. Born Jan. 30, 1871, he first appeared on the stage at the Grand Theatre, Islington. He toured with the Kendalls in England and America. From 1893-98 he was principal light comedian at The Gaiety. He built the Aldwych Theatre, which he opened Dec., 1905, and in Dec., 1906, opened The Hicks (later The Globe) Theatre. In 1902 he married Ellaline Terriss (b. 1872). He published his reminiscences in 1910. Other works are *If I were Your Father*, in 1919, *Difficulties*, in 1922, *Chestnuts Re-roasted*, 1924, and *Hullo, Australians!*, 1925.


HIDALGO (Span. hijo de algo, son of something). Spanish title. It was formerly used of a member of the lower nobility, but now seldom denotes more than gentle birth. The Portuguese form is fidalgo.

HIERO (Gr. Hieron). Name borne by a tyrant and a king of Syracuse. Hiero I was Tyrant of Syracuse, 478-467 B.C. His great exploit was a decisive naval victory over the Etruscans near Cumæ in 474. He was a generous patron of art and literature, among the notable men who resided at his court under his patronage being Aeschylus, Pindar, Bacchylides, and Simonides. Hiero II, king of Syracuse, 270-216 B.C., first distinguished himself in the wars against Pyrrhus (q.v.), and eventually received the kingship.

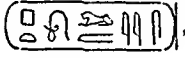
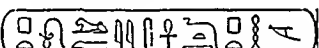


Hiero II
From a coin

HIEROGLYPHS. Name used for the picture characters which the Egyptians used in writing. In ancient texts they are called "the words of the god." Hence Egyptian picture writing was described by classical writers as "Hieroglyphic," i.e., "sacred writing." Three forms are distinguished: 1. hieroglyphic; 2. hieratic; 3. demotic. In the first the characters are all pictures, generally easily recognizable; in the second only the most salient features of the pictures are preserved; in the third the characters are so modified that in many instances they are mere conventional representations of the hieroglyphs. The knowledge of hieroglyphic writing was lost early in the Roman Period, and all attempts to decipher it were unsuccessful until the beginning of the nineteenth century, when Thomas Young (1773-1829) deduced the correct values of several of the characters. Thanks to Zoega (1755-1809), it was known that a king's name was always written within an oblong cartouche

with rounded ends , but it was uncertain at which end the name began. There were two monuments that cleared up this difficulty, viz., the Rosetta Stone in the British Museum, and a stone obelisk from Philæ, which now stands in the park at Kingston Lacy, Dorset. Each of these contains a Greek as well as an Egyptian version of the inscription, and as it was customary for kings to publish their edicts in two or more languages, it was held to be certain that the subject matter of the Egyptian and Greek texts on the Rosetta Stone was the same.

On the Rosetta Stone the royal name Ptolemy occurs in these forms:

1. 
2. 

The Greek text shows that the inscription is an edict of the priests of Egypt, assembled in the temple of Ptah in Memphis in March B.C. 196, who decreed that special honours should be paid to Ptolemy V. Epiphanes. There was therefore no doubt that the two cartouches contained the name of Ptolemy, and the Greek text made it clear that the last eight characters in the second cartouche represented titles of the king. The obelisk from Philæ mentions two royal names thus:

1. 
2. 

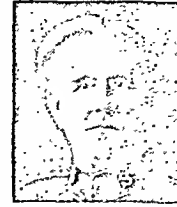
i.e., Ptolemy and Cleopatra.

With the exception of one character, the last, the second cartouche containing Ptolemy's name on the Rosetta Stone is identical with that containing Ptolemy's name on the obelisk. Young then assumed that the names began at the left end of the cartouche, and he called the first sign $\square P$; as this letter occurs in the name of Cleopatra on the obelisk, and it comes in the middle of the name, he was certain of the value of \square . The second sign \bigcirc he guessed was T, and also that \bigcirc , which occurs in the cartouche of Cleopatra as well as in Ptolemy, had the value of U or O. The letter L, which also occurs in both cartouches, was represented by Δ , and the following letter \equiv must be M.

The last letter \parallel must be S, because the Greek form of the name ends in S. The two preceding characters $\eta\eta$, he believed represented some vowel, or combinations of vowels. By examining the variant forms of the names of Ptolemy and Cleopatra in hieroglyphs he

deduced the values of many other signs. The decipherment of the Egyptian hieroglyphs was carried to a triumphant conclusion by J. F. Champollion (1790-1832), on whose work the whole of the modern work on Egyptian is based. See Egypt; Rosetta.

HIGGINS, EDWARD JOHN. General of the Salvation Army. Born at Highbridge, he was educated at Bridge-water. In 1882 he became an officer in the Salvation Army, and soon came to the front in that organization. From 1896 to 1905 he was chief secretary in the United States, and from 1911-19 was at headquarters in London. In 1919 he was made chief of staff, his rank being that of commissioner, and in 1929 he was chosen to succeed William Bramwell Booth (q.v.) as general.



Edward J. Higgins
General of the
Salvation Army

HIGHAM FERRERS. Borough of Northamptonshire. It stands on the Nene, 5 mi. from Wellingborough and 63 from London, on the L.M.S. Rly. The making of boots and shoes is the chief industry. S. Mary's is a fine old building. The buildings erected by Archbishop Chichele include the school house and the Bede House. Pop. 2,965

HIGHAMS PARK. Part of Epping Forest, Essex. In 1891 it was bought and added to the forest, and in 1928 a further $7\frac{1}{2}$ acres were added to the original 30. See Epping.

HIGHBURY. District of N. London. It is in the Metropolitan borough of Islington, with a station on the L.M.S. Near the station are Highbury Fields. Here stood the manor house, destroyed in Wat Tyler's rising, 1381. In Aubert Park is the London College of Divinity. Near is the ground of The Arsenal F.C., to the E. of which is Highbury Vale

HIGH COMMISSIONER. Title given to certain representatives of their countries in positions of importance. Canada, Australia, South Africa, Newfoundland, New Zealand, India, and S. Rhodesia are represented in London by high commissioners. Lord Milner was high commissioner in S. Africa, 1897-1905.

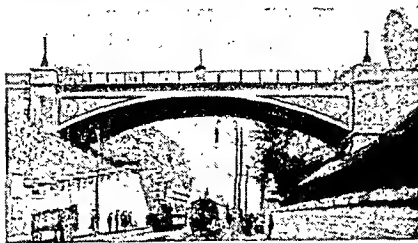
It is also the name given to the king's representative at the general assembly of the Church of Scotland held every year in Edinburgh.

HIGH COURT OF JUSTICE. English court of law, a branch of the supreme court of judicature, as established in 1873. It has three divisions: chancery, king's bench, and probate, divorce and admiralty. Each division of the court has its quota of judges, all appointed by the crown on the advice of the lord chancellor, all knighted on appointment, and entitled to a salary of £5,000 a year and a pension on retirement. The lord chancellor is the president of the chancery division; the lord chief justice of the king's bench division, while the probate, divorce and admiralty division has a president. The sittings of the high court, except those of the judges of the king's bench division when on circuit, are held at the royal courts of justice, Strand, W.C. See Chancery; Judge; King's Bench.

HIGHGATE. Suburb of London. The S. part is in the metropolitan borough of St. Paneras and Islington; the N. part, on a summit, 426 ft., E. of its sister height of Hampstead (q.v.), is in the county of Middlesex. There are stations on the L.N.E. and Hampstead (Tube) Rlys.

At the foot of Highgate Hill is Whittington's Stone, and at the foot of the Archway Road are the almshouses, known as Whittington College, removed from the city in 1822. The spire of the Gothic parish church of S. Michael is a conspicuous landmark. Cromwell House,

said to have been built by the Protector for General Ireton, is now a convalescent home for children. The grammar school is now a



Highgate Archway, connecting Highgate with Crouch End. Built in 1900, it replaced an older bridge

public school and possesses an acrodrome. The chapel covering the old burial ground of Highgate Chapel has a crypt containing the grave of S. T. Coleridge.

HIGHLAND LIGHT INFANTRY. Regiment of the British army. Formerly the 71st and 74th Foot, it was first raised in 1777 by Lord Macleod. For bravery at Assaye in 1803 it was presented with a third colour. Further honours were won in the Peninsular War and at Waterloo. Later campaigns were in South Africa, 1851-53, the Crimean War, the Indian Mutiny, the Egyptian War, 1882, and the South African War, 1899-1902.



Highland Light Infantry badge

In the Great War the two regular battalions were early in France. Battalions fought in the first battle of Ypres, 1914; at Loos, 1915, and on the Somme, 1916. In September, 1918, a party of the 15th battalion made a notable stand at Moeuvres. In 1915 other battalions were in Gallipoli. The depot is at Hamilton.

HIGHLANDS, THE. Name given to that part of Scotland N. and W. of a line drawn from Dumbarton on the W. to Stonehaven on the E. It is customary to exclude the coastal parts of Aberdeenshire, Nairn, Moray, Elgin and Banff, and the Orkneys and Shetlands. It thus denotes generally the mountainous parts of the country and those, apart from Caithness and the Orkneys and Shetlands, where the Celtic race and the Gaelic speech predominate.

The spread of education and improved transport facilities have greatly modified the distinctive life of the old Highlanders, but the Celtic customs and folklore are not forgotten, and the Highland gatherings, such as those of Braemar or Blair Atholl, foster the old pipe-music, dances, and sports. The Highland dress was proscribed by Act of Parliament in 1747, but the Act was repealed in 1786. See Bagpipe; Celt; Dirk.

Highland cattle are a breed found mainly in Argyllshire and the Western Islands of Scotland. It is the hardiest of all British breeds, and its beef is of high value. Its long, shaggy coat varies in colour from a creamy yellow to reddish brown and black. See Cattle.

HIGHNESS. Title of honour. In the British royal family, Royal Highness is used for children of the sovereign, and for his or her brothers, sisters, uncles, aunts, grandchildren, if children of sons, and great-grandchildren, if children of the eldest son of a prince of Wales.

HIGH PRIEST. Head or chief priest of the Jewish Church. From Aaron, to whom priestly authority was delegated by Moses, the office descended by primogeniture. There appear to have been about 80 high priests, whose history covers a period of about 1,370 years. Details of their consecration, etc., are given in Exodus, Leviticus, and Numbers. See Aaron; Breastplate; Ephod; Priest.

HIGH SEAS. Name given to the open sea, i.e. those parts of the ocean that are not under any territorial sovereignty, being more than three miles from any shore.

HIGH SHERIFF (A.S. *scire gerefa*, reeve, or officer of the shire). One of the principal subordinate magistrates in England to whom the custody of the county is committed by the crown by warrant under the hand of the clerk of the privy council. In modern times his duties are mainly performed by an under-sheriff, who is usually a solicitor, and the high sheriff is the chief personage of the county who receives the judges on circuit, acts as returning officer at elections, executes civil judgements, and sees to the due carrying out of the death sentence. See Sheriff.

HIGH TOR. Hill near Matlock, Derbyshire. It is on the left bank of the Derwent, between Matlock and Matlock Bath, and is 380 ft. high. On the other side of the pass are the Heights of Abraham. Beneath the hill is the High Tor grotto, famous for its crystallisations. See Matlock.

HIGH WATER. Term used for the normally highest limit of the rise of the tide in the sea or river, and for the time of such rise. High water at any particular place by the sea happens on the average every 12 hrs. 25 mins., so that it becomes 50 mins. later each day. Successive high waters are often not of the same height, and vary considerably at different times of the year according to the lie of the land. High water level in rivers is usually the highest flood level. See River; Tides.

HIGHWAYMAN. Name given to the mounted robbers who infested the public roads in England from the first half of the 17th century until the early 19th. Among knights of the road are Claude Duval (1643-1670); Dick Turpin (1706-1739); John or William Nevison (1639-1684), nicknamed "Swift Nicks" by Charles II; John Cottingham (1611-1656), who held up the army pay wagon on Shotover Hill and decamped with £4,000; Jack Rann (d. 1774), the dandy highwayman; and Louis Jeremiah Abershaw (c. 1773-1795).

HIGHWAY. Main road from one town to another open of right to all passengers. In the United Kingdom every parish is bound of common right to keep in repair the roads that go through it. In 1888 the Local Government Act committed the maintenance of the highways to the county councils, the powers of rural sanitary and highway authorities being afterwards (1894) transferred to the district councils of the rural districts. See Roads.

High Willhays. Mt. of Devon. It is 4 m. S.W. of Okehampton, and is the highest point on Dartmoor, 2,039 ft.

HIGH WYCOMBE or **CHEPPING WYCOMBE.** Borough and market town of Buckinghamshire. Known officially as Chepping Wycombe, it lies at the foot of the Chiltern Hills, 27 m. from Paddington on the G.W. and L.N.E. joint rly. The parish church was founded in the 11th century, has 13-16th century remains, and was restored in 1893. Wycombe Abbey is a girls' school. The little market house dates from 1604, and the guildhall from 1757. High Wycombe is a centre of furniture making, especially chairs. Market day, Fri. Pop. 21,952.

HILARY or **HILARIUS** (c. 300-368). Saint and bishop. Born at Poitiers, France, and converted to Christianity about 350, he was chosen bishop of his native city about 353, and became famous as an opponent of Arianism. He was banished to Phrygia by the Emperor Constantius, 356-360. He died Jan. 13, 368. The name Hilary Sittings, peculiar to the English law courts, is a survival of Hilary

Term, named after the festival of the saint. These sittings begin on Jan. 11 and end on the Wednesday before Easter. In the Inns of Court Hilary is one of the four dining terms, Jan. 11-Feb. 1. Hilary term is the name given at Oxford University to the term which begins on Jan. 14 and lasts until the Saturday preceding Palm Sunday.

HILDA or **HILD** (614-680). English saint and abbess. Daughter of a nephew of King Edwin of Northumbria, she became abbess of Hartlepool, and in 657 founded the Benedictine abbey at Whitby, where, as at Hartlepool, she presided over a community of men and women. Shortly after founding a monastery at Hackness she died at Whitby, Nov. 17, 680.

Hildebrand. Name of Gregory VII (q.v.) before he was chosen pope. It means battle-sword, and appears in the Nibelungen Lied.

HILDESHEIM. City of Germany. It lies 18 m. S.S.E. of Hanover, in the valley of the Innerste. The cathedral, erected in the 11th century and restored in the 18th, contains some good early work and many relics and antiquities. S. Michael's, founded in the 11th century and restored in the 19th, is one of the most beautiful Renaissance churches in Germany. On the ceiling of the nave are paintings illustrating the genealogy of Christ. Interesting secular buildings are the Rathaus (14th century), Kaiserhaus, and Tempelhaus. The restored guildhouse of the butchers is noteworthy, as are the market square of the old town and a fountain. Pop. 58,200.

HILL, ROWLAND HILL, 1ST VISCOUNT (1772-1842). British soldier. Born Aug. 11, 1772, he was a son of Sir John Hill, Bart. He entered the army in 1790, and served in Egypt in 1801 and in the Peninsular War, being one of the five of Wellington's chief officers honoured with a peerage in 1814. He also did notable service at Waterloo. He was commander-in-chief from 1828-42, when he was created Viscount Hill. He died Dec. 10, 1842.

HILL, OCTAVIA (1838-1912). British philanthropist. She received her education at home, and early undertook the management of homes for people in London. Her charitable and social activities were on behalf of university settlements for women, the preservation of public commons and of places of historic interest. She was connected with the Charity Organisation and Kyrle Societies, and was a member of the royal commission on the poor laws, 1905. Among her published works were *Homes of the London Poor*, and *Our Common Land*. She died Aug. 13, 1912.



Octavia Hill, British philanthropist. After Sargent, by courtesy of Charity Organization Society

HILL, SIR ROWLAND (1795-1879). British reformer. He was born at Kidderminster, Dec. 3, 1795. In 1837 he published a pamphlet entitled *Post Office Reform*, in which he advocated a uniform rate of postage at a penny a half ounce prepaid by an adhesive stamp. Despite official opposition a bill to this effect was carried through Parliament in 1839, and on Jan. 10, 1840, penny postage came into force. In 1847 he was made an under-secretary at the post office, and was chief secretary 1854-64. Hill was created a K.C.B. in 1860. He died at Hampstead, Aug. 27, 1879.



Sir Rowland Hill, British reformer. After Winter